

March 31, 2011

British Columbia Utilities Commission  
6<sup>th</sup> Floor, 900 Howe Street  
Vancouver, BC  
V6Z 2N3

Attention: Ms. Erica M. Hamilton, Commission Secretary

Dear Ms. Hamilton:

**Re: FortisBC Energy Inc. ("FEI") and FortisBC Energy (Vancouver Island) Inc. ("FEVI") (collectively the "Companies")  
Energy Efficiency and Conservation Program - 2010 Annual Report  
British Columbia Utilities Commission (the "Commission") Decision dated April 16, 2009 and Order No. G-36-09 Compliance Filing**

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On April 16, 2009, the Commission issued its Decision and Order No. G-36-09 ("Decision") on the Companies' Energy Efficiency and Conservation ("EEC") Application approving funding for FEI and FEVI for 2009 and 2010 programs.

In the Decision, the Companies were directed to file annual EEC report on all of the EEC initiatives and activities, expenditures, and results by the end of the first quarter following year-end.

Further funding for 2010-2011 was approved for each of the Companies in their respective 2010-2011 Revenue Requirements Application ("RRA") Negotiated Settlement Agreements approved by the Commission on November 26, 2009 for FEI by Order No. G-141-09 and FEVI by Order No. G-140-09.

Pursuant to the Decision, the Companies enclose their second annual report, the EEC Annual Report for 2010 (the "Report"). The Companies respectfully request that the Commission review the majority of the Report and raise any associated inquiries in the regulatory process that will be established for the Companies' upcoming Revenue Requirements Application, which will be filed with the Commission by May 2011. The Companies will file the Report as part of its RRA; therefore, the Companies believe that it is most efficient to consolidate the review of the 2010 EEC activity in the same process where the Companies will be seeking further funding for 2012-2013, as there is bound to be overlap in the substance of any inquiries.

The only exception to this approach to reviewing the Report is with respect to the use of EEC funds to provide an incentive to the customer to offset the cost of buying a natural gas vehicle (e.g. truck) versus the standard diesel or gasoline option. The information with regard to EEC funds being used for Natural Gas Vehicles ("NGV") is contained in the section of the Report relating to Innovative Technologies Program Area funding (Section 10.2). The

Companies wish to have this addressed at the earliest possible date for the reasons discussed below.

In the Decision accompanying Order No. G-6-11, dated January 14, 2011, relating to the interim approval of a Compressed Natural Gas service agreement with Waste Management, the Commission raised an issue about the Companies' provision of incentive funding for NGV initiatives. The Companies are of the view that NGVs are a part of the approved incentive funding for the innovative technologies program area, and the use of incentive funding for NGVs meets the requirements established by the Commission to ensure EEC funding is cost-effective. However, it has been necessary for the Companies to hold up new EEC incentive funding for NGV pending clarification of this issue. It is important that the Companies and the Commission reach concurrence on this issue in a timely manner, so that we can move forward on new projects that provide benefits to existing natural gas customers and fleet owners while helping to meet the energy objectives of the provincial government.

The Report (at page 201) provides additional explanation that was not available in the record of the NGV application proceeding as to why the Companies believe they have acted according to past Commission decisions. In this regard:

- We have made specific reference to past decisions, and have explained how the incentive funding was subjected to a transparent review process to ensure its cost-effectiveness.
- We have also obtained input from stakeholders involved in the EEC review process established to oversee the use of EEC funding that were aware of, and endorse, the use of incentive funding for NGVs. When this issue was discussed at the most recent EEC stakeholder group meeting (March 15, 2011), a number of participants at the meeting again verbally expressed support for the Companies' position and a desire for the Companies to proceed with cost-effective funding for NGV. Members of the EEC stakeholder working group and customer groups have since provided letters contained within the Report supporting the Companies' position that EEC funds for NGV have been used appropriately, within the established guidelines (Please see letters of support included in Appendix F).

It is the hope of the Companies that, with the benefit of this additional information, the Commission will be able to quickly provide confirmation of the Companies' compliance with past orders without additional process. Alternatively, if the Commission is unable to provide this confirmation, the Companies respectfully request that the Commission provide its concurrence for the Companies to proceed with EEC incentive funding to customers to offset the incremental cost of buying an NGV over a standard gasoline or diesel vehicle. The Companies respectfully submit that this concurrence to proceed could also be provided without additional process since the benefits of EEC incentive funding for NGV are clear, accord with Commission-approved EEC principles, exceed the Commission-approved tests for evaluating EEC funding, and have the support of stakeholders.

If you have any questions regarding this submission in general please contact the undersigned or Sarah Smith, Manager, Energy Efficiency and Conservation at (604) 592-7528. For NGV related questions, please contact Mark Grist, Manager, Business Development at (604) 592-7874.

Yours very truly,

**FORTISBC ENERGY INC.**  
**FORTISBC ENERGY (VANCOUVER ISLAND) INC.**

***Original signed by:***

Diane Roy

Attachments

cc (email only): EEC Stakeholder Group



**FortisBC Energy Inc. and  
FortisBC Energy (Vancouver Island) Inc.**

**Energy Efficiency and Conservation Programs  
2010 Annual Report**

**March 31, 2011**



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## 1 REPORT OVERVIEW

### 1.1 Background

FortisBC Energy Inc. (“FortisBC” or “FEI”, formally known as “Terasen Gas Inc.” or “TGI”) and FortisBC Energy (Vancouver Island) Inc. (“FEVI”, formally known as “Terasen Gas (Vancouver Island) Inc.” or “TGVI”) (collectively referred to as “the Companies”) have been involved with Energy Efficiency and Conservation (“EEC”) since the 1990s. The Companies’ earlier EEC activities were referred to in previous regulatory filings with the British Columbia Utilities Commission (the “Commission” or the “BCUC”) as Demand Side Management (“DSM”) activity. On May 28, 2008, TGI and TGVI collectively filed their Energy Efficiency and Conservation Programs Application (the “EEC Application”), seeking approval of increased funding of EEC programs for the timeframe of 2008-2010. On April 16, 2009, the Commission released its decision on the EEC Application and Order No. G-36-09<sup>1</sup> (the “EEC Decision”), which approved funding in aggregate of \$41.5 million (\$34.4 million for TGI and \$7.1 million for TGVI). A further \$32.35 million in EEC expenditure for TGI and \$6.1 million for TGVI was approved as part of the Commission Orders G-141-09<sup>2</sup> and G-140-09<sup>3</sup>, dated November 26, 2009, approving Negotiated Settlement Agreements (“NSAs”) in the 2010 – 2011 Revenue Requirement Applications for TGI and TGVI respectively.

Similar to the Companies’ 2009 EEC report, this EEC Annual Report (the “Report”) outlines the Companies’ actual (for 2010) and planned (for 2011) activities and associated expenditures related to these three Orders. As the Report will describe, the Companies are making prudent and appropriate use of the approved funds to promote EEC activities, which help customers save money and at the same time support the province’s energy policy goals.

The following sections outline the purpose of this Report and its content.

### 1.2 EEC Annual Report: Taking Accountability and Taking Stock of Progress

This Report serves two purposes.

First, this Report demonstrates that the Companies are meeting the accountability mechanisms accepted by the Commission in Order No. G-36-09. One such mechanism was the requirement to file EEC Annual Reports, which states as follows:

*“A requirement that Terasen submit annually to the Commission, by the end of the first quarter following year-end, for each year of the funding period, a report on all EEC initiatives and activities, expenditures and results for TGI and TGVI.”<sup>4</sup>*

The first EEC Annual Report was filed with the Commission on March 31, 2010, outlining the 2009 actual activity results and 2010 planned activities. This Report is the second EEC Annual

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<sup>1</sup> Appendix C: DSM Regulation and BCUC Orders

<sup>2</sup> Ibid

<sup>3</sup> Ibid

<sup>4</sup> EEC Decision, page 2

Report since accountability mechanisms were accepted by the Commission as part of Order No. G-36-09.

Second, this Report provides the evaluation and assessment of the Companies' success with activities in each Program Area and on a portfolio level as requested in the EEC Decisions. Specifically, the Commission required the following information be included in the EEC Annual Reports:

*"The Commission panel accepts Terasen's accountability undertakings, and considers that, while the proposal to evaluate the EEC project using the TRC test at the Portfolio level has been accepted, TRC calculations for each program area, initiative and measure should also be included in the accountability reporting as a means of assessing the components of the Project and their ongoing effectiveness.*

*Commission Panel directs that the annual EEC Report include the following:*

- TRC, RIM, UC, and Participant test calculations of DSM at the Program Area initiative and individual measure levels in addition to the total Portfolio level reporting. Reporting of the Residential & Commercial EE program areas should also be made at the New Construction and Retrofit levels.
- Any inter and intra Program Area initiative funding transfers, with supporting rationale, and the impact of such transfers on the transferor and transferee Program areas, initiatives, and measures as the case may be.
- Data for fuel switching programs should be tracked in a manner which allows for reporting types of fuels replaced by natural gas, including estimated GHG impacts.

*The Commission Panel also directs Terasen to include in its annual EEC Report to the Commission a discussion of its internal data gathering, monitoring and reporting control processes. The discussion should include a description of how these processes ensure that funds expended and the statistical results of the programs implemented are completely and accurately recorded and monitored, including any related internal check and audit processes. The report should also discuss how Terasen has measured or estimated the results of the EEC expenditure initiatives."<sup>5</sup>*

The Commission also directed the Companies to redesign and resubmit the Attribution to Regulatory Change with its next EEC Annual Report, "reflecting the provisions of the DSM regulation which come into effect for [the Companies] on June 1, 2009"<sup>6</sup>. In the 2009 EEC Annual Report, the Companies requested Commission approval of attribution of savings from regulation to be on a case-by-case basis. The Companies also sought approval to attribute six years of post-regulation savings to a market transformation initiative for condensing water heaters. The Companies have not received approval from the Commission on attribution matters; therefore, these two requests for approval related to attribution matters have not been implemented. The Companies have not made any requests for approval on any matters related to attribution in this report. Any requests for attribution-related approvals will be incorporated

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<sup>5</sup> Ibid, page 42

<sup>6</sup> Ibid, page 40

into the next request for EEC funding approval, to be submitted with the Companies' next Revenue Requirements Application in the spring of 2011.

This Report provides TRC calculations for each program, Program Area, and Portfolio in Section 2. The remaining California Standard Practice Test results (RIM, Participant Cost Test, and Utility Cost Test) are provided in Appendix B.

### **1.3 Organization of the EEC Annual Report**

The Companies believe this EEC Annual Report not only satisfies the requirements of the EEC Decision, but also provides a detailed overview of the Companies' efforts to implement a comprehensive EEC initiative and identifies the Companies' plans for EEC activities in 2011, with a view to giving stakeholders an opportunity to comment on the Companies' planned activity.

This Report is organized in the following sections:

#### **Section 1: Overview**

- Provides a high-level background, the reason for the report, and this summary of the organization of the report.

#### **Section 2: EEC Activity Overview**

- Provides a summary of actual 2010 expenditures and outcomes, an organizational chart for the EEC team, program area funding transfer information, a forecast for known 2011 expenditures and outcomes, and a discussion of the adequacy requirements in the DSM Regulation

#### **Section 3: Residential Energy Efficiency Programs**

- Provides both summary and detail regarding actual 2010 and forecast known 2011 expenditures and outcomes for the Residential Program Area

#### **Section 4: Commercial Energy Efficiency Programs**

- Provides both summary and detail regarding actual 2010 and forecast known 2011 expenditures and outcomes for the Commercial Program Area

#### **Section 5: High Carbon Fuel Switching Programs**

- Provides both summary and detail regarding actual 2010 and forecast known 2011 expenditures and outcomes for High Carbon Fuel Switching Programs

#### **Section 6: Conservation for Affordable Housing Programs**

- Provides both summary and detail regarding actual 2010 and forecast known 2011 expenditures and outcomes for the Conservation for Affordable Housing Program Area

#### Section 7: Joint Initiatives

- Provides both summary and detail regarding actual 2010 and forecast known 2011 expenditures and outcomes for the Joint Initiatives Program Area

#### Section 8: Conservation Education and Outreach

- Provides both summary and detail regarding actual 2010 and forecast known 2011 expenditures and outcomes for the Conservation Education and Outreach Program Area

#### Section 9: Industrial Sector Programs

- Provides both summary and detail regarding actual 2010 and forecast known 2011 expenditures and outcomes for the Conservation Education and Outreach Program Area

#### Section 10, Parts 1 and 2: Innovative Technologies

- Provides both summary and detail regarding actual 2010 and forecast known 2011 expenditures and outcomes for the Innovative Technologies Program Area, including a discussion of the Companies' provision of EEC funding to customers to help them to offset the incremental costs of natural gas vehicles over conventionally fuelled vehicles

#### Section 11: Enabling Activities

- Provides both summary and detail regarding actual 2010 and forecast known 2011 expenditures and outcomes for the enabling activities that support the work of the EEC portfolio as a whole

#### Section 12: EEC Stakeholder Group Activities

- Provides information regarding EEC Stakeholder Group activities completed in 2010 and 2011

#### Section 13: Conservation Potential Review

- Provides information about the methodology and delivery schedule for the Companies' Conservation Potential Review study

#### Section 14: Data Gathering, Reporting and Internal Control Processes

- Provides an update on the implementation of the Companies' DSM Tracking System, a high level description of the Companies' internal approval process for programs, and a high level summary of the findings of the Companies' Internal Audit Services' annual review of the EEC initiative

#### Section 15: EEC Principles

- Provides a discussion of how the Companies' 2010 and planned 2011 EEC activity meets the Guiding Principles that were initially laid out in the original EEC Application in 2008 for the EEC initiative

## **1.4 Summary**

This report is intended to meet one of the accountability mechanisms originally put forth by the Companies in the EEC Application. It is intended to detail completed 2010 activity, and planned 2011 activity, in a transparent and open manner. The Companies have laid a good foundation in 2010 for future EEC activity, and look forward to implementing and continuing to grow the EEC initiative through 2011 and beyond.

## 2 OVERVIEW OF 2010 PROGRAM ACTIVITIES

In this Section, the Companies will describe their EEC activities, associated expenditures, and the Total Resource Cost (“TRC”) test results on an overall portfolio level in 2010. This section will also provide the TRC results for both the conventional EEC portfolio (defined as all EEC activity outside the Innovative Technology Program Area), and for the Innovative Technology Program Area, which latter program area, in accordance with Commission Orders No. G-140-09 and G-141-09, must have a standalone TRC that is 1.0 or greater.

### 2.1 TRC Results on Portfolio Level

For FEI and FEVI, the TRC level for the entire EEC portfolio, including both conventional EEC activities and innovative technologies, is at 1.1, meeting the Commission’s order as set forth in Commission Order No. G-36-09.

**Table 2-1: 2010 Overall EEC Portfolio Results**

Utility	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Total for Incentive and Non-Incentive Expenditures (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	TRC
FEI	10,548	5,261	15,809	(17,507)	532,929	1.1
FEVI	870	1,022	1,892	22,389	169,030	0.9
<b>Total</b>	<b>11,418</b>	<b>6,283</b>	<b>17,701</b>	<b>4,882</b>	<b>701,959</b>	<b>1.1</b>

The “Annual Energy Savings” number for FEI is negative, meaning from a simple annual perspective, the Companies’ 2010 activity resulted in natural gas load growth. This is primarily due to the impact of Natural Gas Vehicles (“NGVs”), which is discussed in some detail in Section 10. It should be noted that NGVs bring load onto the natural gas system, but they displace higher carbon diesel fuel; displaced volumes of diesel fuel are not shown in the table above.

The table below further shows results for each individual program area. One of the program principles put forth in the EEC Application was that of universality; that is, programs should be available to all the Companies’ customers. Although the TRC results for the residential and affordable housing program areas are below 1.0, these are crucial areas of activity for the Companies. The Companies have about 850,000 residential customers, which form the bulk of the Companies’ approximately 950,000 total number of customers. In creating a culture of conservation in British Columbia, these residential customers are crucial to supporting such a culture. Programs for affordable housing (for low-income customers) are a requirement as outlined in the DSM Regulation for adequacy. These two program areas are discussed in more detail in Sections 6 and 2.7, respectively. Compliance with DSM Regulation requirements for adequacy is discussed below in Section 2.7. Programs for residential customers and customers living in affordable housing are also needed in order to meet the Companies’ principle of

universality. More discussion of the Companies' EEC program principles can be found in Section 15.

**Table 2-2: 2010 Overall EEC Program Area Results**

Utility	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	TRC
<b>Residential Programs</b>	<b>2,803</b>	<b>440</b>	<b>62,037</b>	<b>606,851</b>	<b>0.9</b>
FEI	2,686	329	59,965	586,021	1.0
FEVI	117	111	2,072	20,830	0.6
<b>Commercial Programs</b>	<b>2,401</b>	<b>169</b>	<b>103,856</b>	<b>815,113</b>	<b>1.7</b>
FEI	1,964	120	82,678	658,188	1.7
FEVI	437	49	21,178	156,925	1.7
<b>Joint Initiatives</b>	<b>29</b>	<b>429</b>	<b>748</b>	<b>5,700</b>	<b>0.1</b>
FEI	14	419	748	5,700	0.1
FEVI	15	10	n/a	n/a	n/a
<b>Conservation for Affordable Housing</b>	<b>49</b>	<b>275</b>	<b>3,297</b>	<b>19,479</b>	<b>0.8</b>
FEI	39	256	2,637	15,520	0.7
FEVI	10	19	660	3,959	1.8
<b>Innovative Technology</b>	<b>5,959</b>	<b>5</b>	<b>(161,228)</b>	<b>(706,551)</b>	<b>1.2</b>
FEI	5,816	5	(162,911)	(726,396)	1.3
FEVI	143	0	1,683	19,845	0.3
<b>High Carbon Fuel Switching</b>	<b>178</b>	<b>123</b>	<b>(3,828)</b>	<b>(38,632)</b>	<b>1.4</b>
FEI	29	47	(624)	(6,103)	1.2
FEVI	149	76	(3,204)	(32,529)	1.5
<b>Conservation Education and Outreach</b>		<b>1,616</b>			
FEI		1,415			
FEVI		201			
<b>Portfolio Level Activities</b>		<b>3,226</b>			
FEI		2,670			
FEVI		556			
<b>Total</b>	<b>11,418</b>	<b>6,283</b>	<b>4,882</b>	<b>701,959</b>	<b>1.1</b>

## 2.2 TRC Result for the Conventional Program Area

As Table 2-3 demonstrates below, for the conventional EEC portfolio, which includes all program areas except Innovative Technologies, the TRC score is at 1.0.



**Table 2-3: 2010 Overall Program Portfolio Results – Conventional EEC Portfolio**

Utility	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Total for Incentive and Non-Incentive Expenditures (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	TRC
FEI	4,732	5,256	9,988	145,404	1,259,325	0.9
FEVI	727	1,022	1,749	20,706	149,185	1.1
<b>Total</b>	<b>5,459</b>	<b>6,278</b>	<b>11,737</b>	<b>166,110</b>	<b>1,408,510</b>	<b>1.0</b>

The reasons why the Conventional EEC portfolio for FEI had a TRC level of 0.9 include the complex environment in which the Companies were operating the EEC initiatives in 2010, the relatively low gas prices, and the increase in enabling activities that do not necessarily contribute to energy saving. Each is explained below respectively.

First, both the financial crisis and the changes in provincial government leadership impacted the customers' focus on EEC activities. The financial crisis that started in 2007 continued to affect the economy in British Columbia in 2010. The Companies' commercial customers were constrained by tighter access to credit, and since the customers' focus was on keeping their businesses going during challenging times, it was more difficult to get them to spend more of their already constrained funds on energy efficiency and conservation. For residential customers, concerns about the impact on their employment from the economic challenges the country was facing, together with the end of the federal Home Renovation Tax Credit, had reduced customer activity in this program area. Moreover, uncertainty about the direction of the provincial government resulting from the changes in the Liberal and NDP leaderships also negatively impacted customer focus on EEC by increasing customer uncertainty about the longevity of government programs such as LiveSmart BC.

Second, relatively low gas prices not only made it harder to get customers' attention focused on energy efficiency and conservation, but was also a significant factor in the slightly negative TRC. The TRC is calculated based on avoided cost of gas resulting from undertaking EEC activity, divided by the cost of undertaking that activity. The avoided cost of gas used to calculate the results of the EEC activity presented in the 2009 EEC Annual Report averaged \$13/GJ over the period 2009 to 2040; the 2010 results were based on an average cost of gas of \$10.61/GJ over the period 2010 to 2041. Using an avoided cost of \$13/GJ, the conventional portfolio returns a TRC result of 1.3, while the combined conventional and innovative technology portfolios return a TRC result of 1.2. This illustrates the challenge of using a market-based avoided cost to analyze the value associated with a utility's DSM activity and reflects a very narrow view of the benefits that accrue from that activity. The Companies' next submission for approval of future EEC activity in the 2012-2013 Revenue Requirements Application intends to address this issue, and should result in calculations of the benefits of future portfolios of EEC activity showing positive results.

With the current climate of low natural gas prices, the price of natural gas cannot be considered a driver of energy efficiency upgrades to any great extent, except in those customers with very high gas consumption or where natural gas is a significant input into some business process. Although the current price of gas can make it a challenge to find cost effective energy saving measures to incent, it reinforces the need for energy efficiency programs in order to achieve the government's energy and climate change objectives. With low natural gas prices, some customers are not motivated to save without utility encouragement. Energy Efficiency and Conservation programs then become necessary to drive long term market transformation towards improved efficiency.

Third, the number of activities to which the Companies do not attribute energy savings, but that are important enablers of energy efficiency activity were stepped up considerably in 2010.<sup>7</sup> For these activities, the Companies include the costs of undertaking them with no accompanying energy savings. For instance, expenditures on Conservation Education and Outreach programs more than doubled in 2010, from approximately \$600,000 in 2009 to approximately \$1.6 million in 2010. Other enabling portfolio level costs also grew from about \$1.56 million in 2009 to \$3.2 million in 2010. The Companies will be reaping the benefits of some of these enabling activities, such as the implementation of the DSM Tracking System, for years to come.

Despite these three limiting factors, the Companies are pleased with the results from the year's activities, as these results comply with program principles and meet most of the requirements for adequacy in the DSM Regulation.

### **2.3 TRC Result for Innovative Technologies**

In Orders G-141-09 and G-140-09 regarding the Negotiated Settlement Agreements for the TGI and TGVI 2010-2011 Revenue Requirements respectively, the Commission directed that:

*"...Innovative Technology Programs will be managed by TGI {TGVI} as a separate segment of the overall portfolio to have a weighted average TRC of 1.0 or more."*

In accordance with this direction, the overall TRC result for the Innovative Technology program area, presented in Table 2-4, shows a positive result of 1.2. This is largely due to the inclusion of avoided high cost diesel purchases arising from NGV activity in the Innovative Technologies program area. This program area is discussed in more detail in Section 10.

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<sup>7</sup> These activities are further described in the "Enabling" and "Conservation Education and Outreach" sections of this Report.

**Table 2-4: Innovative Technology Overall Program Portfolio Results**

Utility	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Total for Incentive and Non-Incentive Expenditures (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	TRC
FEI	5,816	5	5,821	(162,911)	(726,396)	1.3
FEVI	143	0	143	1,683	19,845	0.3
<b>Total</b>	<b>5,959</b>	<b>5</b>	<b>5,964</b>	<b>(161,228)</b>	<b>(706,551)</b>	<b>1.2</b>

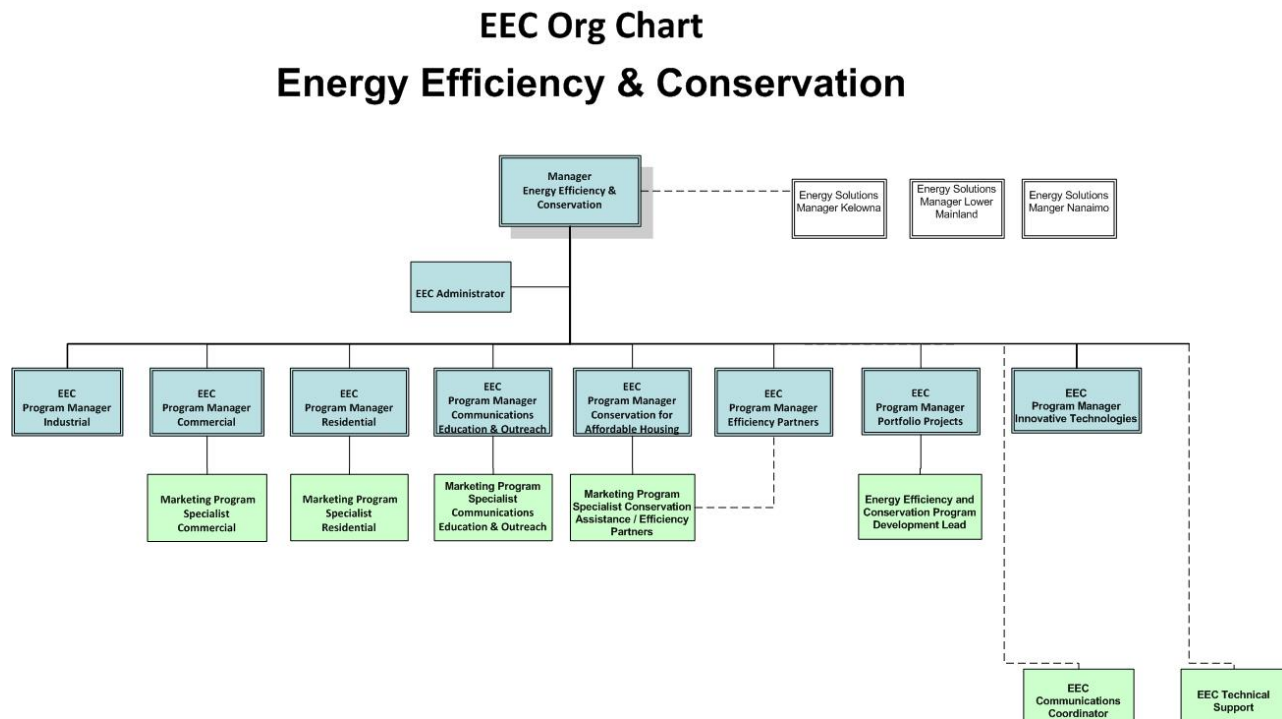
## 2.4 2010 EEC Activity – EEC Team Structure

The Companies' EEC activities in 2010 built upon the groundwork laid in 2009. In 2010, the Companies moved closer to enjoying a full year of EEC activity; however, it should be stated that a lack of human resources to design and deliver all the EEC initiatives identified by the EEC team as viable activities for the Company is hampering our ability to deliver all potential EEC programs. For instance, there are a number of potential program opportunities, especially in the commercial program area, that existing program staff do not have the time to address and develop. The Companies plan to address this shortage of human resources, which will be implemented in the second quarter of 2011.

However, responding to approvals of EEC funding granted in Orders G-141-09 and G-140-09 for innovative technologies and for interruptible industrial customers, the Companies have added dedicated program managers for these specific program areas, and these human assets were in place by the end of Q2 2010. In addition to the innovative technologies and industrial program managers, the Companies also added three EEC energy solutions managers in the Lower Mainland, Interior, and Vancouver Island service areas with the intent of providing more one-on-one support to commercial customers to encourage them to participate in commercial programs. More information about the activities of these energy solutions managers can be found in Section 11.

The Companies' expenditures on labour for EEC activities in 2010 were \$1.6 million. The Companies' current organization chart for the group primarily responsible for EEC activities is presented in Figure 2-1 below:

Figure 2-1: FEI/FEVI 2010 EEC Organizational Chart



## 2.5 2010 EEC Activity – Program Area Funding Transfers

FEI has approval for a total of approximately \$26 million for EEC activities and programs in 2010. This is outlined in the table below.

Table 2-5: FEI 2010 Approved EEC Expenditures vs Actual EEC Expenditures

FEI - Program Areas	2010 Approved Expenditures (\$000's)	2010 Actual Expenditures (\$000's)	Variance (\$000's)
Conventional EEC Activity	\$23,510	\$9,959	-\$13,551
Innovative Technologies Activity	\$2,334	\$5,821	\$3,487

While FEI under spent quite significantly compared to approved levels in the conventional EEC portfolio, there was more invested in innovative technologies than the Companies had put forward in the 2010-2011 Revenue Requirements Application (“RRA”). In 2010, FEI transferred \$3.487 million from the conventional EEC program area to the innovative technologies program area to cover this additional investment. This transfer applies to FEI only. Such transfer is consistent with Commission Order No. G-36-09, which allows:

*“...any inter and intra Program Area Initiative funding transfers, with supporting rationale, and the impact of such transfers on the transferor and transferee Program areas, initiatives and measures as the case may be.”*

There is no impact to the transferor program area from the transfer to innovative technologies as conventional EEC activity was under spent compared to approved levels. However, there is a positive impact to the transferee program area in that the funding transfer allowed an expansion of the innovative technology program area. The detailed rationale for this transfer is described in Section 10.

As indicated in the 2010-2011 RRA, we have a true-up mechanism in place so only actual spend on EEC activities are charged to the EEC deferral account and ultimately get reflected in future delivery rates. The deferral account captures differences between approved budget and actual expenditures. In the upcoming RRA, to be filed with the Commission in May 2011, the Companies will be reviewing the EEC deferral account and may propose changes to the mechanism to address variances that may arise under multiyear RRAs.

## **2.6 2011 Planned Activities**

Tables 2-6, 2-7 and 2-8 below show forecasted results for currently planned 2011 activity. More detail about currently planned 2011 EEC activity and associated expenditures can be found in the section of the report that deals with each individual program area. As it is fairly early in 2011, activity will grow and change over the course of the year as programs are modified to optimize participation and energy savings, and as additional opportunities present themselves to the Companies. The information presented below should be considered preliminary in nature.

**Table 2-6: 2011 Overall EEC Program Portfolio Results**

<b>Utility</b>	<b>Incentive Expenditures (\$000s)</b>	<b>Non-Incentive Expenditure (\$000s)</b>	<b>Total for Incentive and Non-Incentive Expenditures (\$000s)</b>	<b>Annual Energy Savings (GJ/yr)</b>	<b>NPV Energy Savings (GJ)</b>	<b>TRC</b>
FEI	11,697	11,377	23,074	(3,606)	702,719	1.1
FEVI	1,595	2,230	3,825	24,892	199,777	0.8
<b>Total</b>	<b>13,292</b>	<b>13,607</b>	<b>26,899</b>	<b>21,286</b>	<b>902,496</b>	<b>1.1</b>

**Table 2-7: 2011 Overall EEC Program Area Portfolio Results**

Utility	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	TRC
<b>Residential Programs</b>	<b>1,710</b>	<b>825</b>	<b>21,288</b>	<b>187,402</b>	<b>0.8</b>
FEI	1,373	689	17,030	149,446	0.8
FEVI	337	136	4,258	37,956	0.8
<b>Commercial Programs</b>	<b>3,092</b>	<b>172</b>	<b>133,090</b>	<b>1,144,831</b>	<b>1.2</b>
FEI	2,701	138	117,077	1,021,668	1.2
FEVI	391	34	16,013	123,163	1.1
<b>Joint Initiatives</b>	<b>2,677</b>	<b>605</b>	<b>87,916</b>	<b>901,539</b>	<b>0.9</b>
FEI	2,428	514	79,180	814,827	0.9
FEVI	249	91	8,736	86,712	0.9
<b>Conservation for Affordable Housing</b>	<b>1,462</b>	<b>1,109</b>	<b>13,519</b>	<b>105,500</b>	<b>0.7</b>
FEI	1,170	888	10,816	84,514	0.7
FEVI	292	221	2,703	20,986	0.7
<b>Innovative Technology</b>	<b>3,931</b>	<b>124</b>	<b>(225,928)</b>	<b>(1,349,901)</b>	<b>1.8</b>
FEI	3,926	114	(225,989)	(1,350,618)	1.8
FEVI	5	10	61	717	0.2
<b>High Carbon Fuel Switching</b>	<b>420</b>	<b>104</b>	<b>(8,600)</b>	<b>(86,875)</b>	<b>1.6</b>
FEI	100	21	(1,720)	(17,116)	1.7
FEVI	320	83	(6,880)	(69,759)	1.8
<b>Conservation Education and Outreach</b>		<b>3,538</b>			
FEI		2,890			
FEVI		648			
<b>Portfolio Level Activities</b>		<b>7,131</b>			
FEI		6,123			
FEVI		1,008			
<b>Total</b>	<b>13,292</b>	<b>13,607</b>	<b>21,286</b>	<b>902,496</b>	<b>1.1</b>

**Table 2-8: 2011 Overall Program Portfolio Results – Conventional EEC Portfolio**

Utility	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Total for Incentive and Non-Incentive Expenditures (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	TRC
FEI	7,772	11,262	19,034	222,383	2,053,338	0.7
FEVI	1,590	2,220	3,810	24,831	199,060	0.8
<b>Total</b>	<b>9,362</b>	<b>13,482</b>	<b>22,844</b>	<b>247,214</b>	<b>2,252,398</b>	<b>0.7</b>

In the Companies' next request for EEC funding authorization in the next RRA, it is the intent of the Companies to pursue a methodology for cost-benefit analysis that should see the Companies' EEC portfolio TRC ratio increase to over 1.0. The relatively low cost of gas being used by the Companies to calculate the TRC ratio is negatively affecting TRC results.

**Table 2-9: 2011 Innovative Technology Overall Program Portfolio Results**

Utility	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Total for Incentive and Non-Incentive Expenditures (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	TRC
FEI	3,926	114	4,040	(225,989)	(1,350,618)	1.8
FEVI	5	10	15	61	718	0.2
<b>Total</b>	<b>3,931</b>	<b>124</b>	<b>4,055</b>	<b>(225,928)</b>	<b>(1,349,900)</b>	<b>1.8</b>

As with 2010 activity, the 2011 Innovative Technologies portfolio includes funding for NGVs.

## **2.7 Compliance with Adequacy Requirements in the Demand Side Management Regulation**

The DSM regulation (attached as Appendix C) has the following requirements for a utility's portfolio of EEC activity to be considered adequate:

*"A public utility's plan portfolio is adequate for the purposes of Section 44.1 (8) c of the Act only if the plan portfolio includes all the following:*

- a) A demand-side measure intended specifically to assist residents of low-income households to reduce their energy consumption;*
- b) If the plan portfolio is introduced on or after June 1, 2009, a demand-side measure intended specifically to improve the energy efficiency of rental accommodations;*
- c) An education program for students enrolled in schools in the public utility's service area;*
- d) If the plan portfolio is submitted on or after June 1, 2009, an education program for students enrolled in post-secondary institutions in the public utility's service area."*

The Companies believe that by the end of 2011, when the currently approved funding envelope ends, they will have met all the requirements for adequacy. There are a number of programs for low income customers, which are discussed in their own section (see Section 6). A number of the commercial programs are utilized by owners of rental buildings: the Efficient Boiler program, the Light Commercial Boiler program, and the Efficient Commercial Water Heaters program. The Fireplace Timer Pilot program is also available to rental buildings. More information about these commercial programs available to rental buildings can be found in Section 4. Similarly, all residential programs are available to rental properties. A Multi Unit Residential Building pilot program with the City of Vancouver is underway and if successful it will be expanded across the

Companies' service territories, and would include rental buildings. In terms of education programs, the Companies fund the following initiatives for K-12 students:

- BC Green Games;
- BC Lions Energy Champion School Assembly Presentations;
- Beyond Recycling;
- Destination Conservation;
- BC Sustainable Energy Association Climate Change Showdown; and
- Environmental Mind Grind.

More information about these initiatives can be found in Section 8. The Companies have an initiative for post-secondary student engagement under development and anticipate having a project for post-secondary students in market in September 2011. Thus the requirements in the DSM Regulation for adequacy will be met.

## **2.8 Conclusion**

Although the Companies did not reach the approved levels of expenditure for 2010, significant progress was made toward laying a strong foundation for future growth in EEC activity. The overall portfolio TRC ratio, including both conventional and innovative technologies EEC activity, was 1.1 and therefore was compliant with Commission Order No. G-36-09. The Companies have identified a need to add human resources in order to deliver energy efficiency and conservation programs to approved expenditure levels to our customers, and we look forward to adding those resources in 2011. The Companies' EEC activity will meet all the adequacy requirements in the DSM Regulation by the end of the current funding approval period in 2011.



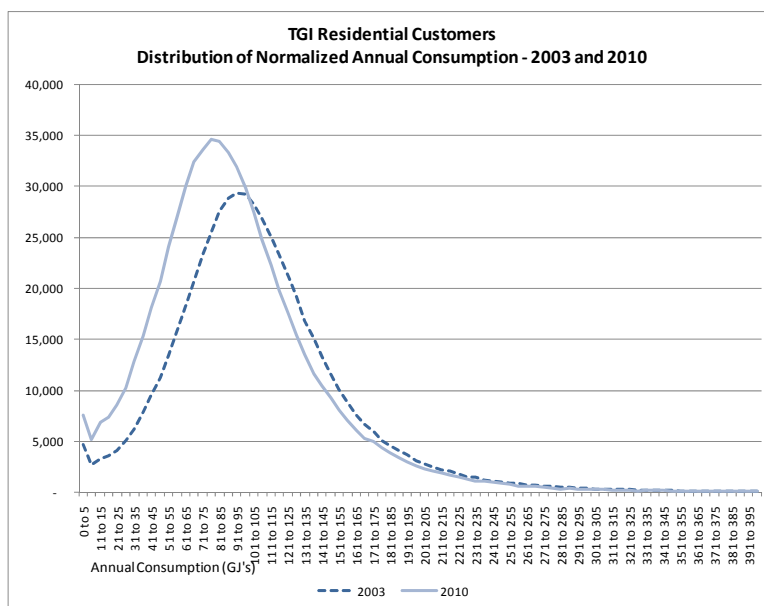
### 3 RESIDENTIAL ENERGY EFFICIENCY PROGRAM AREA

#### 3.1 Overview

The Residential Energy Efficiency Program Area provides value to customers by encouraging households to reduce their overall consumption of natural gas and manage their energy bills. Residential programs serve over 850,000 households in the FEI and FEVI territories for both retrofit and new construction applications. For EEC purposes, these customers include end-use customers living in a residential single-family home, row house, townhouse or mobile home. Programs for Multifamily Dwellings are included in the Commercial Energy Efficiency Program Area under development for 2011 (please refer to Section 4).

Residential programs, in combination with the Companies' education and outreach activities, are an important component in driving the culture of conservation in the province. A recent survey<sup>8</sup> of BC customers emphasizes the utility's role in providing information on conservation. Three in five (62 percent) respondents would look for information on energy efficiency programs on the Internet, followed by half (50 percent) asking their utility, and about a third asking the provincial government (38 percent) and the federal government (32 percent). The ultimate goal of residential programs is to shift the overall natural gas consumption curve whereby a greater proportion of customers use natural gas more efficiently, as presented in Figure 3-1.

**Figure 3-1: FEI Residential Customers Distribution of Normalized Annual Consumption – 2003 and 2010**



<sup>8</sup> Residential Retrofit Market Evaluation by Angus Reid Strategies, commissioned by the Companies in January 2010.

The Companies' EEC application highlighted the findings in the 2006 CPR in that 70 percent of the Achievable Potential savings were associated with the residential sector. To that end, in Commission Order No. G-36-09 on the Companies' EEC application, the Companies received approval for residential program funding of \$9.3 million over the 2008-2010 period. Furthermore, in Order No. G-141-09 approving FEI's 2010-2011 Negotiated Settlement Agreement, the Commission approved FEI's request for an extension of residential program funding to 2011 in the amount of \$3.275 million. Similarly, for FEVI, in Order No. G-140-09, the request for EEC funding of \$0.3 million for 2011 residential programs was approved. This funding enabled the Companies to further their EEC goals in delivering programs that enable customers to implement measures to reduce their natural gas consumption while supporting the government's GHG emissions reduction strategy.

Sections 3.1 through Section 3.3 outline the Residential Energy Efficiency Program Area goals, the program portfolio in the market to achieve these goals, 2010 program results, and the outlook for 2011. Section 3.4 provides individual program details including individual program goals, 2010 results, and the outlook for 2011.

### **3.1.1 RESIDENTIAL PROGRAM GOALS**

The Residential Energy Efficiency Program Area encourages households to reduce their overall consumption of natural gas and helps to manage their energy bills. Residential programs deliver value through their focus on the following objectives:

- Educate customers about the advantages of energy efficiency and promote the benefits of the culture of conservation;
- Prepare and ultimately transform the market by facilitating the adoption of new energy efficient technologies through incentives and support of government regulations;
- Upgrade low efficiency systems to high efficiency systems in order to capture energy savings associated with reducing the overall consumption of natural gas;
- Support government policy, especially in relation to efficient building strategies<sup>9</sup> and GHG emissions reduction, through incentives and education to customers and other industry stakeholders;
- Assist trades in understanding technical requirements or other barriers associated with new product introductions and support their effective installation;
- Engage manufacturers in developing, producing, and distributing energy efficient equipment through technology support and promotional opportunities to the Companies' customer base; and
- Develop a greater awareness of the non-energy benefits of efficiency systems such as improved comfort, health, safety, property value, and reduced insurance claims. To this

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<sup>9</sup> BC Energy Efficient Buildings Strategy: More Action, Less Energy. BC Ministry of Energy and Mines Publication, 2008.

end, promote the concept of “House as a System” or a “Whole Home” approach to efficiency.

- In support of the objectives listed above, the Companies will deliver the following:
- Cost-effective programs that optimize the proportion of incentives over administration and marketing costs while ensuring the overall EEC portfolio is above 1.0; and
- Program evaluation that confirms savings claims, provides participant feedback, and guides future program design.

### **3.2 2010 Residential Energy Efficiency Program Area Results**

Residential programs have encouraged residential customers to reduce their annual natural gas consumption by 62,036 GJs/yr, resulting in nearly 607,000 GJs of savings over the lifetime of the measures and a significant contribution to the reduction of GHG emissions in the province. The FEI TRC was 1.0 while FEVI's equalled 0.7, likely due to lower participant numbers while incurring program deployment costs. Program area objectives were achieved through a \$3.2 million investment in incentives, administration, and program communications. Of this investment, 93 percent was incentives that directly offset the customer's cost of appliance upgrade or furnace service. The table below provides program details for incentive and non-incentive expenditures, energy savings, and TRC results.

**Table 3-1: 2010 Residential Energy Efficiency Program Area Results**

Program	Incentives & Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
2010 Residential Program Activity								
ENERGY STAR® Heating System Upgrade 2010 - FEU + LivesmartBC	2,385	86	2,471	578,285	19,145	597,430	1.1	1.0
Furnace Service "TLC" - 2010	432	79	511	No Direct Savings				
Domestic Hot Water Heaters	67	14	81	1,990	269	2,259	0.3	0.2
EnerChoice Fireplace - 2010	56	15	71	5,746	1,415	7,161	1.0	1.1
Non program specific expenses	74	35	108					
<b>Total</b>	<b>3,014</b>	<b>228</b>	<b>3,242</b>	<b>586,021</b>	<b>20,829</b>	<b>606,850</b>	<b>1.0</b>	<b>0.7</b>

The 2010 Residential Energy Efficiency Program Area portfolio achieved its EEC program objectives by investing over \$3.2 million in energy efficiency projects. In addition to capturing 607,000 GJs of savings over the lifetime of these installed measures, program promotion furthered the culture of conservation by contributing to the market transformation of space and water heating systems through incentives and support for the introduction of government

regulations, and promoting natural gas efficiency with contractors, manufacturers, and retailers as outlined below.

### **3.2.1 CONTRIBUTION TO MARKET TRANSFORMATION**

The Companies' contribution to market transformation of space and water heating systems is substantial for both space and water heating as outlined below:

The Companies have maintained ENERGY STAR® Heating System Upgrade programs in the market since 1996, of which the most recent iteration was launched September 1, 2008 in the FEI service territory and April 16, 2009 in the FEVI service territory. This highly successful program, in collaboration with LiveSmart BC, provided incentives for over 17,000 furnaces, a contribution of \$4.4 million in incentives and over 1.1 million GJs of energy savings over the lifetime of these systems. This program ended December 31, 2009 to coincide with provincial and federal government regulations requiring that all furnaces sold in Canada meet a minimum standard of 90 percent efficiency.<sup>10</sup> The Companies' significant outreach to consumers, trades, and manufacturers helped facilitate the industry's transition to the new regulation. Please note that although the program ended December 31, 2009, final participation counts were not available at the time of writing the 2009 report. Only applications processed in 2010 are included in the 2010 program energy savings.

The Companies are taking an active role in driving a national Domestic Hot Water ("DHW") market transformation strategy through the 0.8 EF water heater technology pilot outlined in Section 3.4.3.2. An initial step in this strategy was the 2010 launch of the 0.62 EF Efficient Storage Tank Water Heater Program, whose initial objective was compliance engagement for the introduction of provincial gas water heater efficiency act regulations that are the highest standard in Canada.<sup>11</sup> The program was effective in driving some manufacturers to comply with these new regulations, although it will take some time for 100 percent market adoption.

In order to promote energy efficient fireplaces that generate heat rather than being just decorative, the Companies are actively promoting EnerChoice fireplaces in partnership with the western chapter of the Hearth, Patio and Barbecue Association of Canada ("HPBAC") and are among the few North American utilities to have an EnerChoice program. Industry feedback suggests that manufacturers are more conscious of fireplace efficiency through the EnerChoice program and energy efficiency messaging that creates consumer demand.

### **3.2.2 COLLABORATING WITH INDUSTRY TO PROMOTE THE CULTURE OF CONSERVATION**

Industry partnerships with contractors, manufacturers, retailers, and associations are key to driving program participation and fostering the culture of conservation as outlined below:

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<sup>10</sup> Please refer to Appendix D for a copy of the MEMPR Enforcement Bulletin 09-03. BC Efficiency Act Standards: Gas and Propane-Fired Furnaces.

<sup>11</sup> Please refer to Appendix D for a copy of the MEMPR Enforcement Bulletin 09-05. BC Efficiency Act Standards: Gas and Propane-Fired Water Heaters.

Engaging natural gas contractors is a critical component to the success of residential programs. Program evaluation studies<sup>12</sup> suggest that 26 percent of program participants are made aware of programs through contractor communications, which is second only to the 29 percent of participants made aware through the Companies' bill inserts. Program kits are mailed to all contractors in the BC Safety Authority ("BCSA") database. The Companies are furthering their relationship with the trades through their partner program outlined in Section 11.2.2.

Collaboration with manufacturers of energy efficient technologies is also key to program success and market transformation. In 2009, furnace manufacturers were required to meet 0.90 AFUE federal and provincial Efficiency Act standards. In 2010, DHW manufacturers were required to meet 0.62 EF provincial Efficiency Act standards for gas water heaters. The Companies' water tank program drew attention to compliance by providing a joint incentive to customers and contractors. Anecdotal evidence and rejected applications indicate there are still a large number of non-compliant tanks being sold. The current water heater rebate offer will, therefore, remain in market for 2011 to support the introduction of the 0.67 EF ENERGY STAR® water heaters and new technologies.

The Companies also initiated partnerships with big box retailers that have extensive marketing budgets and the ability to educate customers in a mainstream retail setting. In 2011, the Companies will further strengthen partnerships with retailers and dealer networks to promote energy efficient products and services.

Another key success of 2010 was furthering the Companies partnerships with industry stakeholders. A greater number of programs are being integrated with electric utilities and provincial and municipal governments (please refer to Section 7 Joint Initiatives). The Companies have also forged strong partnerships with industry associations such as the BCSA, Thermal Efficiency Contractors Association ("TECA"), HPBAC and others. Partnerships with associations are fundamental to the development of the contractor's network and key to ensuring the safe and effective installation of high efficiency equipment.

### **3.2.3 HIGHLIGHTS OF 2010 RESIDENTIAL ENERGY EFFICIENCY PROGRAM AREA**

A summary of highlights from 2010 residential programs include the following achievements:

- Investing over \$3.2 million in energy efficiency initiatives resulting in 607,000 GJs of savings over the lifetime of the measures;
- Engaging over 31,000 customers in 2010 programs targeting residential customers;
- Collaborating with industry partners including government, electric utilities, contractors, manufacturers, and retailers; and
- Establishing outsourced administration for mass-market residential programs by employing Consumer Response Marketing Ltd. ("CRM"), a BC-based company. With

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<sup>12</sup> 2005-2007 Heating System Upgrade Program: Evaluation Results. Sampson Research.

CRM's cost-effective expertise in providing rebate fulfillment and call centre support, the EEC team were able to focus on program delivery.

With this foundation now in place, the Companies will continue to deliver value to residential customers through the 2011 Residential Energy Efficiency Program Area.

### 3.3 2011 Residential Energy Efficiency Program Area Outlook

The Companies will expand the 2011 residential program offering in support of the EEC program objectives outlined previously by continuing many of the 2010 programs as well as introducing new programs, most notably a new construction program as outlined in Table 3-2. Expenditures from new programs are not included as program design is still in progress. As a result of the introduction of new programs, the Companies expect to spend more than the \$2.5 million indicated in Table 3-2.

**Table 3-2: 2011 Residential Energy Efficiency Program Area Outlook**

Program	Incentives & Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
2011 Programs in Market								
Furnace Service "TLC" - 2011	488	118	606	No Direct Savings				
Domestic Hot Water Heaters	567	142	709	47,415	12,043	59,458	0.6	0.6
EnerChoice Fireplace - 2011	693	173	866	102,031	25,963	127,994	2.2	2.3
2011 - 2012 Residential Programs Under Development								
Simple Home Efficiency Measures	Under Development							
Domestic Hot Water - 0.8EF- PILOT	Under Development							
Furnace - "Scrap-It" Program	Under Development For 2012							
EnerGuide 80 - New Construction	Under Development							
EnerGuide 80 - Townhome - PILOT	154		154					
Non program specific expenses	160	40	200					
<b>Total</b>	2,062	473	2,535	149,446	38,006	187,452	N/A	N/A

Please note that all 2011 programs are undergoing further economic analysis for the validation of savings claims and cost benefit tests. All numbers are estimates that will be validated in the coming months.

#### 3.3.1 CHALLENGES IN DEVELOPING RESIDENTIAL PROGRAMS FOR NATURAL GAS EFFICIENCY

One of the major obstacles in the deployment of residential programs is in identifying measures that pass the traditional TRC cost benefit test. This constraint limits the investment utilities can make in market transformation, or, in the case of new construction programs, limits the role utilities can take in supporting the introduction of new efficiency codes and standards.

Ultimately, traditional DSM rules reduce our ability to support government policy to meet GHG emission reduction targets and limit our ability to invest in programs that serve our customers in managing their energy bills.

There are a number of factors that limit residential program development under traditional DSM environments, some of which are outlined below:

- The low cost of natural gas combined with lower than average consumption in BC's coastal climate limits program options;
- In traditional DSM environments, rebate programs cannot be in market for measures that are regulated. As a prime example, the Companies believe a furnace replacement program is fundamental to driving savings in space heating since heating systems represent 63% of the residential end use of natural gas. The 2008 REUS study suggests that only 16% of our customers have high efficiency furnaces. A furnace replacement program therefore represents an enormous opportunity to save natural gas and reduce GHG emissions;
- With the introduction of regulations for higher efficiency standards, the incremental savings that can be claimed over base technology is diminishing;
- Since new technologies are more expensive than base models, the TRC model hampers market transformation and innovation. Furthermore, when a new product is introduced, there are limited quantities of that product available for mass consumption. This results in further lowering the TRC since initial participation rates are low and the Companies incur significant program costs for program setup and promotion; and
- It will take some time to quantify the non-energy benefits associated with efficiency, such as improved comfort, health, safety, property value, and reduced insurance claims.

All of these examples demonstrate the challenges gas utilities face in driving market transformation and energy savings in the residential sector. The Companies are exploring other possibilities for ensuring new programs are cost-effective and provide value to customers. Discussions with government, other utilities, and regulators are underway to determine a collaborative solution that best meets the GHG emissions reduction targets of the province.

### **3.3.2 2011 OUTLOOK FOR RESIDENTIAL ENERGY EFFICIENCY PROGRAMS**

The 2011, the Residential Energy Efficiency Program Area portfolio will continue to create value for residential customers and the industry, while furthering government policy on climate action. A summary of highlights for 2011 residential program planning include the following:

- Invest over \$2.5 million in residential programs resulting in over 200,000 GJs saved over the lifetime of the measures;
- Engage over 30,000 customers in energy efficiency programs and all of our customers in conservation messaging;



- Introduce a new construction program to support new building codes and standards and the installation of efficient appliances; and
- Collaborate with industry partners including government, electric utilities, contractors, manufacturers, and retailers.

With the foundation now in place to introduce programs to the residential sector, the Companies will continue to deliver value to residential customers in 2011 and beyond.

### 3.4 Residential Program Details

Program descriptions for each of the Companies' residential energy efficiency offerings are outlined in the following section. Program details include background information, goals, 2010 results, future outlook, and an overall summary. Table 3-3 provides an overview of residential programs indicating which programs were completed in 2010, which programs remain active moving into 2011, and which programs are currently under development.

**Table 3-3: Residential Energy Efficiency Program Overview**

Program	Utility		Description	TRC	
	FEI	FEVI		FEI	FEVI
Completed Programs					
ENERGY STAR® Heating System Upgrade - 2009	X	X	\$250 incentive for upgrading heating system to Energy Star rated appliance - FEU and LiveSmart BC Total	1.1	1.0
Furnace Service Campaign - "Give your furnace some TLC" - 2010	X	X	Educate the market about the importance of appliance maintenance and create opportunities to upgrade appliances for efficiency	No Direct Savings	
Active Programs				Projected TRC	
Domestic Hot Water 0.62 EF & ENERGY STAR® Tanks	X	X	\$50 consumer incentive and \$50 contractor's incentive to educate customers about proactive replacement of efficient water heaters. Additional tiers to be added in Q2	0.6	0.6
EnerChoice Fireplace	X	X	\$150 (to \$300) consumer incentive for EnerChoice fireplaces. Program revised in Q2	2.2	2.3
Furnace Service Campaign - "Give your furnace some TLC" - 2011	X	X	Educate the market about the importance of appliance maintenance and create opportunities to upgrade appliances for efficiency	No Direct Savings	
Programs in Development					
Simple Home Efficiency Measures	X	X	Discount or giveaway program for low-cost measures that reduce heat and hot water energy consumption	Under Development	
Domestic Hot Water - 0.8 EF - PILOT	X		Assess 0.80 EF water heating technologies in support of 2020 hot water efficiency federal and provincial regulation	Under Development	
Furnace - "Scrap-It" Program	X	X	Re-educate market about high efficiency furnaces and urge customers to upgrade early	Under Development	
EnerGuide 80 - New Construction Program - PILOT	X	X	Educate builders about new proposed BC Building Codes and provide incentives for adoption. Educate consumers about the benefits of purchasing energy efficient homes	Under Development	
"84 Developments" EGH80 Townhome - PILOT	X		Work with builder to understand prescriptive and performance path to reaching EGH80 in townhomes. Create case study for other builders	1.4	



### 3.4.1 COMPLETED PROGRAMS

#### 3.4.1.1 ENERGY STAR® Heating System Upgrade Program

##### 3.4.1.1.1 Program Overview

2008-2009 ENERGY STAR® Heating System Upgrade Program	
<b>Target Audience</b>	Residential Retrofit Customers
<b>Duration</b>	FEI: Sep 1, 2008 through Dec 31, 2009 FEVI: Apr 16, 2009 through Dec 31, 2009 Note: Because the application deadline was March 31, 2010, final program numbers were not available for the 2009 EEC report and savings from applications processed in 2010 are included in the 2010 portfolio.
<b>Incentive</b>	\$250 rebate per heating system upgrade
<b>Partner</b>	LiveSmart BC / Ministry of Energy and Mines
Overview	
<b>Background</b>	<p>The primary program objective was to reap the energy savings associated with upgrading low or mid-efficiency heating systems to ENERGY STAR®. The Companies have maintained ENERGY STAR® Heating Upgrade programs in the market since 1996. These programs were initiated to benefit customers by saving them energy and to participate in transforming the furnace market. The most recent iteration was launched September 1, 2008 in the FEI service territory and April 16, 2009 in the FEVI service territory.</p> <p>In addition to energy savings, the program focused on preparing the market for January 1, 2010 changes to the BC Energy Efficiency Act Standards for gas furnaces outlined in the Ministry of Energy Mines and Petroleum Resources ("MEMPR") Enforcement Bulletin 09-03<sup>13</sup>. The regulated energy efficiency standard for these products is an Annual Fuel Utilization Efficiency ("AFUE") equal to or greater than 90%. These regulations took effect for new residential construction on January 1, 2008 and for replacement furnaces in existing dwellings on December 31, 2009. The BC provincial regulation changes align with Natural Resources Canada ("NRCAN") regulations for new and existing buildings across Canada. The Companies' significant outreach to consumers, trades, and manufacturers helped facilitate the industry's transition to the new regulation.</p> <p>In September 2008, the Companies partnered with the LiveSmart BC Residential Retrofit Incentive Initiative in order to extend market reach and program awareness and initiate collaborations between government and utility partners. Please refer to Section 7.4.2.1 for further information about the LiveSmart BC partnership.</p>

<sup>13</sup> Please refer to Appendix D for a copy of the MEMPR Enforcement Bulletin 09-03.

<b>Goals</b>	<ul style="list-style-type: none"> <li>• Upgrade a minimum of 8,180 heating systems.</li> <li>• Prepare market for adoption of ENERGY STAR® provincial furnace regulations for retrofit market, January 1, 2010.</li> <li>• Educate consumers about the advantages of energy efficient furnaces and boilers and provide an incentive that promotes a proactive replacement decision.</li> <li>• Educate the trades about upcoming regulations.</li> <li>• Engage manufacturers by distributing coupons for ENERGY STAR® furnaces and boilers and providing funds for co-marketing opportunities.</li> </ul>
<b>Description</b>	<p>In order to educate customers and the trades about the benefits of ENERGY STAR® heating system upgrades, the Companies offered a \$250 bill credit to partially offset the estimated \$850 incremental cost of purchasing ENERGY STAR® furnaces or boilers over mid-efficiency models. In addition to the \$250 incentive, from September to December 2008 and 2009, furnace and boiler manufacturers provided coupons for discounts and extended warranties for ENERGY STAR® heating systems.</p>
<b>Implementation</b>	
<b>Administration</b>	<p>Accenture Utilities Business Process Outsourcing Services("ABSU"), a subsidiary of Accenture Inc., through a subcontracting arrangement with CustomerWorks LP, processed the bill credit rebate process for the Companies' applications. The Ministry of Energy processed LiveSmart BC applications. De-duplication was performed to ensure customers were only awarded a single \$250 rebate.</p>
<b>Communications</b>	<p>Promotions included website prominence, bill inserts, advertisements in community newspapers and trade publications, and events. In the fall of 2008 and 2009, manufacturers provided coupons for additional savings on furnace replacements.</p>
<b>Evaluation Strategy</b>	<p>An extensive evaluation of natural gas consumption after installation of an ENERGY STAR® furnace or boiler on 2005-2007 program participants confirmed energy savings estimates of over 11 GJs per participant (Sampson and Associates). The study provided in-depth feedback for future program development.</p>

**3.4.1.1.2 2008-2009 ENERGY STAR® Heating System Upgrade Program Results**

**Table 3-4: 2010 Program Results**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
2009 Application Processing								
The Comp anies	FEI	4,391	1,098	101	27,882	293,682	43%	1.1
	FEVI	83	21	14	527	5,519	43%	0.9
Live-Smart BC	FEI	3,391	848	7	21,532	226,799	43%	1.2
	FEVI	65	16	-	413	4,322	43%	1.2
2010 Application Processing								
The Comp anies	FEI	3,849	962	51	24,346	238,325	43%	1.0
	FEVI	106	27	11	671	6,810	43%	0.9
Live-Smart BC - *	FEI	5,489	1,372	-	34,729	339,960	43%	1.1
	FEVI	192	48	-	1,215	12,335	43%	0.9
Total Program Activity								
Total	FEI	17,120	4,280	159	108,489	1,098,766	43%	1.1
	FEVI	446	112	25	2,826	28,986	43%	1.0
Total		17,566	4,392	184	111,315	1,127,752	43%	1.1
LiveSmart BC Participant Counts based on January 25, 2011 invoice and estimation of final program counts that are forthcoming from the Ministry of Energy.								

This program was extremely successful with double the anticipated program participation of 8,180 participants outlined in the 2007 EEC Application. Through this program over \$4.4 million in incentives were distributed to customers across the province with downstream benefits of revenues, job creation, and installation experience to contractors, dealers, and manufacturers. Table 3-4 provides performance metrics for 2009 and 2010 including number of participants, incentives to non-incentives spending, net annual energy savings, and the savings over the lifetime of the measure. The free rider rate suggests that 43 percent of participants may have upgraded their appliance without the incentive, so this proportion of participants has been backed out of the energy savings. This free rider rate was obtained from consumer and contractor feedback as presented in the 2005-2007 Furnace Program Evaluation (Please refer to Appendix D in the 2009 EEC report).

The positive TRC indicates that despite a relatively high free rider rate there remains substantial energy savings within a cost-effective program. TRC results were 1.1 for FEI and 1.0 for FEVI. The FEVI TRC is slightly lower due to lower participant numbers as the program was introduced over seven months later than the FEI program. Also, natural gas service was first introduced to Vancouver Island in 1990, so the FEVI opportunity for furnace replacement is lower because furnace stock is newer.

In addition to the Companies' rebate, other key drivers that positively influenced furnace replacement during this timeframe were provincial incentives through LiveSmart BC, federal incentives through the NRCan EcoAction program, and the Home Renovation Tax Credit.

The 2008 REUS suggests that only 16 percent of the Companies' residential customers have high efficiency furnaces (90 percent AFUE and higher), 39 percent have mid-efficiency furnaces (78 - 85 percent AFUE), and 45 percent have standard efficiency furnaces (less than 78 percent AFUE). This indicates that 84 percent of the Companies' customers have either a need to upgrade their standard efficiency furnaces or have mid-efficiency furnaces that are close to the end of their useful lives. There is a substantial need for incentives or financing options that would help remove financial barriers for proactive furnace replacement and a huge opportunity for energy savings and GHG emissions reductions through such initiatives.

#### **3.4.1.1.3 Overall Summary**

The most recent iteration of the ENERGY STAR® Heating System Upgrade Program far surpassed its original program target and contributed to the replacement of over 17,500 heating systems. In addition, the program achieved its objective of preparing the market for the introduction of provincial and federal regulations requiring the installation of ENERGY STAR® furnaces. Broader market impacts are evident through the Companies' contribution of \$4.4 million in funding for 17,500 heating system upgrades since September 2008. Downstream economic benefits to the economy are estimated to be \$102 million<sup>14</sup> in consumer spending with a significant positive impact on employment in energy efficient upgrades. Energy savings impacts of 1.1 million GJs over the lifetime of these installations and the associated GHG emissions reduction impacts are significant. The partnership with the LiveSmart BC program represented about half the participants. Encouraging homeowners to take a whole home approach to renovations have resulted in even greater energy savings for our customers and GHG emissions reductions for the province.

#### **3.4.1.2 "Give Your Furnace Some TLC" – Furnace Service Campaign**

##### **3.4.1.2.1 Program Overview**

<b>"GIVE YOUR FURNACE SOME TLC"- FURNACE SERVICE CAMPAIGN</b>	
<b>Target Audience</b>	Residential Retrofit Customers
<b>Duration</b>	FEVI: Jan 15 - Oct 31, 2010 FEI: June 1- Oct 31, 2010

<sup>14</sup> \$102 million consumer spending estimate based on 17,566 program participants multiplied by \$5,800, which is the average heating system installation expenditure in the 2010 Switch 'N' Shrink program.

<b>Incentive</b>	\$25 Grocery Gift Card
<b>Partner</b>	None
<b>Overview</b>	
<b>Background</b>	<p>The primary objective of the furnace service campaign was to develop an offer that was relevant to a broad base of customers and engage them in energy efficiency dialogues with gas contractors. Customers were educated about the importance of annual furnace servicing while the long-term benefits of appliance efficiency and the cost savings associated with upgrading to high efficiency heating systems was promoted. In addition, the program reinforced the Companies' relationship with the trades, given that the promotion reminded customers to have their furnace serviced and contractors were able to identify furnaces/boilers needing replacement.</p> <p>The program was first piloted in FEVI where over 300 applications were received within eight weeks of launching the program, demonstrating that customers respond well to a \$25 gift card incentive. Due to the success of the pilot, the Companies rolled out the program across the province in June 2010.</p>
<b>Description</b>	The program offered a \$25 grocery gift card to the Companies' residential customers who had their furnaces serviced by a qualified contractor within the program eligibility dates.
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Provide education and awareness about energy efficient appliances and their maintenance.</li> <li>• Engage customers and contractors in conversations about efficiency, safety, and the opportunity to upgrade existing mid-efficiency appliances to high efficiency appliances.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	Consumer Response Marketing Ltd.
<b>Communications</b>	Promotions included website prominence, a June stand-alone bill insert, an August bill insert program listing, and handouts at summer and fall events. The program did not require a major advertising investment given that the trades promoted the campaign on our behalf.
<b>Evaluation Strategy</b>	A total of 375 telephone surveys were completed by customers who participated in the TLC Furnace Program. The survey reported high customer satisfaction with a large majority of participants being extremely satisfied with the outcome of their overall service visit. Furthermore, it is important to note that the research company reported an unexpected willingness of applicants to complete the survey.

### 3.4.1.2.2 2010 Results

**Table 3-5: 2010 “Give Your Furnace Some TLC”- Furnace Service Campaign Results**

Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	13,911	320	112	No Direct Savings			
FEVI	1,550	36	42				
TOTAL	15,461	357	154				
* Incentive expenditure accounts for a the fact that FEI gift cards received an 8% discount while the FEVI gift cards received a 6% discount.							

The campaign was extremely successful with 15,500 participants and \$357,000 in incentives distributed. It was even more successful in light of the fact that these program participation numbers were achieved without major advertising investment since the trades promoted the campaign on our behalf.

Although other utilities have claimed energy savings in the past, we were not able to find definitive evaluation studies that confirmed decreased consumption including past programs that were conducted by the Companies. Intuitively, a heating system that is well-maintained will run more smoothly and consume less energy. Program evaluation<sup>15</sup> determined that 4 percent of customers identified gas leaks and 15 percent of customers were advised to either upgrade or replace their appliance. This demonstrates that the goal of furnace replacements and supporting public safety were achieved.

### 3.4.1.2.3 2011 Performance Outlook

**Table 3-6: 2011 “Give Your Furnace Some TLC” - Furnace Service Campaign Performance Forecast**

Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	16,000	368	120	No Direct Savings			
FEVI	4,000	92	26				
TOTAL	20,000	460	146				

The 2010 participant survey determined that the campaign in its current form had a high degree of customer satisfaction; however, there are a number of areas that will be improved for the 2011 campaign rollout to enable the Companies to drive even higher participation rates. In the

<sup>15</sup> “TLC Furnace Servicing Study” A Participant Survey by TNS, commissioned by the Companies in November, 2010. Final report delivered January 18, 2011.

2011 iteration, communications with gas contractors will be improved and marketing materials will focus on the benefits of annual appliance maintenance. The addition of a fireplace servicing offer is under consideration.

#### 3.4.1.2.4 Overall Summary

The “Give Your Furnace Some TLC” furnace service campaign’s broad based appeal makes it a cornerstone program in engaging customers and contractors in conversations about natural gas efficiency, appliance safety, and the need to replace old heating systems with new high efficiency models. At this time, we are not capturing direct savings from this program; however, educating customers about the benefits of efficient equipment maintenance, while creating opportunities to further educate customers about energy saving behaviours and programs opens the door to future natural gas savings.

### 3.4.2 **ACTIVE PROGRAMS**

#### 3.4.2.1 **Energy Efficient Residential Hot Water Storage Tank Program**

##### 3.4.2.1.1 Program Overview

ENERGY EFFICIENT RESIDENTIAL HOT WATER STORAGE TANK PROGRAM	
<b>Target Audience</b>	Residential Retrofit Customers
<b>Duration</b>	FEI & FEVI: July 1, 2010 - Dec 31, 2011
<b>Incentive</b>	\$50 rebate cheque for consumer \$50 rebate cheque for contractor/dealer
<b>Partners</b>	Retailers (Rona, Sears) and manufacturers (Giant, A.O. Smith, Bradford-White)
Overview	
<b>Background</b>	<p>A Domestic Hot Water (“DHW”) strategy is a key component in the Companies’ EEC program portfolio since water heating accounts for 21% of residential natural gas consumption. The CPR<sup>16</sup> states that DHW accounts for 21% of residential natural gas consumption and notes a 2% annual energy improvement as hot water systems are upgraded. Even greater savings will be realized as water heating appliances become more efficient.</p> <p>In 2010, the primary program objective was to educate the market about September 1, 2010 changes to the BC Energy Efficiency Act Standards for gas and propane fired water heaters outlined in MEMPR Information Bulletin 09-05<sup>17</sup>. BC provincial regulations require that all water tanks manufactured after September 1, 2010 have an efficiency rating (“EF”) of at least 0.62 depending on tank size. The secondary program objective was to capture the energy savings associated with upgrading water heating systems. Additional program benefits include outreach to consumers,</p>

<sup>16</sup> 2006 Terasen Gas Conservation Potential Review.

<sup>17</sup> Please refer to Appendix D for a copy of the MEMPR Enforcement Bulletin 09-05. BC Energy Efficiency Act Standards: *Gas and Propane-Fired Water Heaters*.



	<p>trades, distributors, big box and small retailers, and manufacturers. One program challenge is the fact that manufacturers do not label water heaters with efficiency ratings. Manufacturer engagement will be a key component of the program.</p> <p>Based on estimates from the Canadian Institute of Plumbing and Heating ("CIPH"), approximately 120,000 hot water tanks are sold annually in BC. The market share for gas water heaters is in the range of 40-60%. According to water tank statistics from the 2008 REUS, 38% of water tanks were replaced over the past five years, which by calculation represents a 7.6% annual churn rate. Of those that were replaced, 83% were only done at the time of failure or imminent failure and 9% were undertaken for the purpose of increasing energy efficiency.</p>
<b>Description</b>	<p>The 2010 program included the following base offer that will remain in market for 2011.</p> <p>A \$50 consumer incentive drives public awareness about the importance of water tank efficiency, urges customers to not only replace their hot water tanks as an emergency purchase decision at the end of useful life but to be proactive prior to tank failure, and provides an opportunity to raise awareness about the importance of hot water conservation.</p> <p>A \$50 dealer incentive urges contractors and distributors to promote efficient water tanks. Since the large majority of purchase decisions are completed out of necessity due to tank failure, customers are reliant on independent contractors to provide energy efficient appliances and advise them of their benefits.</p>
<b>Goals</b>	<p>Short term goals:</p> <ul style="list-style-type: none"> <li>• Educate the market about the introduction of provincial regulations on September 1, 2010;</li> <li>• Educate consumers about choosing energy efficient water heaters and the importance of hot water conservation;</li> <li>• Upgrade a minimum of 3,600 hot water heaters to 0.62 EF or higher;</li> <li>• Promote contractor relations between the Companies and contractors, as well as between contractors and customers;</li> <li>• Engage manufacturers and distributors through co-marketing opportunities;</li> <li>• Engage retailers in the program; and</li> <li>• Engage the home insurance industry in early retirement messaging.</li> </ul> <p>Long term goals:</p> <ul style="list-style-type: none"> <li>• Engage manufacturers in labeling tanks with an efficiency factor;</li> <li>• Promote the adoption of the next generation of ENERGY STAR® eligible models (0.67 EF or beyond);</li> <li>• Introduce a tankless and condensing water heater tier within the existing program; and</li> <li>• Lay the foundation for the national hot water market transformation strategy as outlined in Section 3.4.3.2.</li> </ul>



<b>Implementation</b>	
<b>Administration</b>	Consumer Response Marketing Ltd.
<b>Communications</b>	<p>FEI and FEVI engaged contractors, manufacturers, and big box retailers to co-promote the program. Contractor packs were mailed out to the BCSA database, and A.O. Smith, one of the largest water tank manufacturers, delivered program materials to their distribution network. Further promotions include FortisBC.com, bill inserts, advertisements in community newspapers and trade publications, and retailer POP materials that were provided to both Rona and Sears. The following is a summary of the communications for this program:</p> <ul style="list-style-type: none"> <li>• FortisBC.com/efficientwaterheater;</li> <li>• Contractor packs mailed out to BCSA database;</li> <li>• Contractor packs included MEMPR's updated B.C Energy Efficiency Act Standards brochure to assist the province with compliance engagement;</li> <li>• John Woods distributed contractor packs to their dealer network;</li> <li>• Aug EEC "newsletter" bill insert with program highlighted;</li> <li>• Sept bill insert (one side);</li> <li>• Sept contractor program bulletin highlight;</li> <li>• Big box merchandising – Rona (launched Sept) &amp; Sears (launched Oct);</li> <li>• Nov – Blackpress - ¼ page ads;</li> <li>• Dec EEC "newsletter" bill insert with program highlighted; and</li> <li>• Program collateral distributed at all CEO trade shows and street team events.</li> </ul>
<b>Evaluation Strategy</b>	Program evaluation will include billing analysis in 2012 and potential surveys of distributors and contractors to monitor the trends in market penetration of high efficient and ENERGY STAR® eligible models.

#### 3.4.2.1.2 2010 Program Results

**Table 3-7: 2010 Efficient Hot Water Heater Storage Tank Results**

Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	152	15	52	243	1,990	20%	0.3
FEVI	20	2	12	32	269	20%	0.5
TOTAL	172	17	63	275	2,259	20%	0.3

The program's TRC is low when total program spending is compared to the avoided cost of natural gas. With the free rider rate estimated to be approximately 20 percent, the annual net energy savings derived from the program's participants is 275 GJs. However, the actual savings that should be attributed to this program are under-estimated by participation counts for the following reasons.

While developing the program, the Companies made contact with all major manufacturers in order to create an online directory of compliant tanks eligible for a rebate. Without the program, these stakeholders were less motivated to comply, since enforcement does not carry major penalties or ramifications. Because our customers were asking about a rebate, stakeholders such as manufacturers, dealers, contractors, and big box retailers were driven to comply. At least one manufacturer, who supplies a major big box retailer, re-designed their tanks in order to participate in our program. While 187 eligible models are listed on the NRCan directory, only a small portion of tanks can be purchased within BC. At the time of writing, only 10 different models have been approved for rebates. We continue to receive applications for non-compliant tanks, indicating they are still prevalent in the market.

Anecdotal feedback from the industry suggests that low participation rates are most likely due to the need for a gas permit, since there was a lot of initial excitement about the \$50 dealer incentive. Our source estimates that only 20 percent of water tank installations are conducted with a permit. The EEC team is meeting with the BC Safety Authority ("BCSA") to determine if there are any ways that permit avoidance issues can be addressed.

#### 3.4.2.1.3 2011 Program Performance Forecast

**Table 3-8: 2011 Efficient Hot Water Heater Storage Tank Performance Forecast**

Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	2,980	429	138	5,722	47,415	20%	0.6
FEVI	745	107	34	1,430	12,043	20%	0.6
TOTAL	3,725	536	172	7,152	59,458	20%	0.6

The 2010 0.62 EF water heater program was introduced primarily as a compliance engagement program to be in the market until December 31, 2010; however, with lower than anticipated participation rates and anecdotal evidence of a large number of non-compliant tanks in market, the Companies are extending the existing base offer for the 2011 calendar year. This extension enables the Companies to promote hot water efficiency to manufacturers, contractors, retailers, and customers. The ongoing program also provides the opportunity to urge customers to not only replace their hot water tanks as an emergency purchase decision at the end of useful life, but to be proactive prior to tank failure. Partnerships with the home insurance industry are the best avenue to co-promote this message.

Most importantly, the base offer is the foundation for maintaining relationships with the supply chain required for the next stages of the DHW market transformation strategy. As we collaboratively work with stakeholders on a national strategy aimed at raising the bar on efficiency, it is important to have programs in place to guide the market and policy decisions. In addition to the \$50 base offer for 0.62 EF tanks, the Companies are running a cost benefit analysis to introduce rebates for ENERGY STAR® models (0.67 EF and beyond), condensing

water heaters, and tankless technologies. To date there are very few ENERGY STAR® water storage tank models that qualify and that are available in BC. In parallel to the 0.80 EF water heater pilot, the Companies will introduce rebates for condensing water tanks and tankless technologies. Although the TRC's on these new technologies are less than one, these programs are essential for market transformation.

Anecdotal evidence provided mixed reviews of tankless technology and therefore the Companies conducted an independent research study<sup>18</sup> to gather feedback on experience with early adopters of tankless technology. The results were very favourable and provide the Companies with confidence to proceed with promoting these products if energy savings estimates are validated.

The combination of financial incentives, contractor training, and effective marketing is key to the continued success of efficient water heater programs. The relationships developed to date in the 0.62 EF base offer are invaluable to furthering this work. In addition to energy efficient appliances, the opportunity to educate customers about the importance of water and hot water conservation adds additional societal benefits to this program.

#### *3.4.2.1.4 Overall Summary*

Although participation rates were lower than forecasted, the program was very successful in achieving its goals of compliance engagement, developing relationships with manufacturers, and gaining exposure for energy efficient water tanks in retail settings. The program confirmed that there is a great need for energy efficiency education across the hot water equipment supply chain – from manufacturers and distributors through to consumer education. This education will also help to ensure that customers who are replacing their tanks in an emergency situation will choose to install energy efficient tanks and will have access to energy efficient tanks through their installers.

This program is an important component in the overall strategy to help manufacturers, distributors, installers, and customers adopt the new provincial regulations that went into effect on September 1, 2010, which require all hot water tanks manufactured after that date to be 0.62 EF. The Companies will be actively evaluating tier three technologies (>0.8 EF) and developing a collaborative national hot water heater market transformation strategy as outlined in Section 3.4.3.2.

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<sup>18</sup> Tankless Water Heater Study, National Survey to Homeowners, by TNS, commissioned by the Companies in October, 2010. Final report delivered December 14, 2010.

### 3.4.2.2 *EnerChoice Fireplace Program*

#### 3.4.2.2.1 *EnerChoice Fireplace Program Overview*

ENERCHOICE FIREPLACE PROGRAM	
<b>Target Audience</b>	Residential Retrofit Customers
<b>Duration</b>	July 1, 2010 - Dec 31, 2011
<b>Incentive</b>	\$150 for any EnerChoice fireplace with additional tiers to be introduced in 2011
<b>Partner</b>	Hearth Patio and Barbecue Association of Canada ("HPBAC")
Background	
<b>Background</b>	<p>The EnerChoice fireplace program is an important program offering since natural gas fireplaces account for 13% of residential natural gas consumption based on 2010 CPR findings. In addition, 85% of customers have at least one fireplace or heating stove according to the 2008 Residential End Use Study ("REUS").</p> <p>Consumer preferences for fireplaces can be categorized as those shopping for ambience versus those shopping for zone heat. Those focused on ambience often select decorative design features such as the flame, the rock or log set, and mantel design. Those focused on zone heat are more engaged in energy saving features such as electronic ignition switches or programmable remote controls, which allow users to turn off the fireplace and pilot light when the home is unoccupied. Through the evolution of EnerChoice fireplace programs, manufacturers are supplying more models that combine the attributes of ambience and energy efficiency. The Enerchoice program educates consumers to include energy efficiency as part of their fireplace purchase decision.</p> <p>The Enerchoice Fireplace label is a Canadian label reserved for products that meet or exceed efficiency levels as determined by an independent committee managed by HPBAC. Since there is currently no ENERGY STAR® rating for natural gas fireplaces, and there are no pending standards from the U.S. Department of Energy, the Canadian fireplace industry has developed its own efficiency label branded EnerChoice. The EnerChoice designation can only be applied to <b>free-standing stoves</b> with Fireplace Efficiency ("FE") 66% or higher, <b>fireplaces</b> that are 62.4% or higher, and <b>inserts</b> that are 61% and higher.</p>
<b>Description</b>	In order to further educate consumers about the merits of energy efficient fireplaces, the 2010 EnerChoice program provides a \$150 consumer rebate for EnerChoice purchases. The Companies are encouraging their customers to adopt energy efficient gas fireplaces designed for heating rather than simply decorative fireplaces for ambience.
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Encourage the sale and installation of energy efficient heater style fireplaces to reap the associated energy savings.</li> <li>• Further the education and awareness of the EnerChoice label to consumers and industry.</li> <li>• Further relationships with manufacturers and distributors of natural gas fireplaces through the HPBAC.</li> </ul>
Implementation	
<b>Administration</b>	Consumer Response Marketing Ltd.

<b>Communications</b>	FEI and FEVI engaged HPBAC members to co-promote the offer through retailer and manufacturer channels. Promotions included online information, bill inserts, advertisements in community newspapers and trade publications, and events. Co-op advertising was introduced in Q4 2010 as requested by the industry.
<b>Evaluation Strategy</b>	EnerChoice Fireplace consumption data analysis on the 2008 and 2009 programs will be conducted in 2011 to validate energy savings claims for EnerChoice appliances. EnerChoice awareness surveys to consumers and dealers are being proposed to determine the market penetration of EnerChoice awareness and gain feedback for future program requirements.

#### 3.4.2.2.2 2010 Program Results

**Table 3-9: 2010 EnerChoice Fireplace Program Results**

Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	109	16	40	646	5,746	24%	1.0
FEVI	26	4	11	154	1,415	24%	1.1
TOTAL	135	20	51	800	7,161	24%	1.0

As outlined in Table 3-9, the program's TRC is positive. With free rider rate estimated to be 24 percent, the net energy savings over the lifetime of these measures is 7,161 GJs. Since program start-up costs are relatively expensive for marketing and administration, the TRC is expected to increase in 2011.

Program participation was lower than expected for a number of reasons. Firstly, it takes time to build awareness of a program for both customers and dealers. The program was launched to dealers in August and participation numbers are increasing over time. Secondly, 2010 sales were down as much as 25 percent over 2009 based on anecdotal feedback from the industry. Government incentive programs drove 2009 sales and 2010 sales were down by comparison. The 2010 program forecast was based on 2009 participation levels for dealer incentives. Many HPBAC members found the paperwork onerous and we felt that a consumer driven incentive would be more successful; however, there may be a need for further customer and dealer education about the benefits of EnerChoice. The Companies are developing a dealer and consumer survey to gain feedback on ways to make the program more effective for the 2011 iteration expected to be in market in the second quarter.

### 3.4.2.2.3 2011 Program Performance Forecast

**Table 3-10: 2011 EnerChoice Fireplace Program Performance Forecast**

Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	1,920	576	117	11,309	102,031	24%	2.2
FEVI	480	144	29	2,827	25,963	24%	2.3
TOTAL	2,400	720	146	14,136	127,994	24%	2.2

In consultation with industry, the Companies are considering increasing the rebate from \$150 to \$300 in order to draw more attention to the benefits of EnerChoice and encourage customers to select even more efficient models. Since pilot lights consume substantial energy, another energy saving feature is an electronic ignition switch or a handheld fireplace remote-control that can be programmed to turn off the fireplace and the pilot light when the home is unoccupied. Therefore, a \$50 incentive for these features is under consideration. Since a number of customers requested rebates for fireplace service as part of the “Give Your Furnace Some TLC” furnace service campaign, fireplace servicing may be included in the 2011 TLC campaign.

Given that higher program numbers were achieved with a dealer incentive, this may be re-introduced in the next iteration. HPBAC currently provides a \$25 incentive for the first quarter of 2011. Response to this incentive will determine if the Companies will re-introduce a dealer incentive in the next iteration of the program. A number of dealers took advantage of co-op advertising, so this will also be considered in the 2011 re-launch.

Other partnerships may help promote the EnerChoice program. The Companies have been asked to partner with municipalities in the provincial Woodstove Exchange program. The EnerChoice offer is also listed in the LiveSmart BC program brochure to help raise awareness for customers who are doing whole home retrofits.

The combination of financial incentives, contractor training, and effective marketing is key to the continued success of the EnerChoice fireplace program. The relationship with HPBAC is fundamental to the continued success in order to actively engage dealers in promoting efficiency. By introducing program improvements, the program will provide significant energy savings and will remain an integral part of EEC programs in the future.

### 3.4.2.2.4 Overall EnerChoice Program Summary

With fireplaces accounting for 13 percent of residential natural gas consumption, it is critical to educate homeowners about the importance of choosing energy efficient models that are designed for zone heating rather than ambience. As more models become available the minimum efficiency standard can be increased over time. The Companies will continue to foster their relationship with HPBAC to drive program awareness and to assist in driving fireplace efficiency in the industry.

### 3.4.3 PROGRAMS IN DEVELOPMENT

#### 3.4.3.1 Home Efficiency Measures Program

##### 3.4.3.1.1 Home Efficiency Measures Program Overview

HOME EFFICIENCY MEASURES	
<b>Target Audience</b>	Residential Retrofit Customers
<b>Duration</b>	Proposed launch date of Q2 2011 and ongoing
<b>Incentive</b>	Coupon books and giveaways by promotional teams
<b>Partners</b>	Retail partners, distributors of energy savings equipment, utility partners, municipalities, and non-profits
Overview	
<b>Background</b>	<p>There is an extensive list of low cost energy savings measures that, in combination with behaviour change initiatives, will result in substantial energy savings in the residential sector. Often these are homeowner “do-it-yourself” installations and many of these measures are contained in the Energy Saving Kits provided for low income households. Opportunities include the following:</p> <ul style="list-style-type: none"> <li>• Measures to reduce domestic hot water energy costs include ultra-low flow shower heads (please refer to Section 7.4.2.3 for information about the Water Saver pilot program), faucet aerators, hot water tank insulation, and pipe insulation; and</li> <li>• Measures to reduce home heating energy costs include programmable thermostats, weather-stripping, insulation, caulking, electrical outlet gaskets, and more.</li> </ul>
<b>Description</b>	Build on opportunities for homeowners to self-install low-cost hot water and heat saving energy measures through community engagement programs, partner programs, retailer coupons, and distribution of the units at events.
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Develop a list of measures and their associated savings for inclusion in marketing materials, outreach activities, and conservation partnerships.</li> <li>• Capture energy savings associated with the installation of these measures</li> <li>• Develop partnerships to extend awareness and drive participant counts for these measures.</li> </ul>
Implementation	
<b>Administration</b>	To be determined based on measure and activity.
<b>Communications</b>	Integrated marketing plan utilizing the Companies’ internal marketing opportunities and partnerships with retailers, distributors, government, and other utilities.
<b>Evaluation Strategy</b>	Evaluation will include the best approach to measure program effectiveness and capture energy savings estimates.



### 3.4.3.2 (0.80 EF) Hot Water Heater - PILOT PROGRAM

<b>(0.80 EF) Hot Water Heater – PILOT PROGRAM</b>	
<b>Market</b>	Retrofit and New Construction
<b>Audience</b>	FEI/FEVI Residential Homes
<b>Duration</b>	To be determined
<b>Incentive</b>	To be determined
<b>Partner</b>	Canadian Gas Association (“CGA”)
<b>Background</b>	
<b>Program Description</b>	<p>The purpose of the program is to obtain installation, performance, and customer acceptance information regarding residential Domestic Hot Water (“DHW”) technologies with an Efficiency Factor (“EF”) of 0.80 or better. The increasing importance of the water heating load has led the Ministry of Energy and Mines, in conjunction with Natural Resources Canada (“NRCan”) to establish a plan to significantly raise minimum efficiency levels over the next 10 years. The Companies support these regulations since water heating is an important end use as it provides a “base load” throughout the year and helps keep the annual cost of natural gas purchases lower than it would be without the load. Water heating provides a relatively constant load over the year and hence provides revenue while not contributing incrementally to peak load. Peak gas is more expensive to acquire and as such, water heating load reduces the annual cost of natural gas to customers.</p>
<b>Technology Description</b>	<p>The main (0.80 EF) systems identified to date are:</p> <ul style="list-style-type: none"> <li>• On-demand or tankless water heaters;</li> <li>• Condensing tank water heaters;</li> <li>• Hybrid systems (on-demand heater mounted on or beside a small buffer tank); and</li> <li>• Combination systems (DHW and air/heat exchanger in one unit; may also include additional HRV or other functions).</li> </ul>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Replace existing low efficiency hot water tanks with (0.80 EF) hot water tanks to capture energy savings associated with reducing the overall consumption of natural gas.</li> <li>• Coordinate measurement solutions with stakeholders and/or third party companies to monitor systems performance and achieved energy savings. This data will be used to confirm savings claims and guide the development of future programs.</li> <li>• Engage the trades community and manufacturers by supporting (0.80 EF) hot water tank technologies.</li> <li>• Educate residential customers about the advantages of (0.80 EF) hot water tank technologies and provide incentives for their adoption when necessary.</li> <li>• Identify market barriers for adoption such as poor system performance, low product availability, lack of skilled contractors, low participant uptake numbers, and lack of awareness.</li> </ul>



<b>Status</b>	<p>A (0.80 EF) hot water heater pilot taskforce has been established with the CGA and Local Distribution Companies ("LDC") to discuss pilot rollout options and contributions on a national scale. An initial study, funded by the Companies, focused on the market transformation plan for DWHs prepared by Habart &amp; Associates Consulting Inc. This study has been used as supporting documentation for the pilot program and includes a market transformation plan as well as performance estimates and installation costs for each selected (0.80 EF) hot water technology.</p> <p>This study revealed that there is a large technology gap between level two (0.67 EF) and level three (0.80 EF) equipment technologies. Level three technologies are just now emerging into residential applications and lack performance data, contractor familiarity, best installation practices, and product availability. The Companies conveyed those barriers to the stakeholders and all agreed that it would limit the success of reaching NRCAN's 2016 regulation of (0.80 EF) hot water tanks. In late September, the CGA convened with NRCAN and was successful in delaying those regulations from 2016 to 2020.</p> <p>Currently the Companies and stakeholders are establishing program design and monitoring solutions and incentive amounts for delivering the pilot program.</p>
<b>Implementation</b>	
<b>Administration</b>	To be determined
<b>Communications</b>	To be determined
<b>Evaluation Strategy</b>	A proposal for handling administration, measurement, and evaluation for the (0.80 EF) hot water pilot program has been received from Natural Gas Technology Center ("NGTC") and is currently under review.

### 3.4.3.3 *Furnace Scrap-it Program (Rebates and Financing Option Under Development)*

#### 3.4.3.3.1 2012 Furnace Scrap-It Program Overview

<b>2012 FURNACE SCRAP-IT PROGRAM</b>	
<b>Target Audience</b>	Residential Retrofit Customers
<b>Duration</b>	Proposed launch date of Q2 2012 and ongoing
<b>Incentive</b>	Combination of rebate and financing option being proposed
<b>Partners</b>	Ministry of Energy and Mines, financial institutions, and furnace manufacturers
<b>Overview</b>	
<b>Background</b>	<p>Although the latest iteration of the ENERGY STAR® Heating System Upgrade Program was highly successful, there is much evidence that transformation of this market is not complete. The 2008 REUS suggests that only 16% of the Companies' residential customers have high efficiency furnaces (90% AFUE and higher), 39% have mid-efficiency furnaces (78% to 85% AFUE), and 45% have standard efficiency furnaces (less than 78% AFUE). This indicates that 84% of the Companies' customers have either a need to upgrade their standard efficiency furnaces or have mid-efficiency furnaces that are close to the end of their useful lives. There is a substantial need for incentives or financing options that would help remove financial barriers for proactive</p>

	<p>furnace replacement and a huge opportunity for energy savings and GHG emissions reductions through such initiatives.</p> <p>Furnace replacement was identified as a huge energy savings opportunity in the development of the Technical Potential of the 2010 CPR. There is enormous opportunity to significantly impact the age distribution profile of existing furnace stock. The Ministry of Energy and City of Vancouver are evaluating opportunities for financing programs for home efficiency upgrades. The EEC team will also investigate different financing models for home renovation loans that promote efficiency upgrades.</p> <p>There are challenges that need to be overcome in launching a Furnace Scrap-It program:</p> <ul style="list-style-type: none"> <li>• In traditional DSM environments, rebate programs cannot be in market for measures that are regulated. It would be essential that government stakeholders and regulators support this initiative in order to take it to market;</li> <li>• If the Companies were to actively promote early retirement it is important to include product stewardship as one of the program requirements to ensure that old furnaces are recycled safely;</li> <li>• Contractors, distributors, and manufacturers would be key to the successful rollout of this program. Adequate inventory would have to be in place and an assurance that no fraudulent mid-efficiency replacements took advantage of the offer; and</li> <li>• With the low cost of gas, it is difficult to convince customers that a new furnace has a direct pay-back with the full capital cost of the investment top of mind for the consumer. It would be beneficial to educate consumers about the additional benefits such as comfort, improved air quality, and furnace reliability.</li> </ul> <p>The national market penetration of high efficiency furnaces in Canada is reported to be 40%, while the Wisconsin Energy Conservation Corporation reports the market share of high efficiency furnaces in Illinois, Michigan and Ohio range from 52% to 73%. Wisconsin has achieved a 92% penetration. Market intelligence is difficult to obtain but an exact estimate for the province of BC would be beneficial.</p> <p>The enforcement of federal efficiency regulations apply only to the manufacturing of high efficiency models, but mid-efficiency models can still be sold. Therefore it appears that a sizeable inventory of mid-efficiency furnaces remain in the market. From time to time we see advertisements promoting the merits of mid-efficiency over high efficiency furnace replacement.</p> <p>The Companies are also gathering anecdotal evidence of lower efficiency furnaces that are due for replacement remaining in place and having repairs "jerry rigged" as a way to avoid some of the venting issues that British Columbians may face with the introduction of the government's 90% efficient furnace regulation. The "Give Your Furnace Some TLC" furnace service campaign is one way of engaging customers in dialogues with contractors to promote replacement. In fact, program evaluation suggested that about 15% of participants required upgrades or replacements and participants cited financial considerations as the major barrier. Although we use 18 years as the measure of life for furnace upgrade, our 2010 programs indicate that customers are keeping their furnaces for a much longer timeframe. Participants in the Switch N Shrink oil conversion program report that replaced furnaces are 36 years old on average. while the furnace upgrade program participants report that replaced furnaces are 27 years old on average.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Actively promote proactive furnace replacement with high efficiency furnaces to reap the associated energy savings of ENERGY STAR® heating systems, thereby substantially reducing GHG emissions in the residential sector.</li> <li>• Reinforce the compliance and market penetration of high efficiency furnaces with installers, distributors, and manufacturers.</li> </ul>

	<ul style="list-style-type: none"> <li>In driving the market, further relationships with manufacturers, distributors, and installers of natural gas heating systems.</li> </ul>
<b>Description</b>	This Furnace Scrap-it program, if implemented, will help remove financial barriers preventing homeowners from upgrading to ENERGY STAR® furnaces. This program is in the early stages of development and still requires discussions with a large number of stakeholders. The Companies are evaluating available market and technical data to establish a sound business case and cost benefit analysis before proceeding. If research suggests the program is viable, the Companies will consider launching a Furnace Scrap-It program in Q2 2012.
<b>Implementation</b>	
<b>Administration</b>	To be determined based on program direction.
<b>Communications</b>	Integrated marketing plan with financial partners and other stakeholders will be proposed during business case development.
<b>Evaluation Strategy</b>	TBD

#### **3.4.3.4 EnerGuide 80 New Construction Program**

<b>ENERGUIDE 80 NEW CONSTRUCTION PROGRAM</b>	
<b>Target Audience</b>	Builders and developers
<b>Duration</b>	Proposed launch date of Q2 2011 and ongoing
<b>Incentive</b>	Under development
<b>Partners</b>	BC Hydro, Ministry of Energy and Mines, Ministry of Housing, and CHBA Built Green
<b>Overview</b>	
<b>Background</b>	<p>The Province of British Columbia is in the process of evaluating and developing new building code standards that would move the current EnerGuide 77 efficiency rating to a new target of EnerGuide 80 for new home construction. There is potential for the Companies to provide incentives to encourage the early adoption of EnerGuide 80 ratings for new home construction. FortisBC is working with internal and external stakeholders to understand the implications of the transition from the current BC Building Code to new EnerGuide 80 (EGH80) regulations scheduled for the fall of 2012.</p> <p>As new building codes will not take effect until 2012, now is the time to encourage builders and developers, through incentives, to begin building homes to the EnerGuide 80 standards. Ideally, incentives will help builders and developers define the prescriptive measures that will achieve EnerGuide 80 standards and prepare the market for the new building code changes.</p> <p>Through program implementation, FortisBC will gain a greater understanding about recommended measures, their costs and benefits, and how to build the larger strategic vision of lifecycle costs of natural gas heated homes versus electric. Through financial support, training programs for builders, and outreach to residential customers about the merits of efficient homes, FortisBC will support builders and developers in the transition to EGH80.</p> <p>Beyond EEC's New Construction Program, participation in the introduction of new building codes and standards are key to positioning natural gas attachments and the introduction of alternative energy systems. With the provincial mandate of Net Zero Ready homes by 2020, FortisBC must be positioned to play a role in these fundamental shifts in energy usage for</p>

	the residential sector. For further discussion of building codes and standards please refer to Section 11.2.3.
<b>Description</b>	Extensive energy modelling and economic modelling has been conducted with the result that based on information available at the time of writing, the program does not pass the TRC. The Companies are working with the provincial government to determine the next steps for program implementation. The Companies intend to be involved in educating builders and guiding policy. A new construction program is essential to the Utility's role in the province's Energy Efficient Building Strategy <sup>19</sup> .
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Develop a Residential New Construction Program to promote energy efficiency in new home construction and prepare the market for the introduction of the EnerGuide 80 building code for early 2012.</li> <li>• Through training and financial support, assist builders and developers in the move to more efficient construction practices to achieve EnerGuide 80 (i.e. building envelope measures, heating and hot water systems, and ENERGY STAR® appliance packages).</li> <li>• Understand the implications of EnerGuide 80 building code standards and beyond as they relate to gas heated homes.</li> <li>• Understand our role in developing or supporting the Ministry's prescriptive path for gas heated homes and recommend a strategy.</li> <li>• Strengthen relationships with developers, CHBA, BC Hydro New Homes program, and the trades community in relation to new construction.</li> <li>• Position our role as a gas supplier in ongoing codes and standards and Net Zero Ready homes.</li> <li>• Be vigilant about how changes to the EnerGuide rating system will affect future program planning.</li> <li>• Through program research develop a life cycle cost analysis for natural gas versus electric homes.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	The Companies – internal accounting.
<b>Communications</b>	Develop an integrated marketing plan utilizing the Companies' internal marketing opportunities and partnerships with CHBA, other utilities, and trade publications. Target builders and educate consumers about the merits of EnerGuide 80 homes.
<b>Evaluation Strategy</b>	Evaluation will include the best approach to measure program effectiveness and capture energy savings estimates.

### 3.5 Summary

Overall the 2010 Residential Energy Efficiency Program Area was successful. The various programs and initiatives engaged customers in upgrading appliances to capture energy savings, supported the introduction of new provincial regulations, and reached out to the trades community for education and program awareness. The combination of financial incentives,

<sup>19</sup> BC Energy Efficient Buildings Strategy: More Action, Less Energy. BC Ministry of Energy and Mines Publication, 2008.

policy support, contractor outreach, and effective marketing is key to the ongoing success of these programs in generating natural gas savings and the culture of conservation in BC.

Programs in 2011 will focus on energy savings associated with re-launching improved iterations of the “Give Your Furnace Some TLC” furnace service program, efficient hot water heater storage tank program, and EnerChoice fireplaces. The Companies are also assessing opportunities for the new construction market and introducing initiatives for low-cost energy measures for homeowners. Feasibility studies and program implementation plans will be put in place for the launch of a Furnace Scrap-It program in 2012. In addition to energy and GHG emissions savings, the programs will assist the provincial government in engaging industry in regulation compliance and promote energy conservation messaging in all promotional materials. By engaging customers, trades, suppliers, and manufacturers in dialogues about energy efficiency, these programs propagate the conservation culture. The integration of EEC program goals is critical to the Companies’ role in driving market transformation of energy efficient technologies for the residential sector.

## **4 COMMERCIAL ENERGY EFFICIENCY PROGRAM AREA**

### **4.1 Overview**

Commercial Energy Efficiency programs are aimed at encouraging commercial customers to reduce their overall consumption of natural gas and their energy costs. These programs are offered to both new construction and retrofit applications in FEI and FEVI service areas.

While residential programs focus entirely on single family dwellings, rowhouses, and townhomes (Rate Schedule 1 customers), commercial programs focus on a broader range of customer groups. The Companies serve over 80,000 commercial accounts, representing a wide variety of organizations, both private and public in nature. Commercial customers consume anywhere from 100 to over 40,000 GJ/yr, and are provided services through various customer rate schedules. Typical examples include small and large multi residential buildings, small businesses, food services such as restaurants, retail stores, large commercial office space, schools and universities, government buildings, hospitals, and manufacturing facilities.

Energy efficiency in the commercial sector represents a considerable opportunity to achieve natural gas savings and GHG emissions reductions. According to the Companies' latest Conservation Potential Review, in 2010 commercial customers consumed nearly 57 million GJs of natural gas and represent achievable potential natural gas savings of approximately 4.5 million GJ/yr by 2030. Notably, regulation of natural gas burning equipment is less prevalent for the commercial sector compared to the residential sector, even though higher efficiency options exist. This means there are a great number of cost effective opportunities available to the Companies to encourage reduced natural gas consumption in the commercial sector via demand side management ("DSM") programs; however, reaching out effectively to commercial customers presents challenges. Most importantly, the great diversity of natural gas burning equipment and systems and associated solutions imposes significant resource requirements on program development, delivery, and administration. Ultimately, capturing the considerable natural gas savings offered by the commercial sector requires the dedication of correspondingly significant resources in order to effectively target the diverse needs of the commercial sector.

Overall, the Companies believe the commercial energy efficiency and conservation programs deliver value by effectively encouraging commercial customers to implement measures that reduce their natural gas consumption, helping keep energy costs low and contributing to the realization of the government's energy and climate objectives.

#### **4.1.1 PROGRAM AREA GOALS**

The Commercial Energy Efficiency programs pursue a number of objectives in order to deliver value. More specifically, they focus on:

- Reducing natural gas consumption and GHG emissions by encouraging commercial customers to upgrade from low efficiency to high efficiency systems and/or change their behaviour;
- Precipitating market transformation by educating commercial customers, tradespeople, and design professionals about the advantages of energy efficient options, as well as building capacity among suppliers/manufacturers and the trades community; and
- Prudently investing in supporting customer capital asset upgrades.

In support of the objectives outlined above, the Companies also strive to:

- Develop cost effective programs with a Total Resources Cost ("TRC") score greater than 1.0 that optimize the proportion of incentives over administration and marketing costs; and
- Conduct program evaluations that confirm savings claims and guide the development of program enhancements and future programs.

## 4.2 2010 Commercial Program Area Results

Table 4-1 provides a summary of the commercial program area's performance in 2010. The commercial program area has delivered natural gas reductions while maintaining a very healthy overall cost benefit (TRC) score of 1.7 for FEI and 1.8 for FEVI; however, overall investment remains below budget levels, indicating additional work and resources are required to ramp up to the approved spending limits and maximize natural gas savings.

**Table 4-1: Value from Commercial Energy Efficiency Programs in 2010**

Program	New Const / Retrofit	Incentives & Non-Incentive			NPV Energy Savings (GJ)			TRC	
		FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
Efficient Boiler Program	New Const	75	6	81	27	1	28	1.6	1.3
	Retrofit	1,213	103	1,315	379	30	408	1.4	1.2
Light Commercial ENERGY STAR® Boiler Program	New Const	1	-	1	1	-	1	4.8	0.0
	Retrofit	95	13	108	65	7	72	1.6	1.2
Efficient Commercial Water Heater Program	New Const	-	-	-	-	-	-	0.0	0.0
	Retrofit	19	4	22	5	1	6	1.1	0.9
Energy Assessment Program	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	91	17	108	17	4	22	2.4	2.9
PSECA Initiative	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	554	302	856	163	108	271	2.4	2.2
Spray N' Save 2010	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	N/A	16	16	N/A	6	6	N/A	3.9
Fireplace Timers Pilot Program	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	10	-	10	2	-	2	2.3	0.0
TOTALS		2,056	461	2,517	659	157	817	1.7	1.8

The Commercial Energy Efficiency programs have encouraged commercial customers to reduce their annual natural gas consumption by approximately 104,000 GJ/yr, equivalent to over 817,000 GJs over the lifetime of the energy saving measures. This is equivalent to providing natural gas to nearly 1,100 single family homes or taking over 1,050 cars off the



road<sup>20</sup> over the same period. As a result, approximately 5,260 tons of annual GHG emissions will be avoided.

Within the current climate of low natural gas prices, this represents a remarkable success as the price of natural gas cannot be considered a driver of energy efficiency upgrades to any great extent, except in those customers with very high gas consumption or where natural gas is an input into some business process. Although the current price of gas can make it a challenge to find cost effective energy saving measures to incent, it reinforces the need for energy efficiency programs in order to achieve the government's energy and climate change objectives. With low natural gas prices, some customers are not motivated to save without utility encouragement. Energy Efficiency and Conservation programs then become necessary to drive long term market transformation towards improved efficiency.

A few additional highlights from 2010 include:

- Over \$2.4 million committed as incentives to energy efficiency projects;
- A 58% increase year over year in Efficient Boiler program participation;
- The launch of the Efficient Commercial Water Heater program;
- Participation in the Public Sector Energy Conservation Agreement in partnership with the Climate Action Secretariat and BC Hydro; and
- Work with BC Hydro to develop joint program offerings (Refer to 4.4.3.2 Commercial Custom Design Program).

While the commercial programs have done well on a number of counts, the Companies have also faced challenges and identified areas for improvement. With just over \$2.5 million expended in this program area, the commercial programs have ultimately underinvested when compared to the approved amounts. This underinvestment represents opportunities to reduce natural gas consumption that have not been capitalized upon. This situation is a result of the considerable diversity of needs among commercial customers and a requirement for sufficient EEC resources to address those needs. When it comes to commercial area DSM programs, one size does not fit all. While the Companies' initial focus has been to develop and operate DSM programs around technologies with broad applicability to the commercial sector, investing more and obtaining greater savings requires a more focused approach, with programs tailored to meet the needs of specific subsectors. This approach will necessarily require resources to be able to focus more specifically on the needs of the various subsectors. Beyond program design, relationships with outside organizations and associations are crucial to program success and these must be cultivated. The Companies must have the resources in place to invest the required time and effort to build trust and confidence with partners in order to help assure program success.

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<sup>20</sup> Based on five tons of carbon dioxide per year for a typical mid-sized car driven 20,000 kilometres per year. Source: Statistics Canada, accessible at: <http://www.statcan.gc.ca/pub/16-251-x/2006000/findings-resultats/greenhouse-serre/4156371-eng.htm>.



Additionally, with the absence of program operations personnel or an outsourcing solution, the commercial EEC team spends a considerable amount of time on program administration as opposed to program design and roll out, thereby slowing the introduction of new programs and hindering the ability to invest in commercial EEC program development activity. Receiving and processing applications, contacting customers for missing documentation, responding to enquiries, and issuing incentive payments are all handled by the program design staff, who should be otherwise focused on developing and promoting new programs. The Efficient Boiler program process, in particular, is complex and requires much support from EEC staff in order to see participants successfully through the program and to ensure rebates are ultimately issued. A revision to the program is currently under development and designed to simplify the process to free up many hours that can be redirected towards more valuable work. Administrative work is central to ensuring predictability, consistency, and continuity of the commercial area programs, however, and cannot be neglected. Commercial customers must view the programs as being reliable if they are to be encouraged make decisions that will have an impact in the medium term based on the availability of an incentive from the Companies.

Despite these challenges, the Companies consider this first full year of operation under the EEC project to have been a foundation year for the Commercial Energy Efficiency programs. Valuable experience has been developed while relationships with partners in utilities, government, and industry have been fostered. The Companies now intend to build upon this foundation to deliver even greater value in 2011.

#### **4.3 2011 Commercial Program Area Outlook**

The Companies intend to broaden their commitment to Commercial Energy Efficiency programs in 2011. Table 4-2 provides an overview of some of the expected program spending, and a glimpse of the new program offerings the Companies' have under development. In addition to retaining many of the existing commercial programs the Companies intend to bring several new programs to market. Most notably, the Commercial Custom Design Program will begin providing incentives in tandem with BC Hydro's incentive programs. The outlook for these programs is outlined below.

**Table 4-2: Broader Offering for Commercial Energy Efficiency Programs in 2011**

Program	New Const / Retrofit	Incentives & Non-Incentive			NPV Energy Savings (GJ)			TRC	
		FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
Efficient Boiler Program	New Const	200	13	212	73	2	76	1.6	1.2
	Retrofit	1,334	113	1,447	425	35	460	1.4	1.4
Light Commercial ENERGY STAR® Boiler Program	New Const	15	-	15	10	-	10	1.6	0.0
	Retrofit	165	32	197	114	17	132	1.6	1.2
Efficient Commercial Water Heater Program	New Const	8	3	11	3	1	3	1.2	1.3
	Retrofit	108	9	118	40	3	43	1.2	1.0
Energy Assessment Program	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	100	19	119	19	5	24	2.7	3.3
PSECA Initiative	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	824	216	1,040	323	59	382	0.7	1.0
Low Flow Spray Valve Program	New Const		-			-		1.9	0.0
	Retrofit	23	5	28	8	2	9	2.4	2.4
Fireplace Timers	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	20	2	22	5		5	2.5	2.0
Radiant Tube Heaters Pilot Program	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	10	-	10	3	-	3	1.5	0.0
Commercial Custom Design Program	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Continuous Optimization Program	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Commercial Cooking Program	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Process Heat Program	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Multi Unit Residential Building Program	New Const	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Retrofit	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTALS		2,805	412	3,217	1,023	124	1,146	1.2	1.2

Expenditures from new programs (indicated in grey shade) are not included in the table above as work on business cases or detailed program design is in progress, thus preliminary spending estimates are not yet available. As a result of the introduction of new programs in 2011, the Companies expect to spend significantly more than the approximately \$3 million indicated above.

Collectively, this portfolio will continue to create value in 2011 with the important stakeholder group of commercial customers, while laying a foundation for continued EEC efforts in 2012 and beyond.

#### **4.4 Commercial Program Details**

Program descriptions for each of the Companies' commercial energy efficiency offerings follow below. Table 4-3 provides an overview of the commercial incentive programs, indicating which programs were completed in 2010, which programs remain active moving into 2011, and which programs are currently under development.

The commercial programs generally maintain very strong TRC test scores. With more limited regulation, higher natural gas use intensities, and most importantly a greater diversity of gas burning systems and equipment than for residential customers, finding cost effective

opportunities for investment is generally easier for the commercial program area. Capitalizing upon those opportunities, however, requires greater time, effort, and resources.

**Table 4-3: Commercial Program Overview**

Program	Utility		Description	TRC	
	FEI	FEVI		FEI	FEVI
Completed Programs					
Spray N' Save 2010 Program	N/A	X	Free provision and install of low flow pre rinse spray valves. Partnership with BC Hydro.	N/A	3.9
Active Programs					
Efficient Boiler Program	X	X	Rebate program for high efficiency commerical boilers > 300 MBH Input.	1.4	1.2
Light Commercial ENERGY STAR® Boiler Program	X	X	Rebate program for high efficiency commerical boilers < 300 MBH Input.	1.6	1.2
Efficient Commercial Water Heater Program	X	X	Rebate program for high efficiency commercial water heaters with thermal efficiency > 84%.	1.1	0.9
Energy Assessment Program	X	X	No charge energy use assessments of commercial facilities.	2.4	2.9
PSECA Initiative	X	X	Financial incentives for cost effective energy saving measures presented in an Energy Study. Partnership with Ministry of Environment.	2.4	2.2
Fireplace Timers Pilot Program	X	X	Pilot program to assess the natural gas savings potential of fireplace "time-of-operation" controllers in multi-unit residential buildings.	2.5	2.0
Radiant Tube Heaters Pilot Program	X	X	Pilot program to assess the incremental costs and savings potential of radiant tube heaters when used for space heating in place of standard unit heaters.	1.5	0.0
Programs in Development					
Low Flow Spray Valve Program	X	X	Free provision and install of low flow pre rinse spray valves. Partnership with Green Table.	2.3	2.4
Commercial Custom Design Program	X	X	Financial incentives for cost effective energy saving measures presented in an Energy Study. Partnership with BC Hydro.	N/A	N/A
Continuous Optimization Program	X	X	Incentive program to capture energy savings via building commissioning. Partnerships with FortisBC and BC Hydro.	N/A	N/A
Process Heat Program	X	X	Rebate program targeted at Manufacturing processes.	N/A	N/A
Commercial Cooking Program	X	X	Rebate program targeted at commercial cooking appliances.	N/A	N/A
Multi Unit Residential Building Program	X	X	Suite of Rebates targeted primarily at "In-Suite" energy saving measures for MURBs.	N/A	N/A

#### 4.4.1 COMPLETED PROGRAMS

##### 4.4.1.1 Spray N' Save 2010 Program

##### 4.4.1.1.1 Program Overview

Spray N' Save 2010 Program	
<b>Market</b>	New Construction / Retrofit
<b>Duration</b>	FEI: Not available FEVI: May 2010 to Aug 2010
<b>Incentive</b>	Direct install of low flow pre rinse spray valves funded entirely by the Companies
<b>Partner</b>	BC Hydro

<b>Overview</b>	
<b>Background</b>	Low flow pre rinse spray valves use approximately 50% less water than standard models <sup>21</sup> , significantly reducing the volume of heated water used in dishwashing operations. This, in turn, reduces the energy demands placed on the hot water system, and thereby the overall energy consumption of a given facility. Pre-rinse Spray Valves ("PRSVs") are commonly used in restaurants, hotels, schools, grocery stores, and hospitals to rinse down plates, pots, and pans.
<b>Description</b>	A direct install program for low flow pre rinse spray valves offered in partnership with BC Hydro, focusing on an as yet underserved population centre: southern Vancouver Island. FEVI installed, free of charge, new low flow pre rinse spray valves in willing food service facilities (i.e. restaurants, coffee shops, delis, groceries, and so on) in order to reduce the volume of hot water used in dishwashing. The program focused on southern Vancouver Island, specifically: the Capital Regional District, Cowichan Valley Regional District, and the Nanaimo Regional District. Similar to the Okanagan program offered in the summer of 2009, it achieved a reduction in natural gas consumption associated with the production of hot water by reducing hot water use in commercial kitchens.
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Reduce natural gas consumption associated with dishwashing by installing low flow pre rinse spray valves in food service establishments.</li> <li>• To install 250 to 300 spray valves in southern Vancouver Island over the course of the summer.</li> <li>• To achieve gas savings of approximately 2,200 GJ/year and save our FEVI customers approximately \$28,000 in annual gas expenditures.</li> <li>• To raise awareness of energy efficiency, especially as it pertains to water heating, among FEVI's commercial cooking customers, with a view to increasing participation in FortisBC commercial programs.</li> <li>• To pursue a commercial cooking equipment program and use the information from this pilot to gather lists of potential participants.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	The program was implemented by a program operator working out of the FEVI offices in Victoria, reporting to the EEC commercial program manager in Surrey. The program operator was responsible for seeking out and making contact with potential program participants, answering questions about the program and the valves, scheduling appointments, installing the valves at all participant locations, recording field data, and producing a final report on the findings.
<b>Communications</b>	<p>The program's requirement for communications material or collateral was relatively light. Program promotions and participant uptake was driven primarily by the program operator. As such, communications / collateral requirements were limited to:</p> <ol style="list-style-type: none"> <li>1. Participant consent form;</li> <li>2. Information card to hand out to participants or potential participants; and</li> <li>3. A website to inform potential participants about the program and allow them to request the installation of a low flow spray valve.</li> </ol>

<sup>21</sup> FortisBC 2010 Spray 'n' Save Victoria Program Results.

<b>Evaluation Strategy</b>	<p>The program evaluation relies upon site specific data collected during the valve install and the application of engineering analysis to establish the energy savings.</p> <p>For each valve installed the program operator measured:</p> <ul style="list-style-type: none"> <li>• The hot water supply temperature;</li> <li>• The cold water supply temperature;</li> <li>• The old valve flow rate; and</li> <li>• The new valve flow rate.</li> </ul> <p>The operator also recorded the time of usage as reported by the restaurant staff. These data were then used to establish the natural gas savings for each valve. All savings data was then statistically analyzed to produce an average savings value per valve.</p> <p>The program made use of collected data pertaining to every installation and analytical methods to quantify the energy savings. The results of the program were presented in a report format and were used as a baseline for the 2011 Low Flow Spray Valve Program (section 4.4.3.1).</p>
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#### 4.4.1.1.2 2010 Spray N' Save Program Results

Low flow pre rinse spray valves continue to generate a strong cost benefit ratio and save significant amounts of natural gas among commercial food service establishments. The 2010 program focused on southern Vancouver Island and delivered a TRC score of 4.0, as indicated in Table 4-4 below.

**Table 4-4: 2010 Spray N' Save Program Actuals**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
Retrofit	FEI	-	-	-	-	-	12%	0.0
	FEVI	194	12	4	1,529	6,322	12%	3.9
<b>TOTALS</b>		194	12	4	1,529	6,322	12%	3.9

With a total of 263 low flow pre rinse spray valves installed, the 2010 Spray N' Save program successfully surpassed its target of 255 valves. Using data collected during the installation of the new valves, the total natural gas savings are estimated to be 2,073 GJ/yr; enough to provide natural gas to approximately 20 single family homes for a year. This figure may well be conservative as it assumes a 50/50 mix of hot and cold water (i.e. 98° F supply temp) at the spray valve. Mixed water temperatures are often more in the range of 105° F. Additionally, the measured water temperature differential between hot and cold water is based on summertime cold water temperatures. In winter, when the ground temperature falls, so too will the cold water supply temperature, thereby increasing the savings of the spray valves. Overall, the program invested over \$20,000 in natural gas efficiency over the course of the summer.

The program displays a very positive cost/benefit ratio of 4.0. In fact, it is estimated that, given the maximum installed cost of approximately \$130 per valve, the average full service commercial food service establishment would recoup the full cost of the valves in approximately one year from the date of installation. With a five year measure life, participants enjoy the financial net benefit of lower gas consumption every year thereafter. One may question why a utility supported DSM program is required, given the strong value proposition low flow pre rinse spray valves represent. The Companies believe that despite the value proposition, the dynamics of the food service industry make it unlikely this measure would be widely adopted without the support of a program. The commercial food service business sector tends to be exposed to significant volatility, making “cheapest first cost” a critical purchase decision criteria for items not critical to customer service. Food service establishments typically lack the time or resources to research energy saving options or understand the benefits provided. Though low flow spray valves pay for themselves relatively quickly, the ultimate magnitude of the dollar savings per any single valve is unlikely to move most potential beneficiaries to action. A utility funded DSM program makes it easy and straight forward for participants to save natural gas by effectively eliminating both the effort and risk potential participants would normally associate with the selection of high efficiency options.

The spray valve program also plays an important role in introducing a new concept to the food service industry, namely that energy is a variable cost. The Companies believe most food service establishments consider energy to be a fixed cost and that changing this mindset is essential to ultimately bringing about market transformation. In this light, the Companies believe low flow pre rinse spray valve programs are an essential first step that will lead to greater energy savings down the road.

#### *4.4.1.1.3 2011 Spray N’ Save Program Performance Forecast*

The Spray N’ Save 2010 program was set up as a small program, limited to the southern end of Vancouver Island. The Companies plan to offer another low flow pre rinse spray valve install program in 2011; however, a number of significant changes to the program operation are proposed. As such the 2011 program is discussed in section 4.4.3.1.

#### *4.4.1.1.4 Spray N’ Save Program Summary*

The program installed 263 low flow pre rinse spray valves in locations that had previously used standard flow rate sprayers, generating significant natural gas savings as a result. Commercial food service operators have become aware of the low flow option and in nearly every case have indicated they are satisfied with the performance. In fact, of the original 265 valves installed, only two were uninstalled due to dissatisfaction. The Companies believe the program has successfully generated tangible GJ savings benefits, as well as non-tangible benefits derived from raising energy awareness in the commercial food service sector.

## 4.4.2 ACTIVE PROGRAMS

### 4.4.2.1 Efficient Boiler Program

#### 4.4.2.1.1 Program Overview

Efficient Boiler Program	
<b>Market</b>	New Construction / Retrofit
<b>Duration</b>	FEI: 2005 – Dec 31, 2011 FEVI: 2005 – Dec 31, 2011
<b>Incentive</b>	<p>Purchase price incentives (rebates):</p> <ul style="list-style-type: none"> <li>Near-condensing boilers: \$4,000 per boiler plus \$3 per MBH plant input; and</li> <li>Condensing boilers: \$6,000 per boiler plus \$9 per MBH plant input.</li> </ul> <p>For new construction participants the program offers:</p> <ol style="list-style-type: none"> <li>A maximum incentive payment (calculated as noted above) of up to 75% of the incremental purchase price of higher efficiency boilers. The purchase price of a standard-efficiency boiler is estimated using \$7 per MBH of input; and</li> <li>An incentive payment of 50% of a consultant's fees to a maximum \$1,500 to offset the cost of analyzing the annual gas usage for space heating using a standard-efficiency boiler system versus a higher efficiency boiler system.</li> </ol> <p>For retrofit participants the program offers:</p> <p>A maximum incentive payment (calculated as noted above) of up to 50% of the incremental purchase price of higher efficiency boilers. The purchase price of a standard-efficiency boiler is estimated using \$7 per MBH of input;</p> <ol style="list-style-type: none"> <li>An incentive payment of \$400 to help offset the cost of engaging a contractor to accurately estimate the peak space-heating load;</li> <li>Where stainless steel venting is installed, an incentive of 50% of the cost up to \$2,000; and</li> <li>For participants who so choose, a monitoring incentive of \$1,500 plus \$1 per GJ of energy saved for closely monitoring and reporting on boiler operation and efficiency during the first year of operation.</li> </ol>
<b>Partner</b>	None
Overview	
<b>Background</b>	<p>Approximately 60% of commercial gas consumption in BC is used for space heating. High efficiency boiler technology, when used as part of a properly designed heating system, generates significant annual energy savings over a comparatively long estimated measure life. In fact, high efficiency boilers represent one of the most significant sources of achievable savings for the commercial sector in BC<sup>22</sup>. Fully 19% of such savings is attributable to high efficiency boilers.</p> <p>Minimum required boiler efficiencies are regulated within the province by the British Columbia Energy Efficiency Act and the Energy Efficiency Standards Regulation. Similarly, minimum boiler efficiencies are regulated in Canada as a whole by the</p>

<sup>22</sup> FortisBC 2010 Conservation Potential Review, Commercial Sector Report, Marbek Resource Consultants, 2011, pg 55.



	<p>federal Energy Efficiency Act. These acts regulate products manufactured in or imported to Canada and BC for domestic sale.</p> <p>Current regulation generally requires boilers to have a minimum efficiency of 80%. A proposed amendment to Canada's energy efficiency regulations would see the minimum required combustion efficiency of large boilers climb to 90% over the same period. The Efficient Boiler program is helping ease implementation of this proposed regulation by familiarizing market participants with high efficiency technology prior to the implementation of more stringent regulation.</p>
<b>Description</b>	<p>In operation since 2005, the Efficient Boiler program is FEI and FEVI's flagship Commercial Energy Efficiency program aimed at reducing gas consumption associated with space heating.</p> <p>By encouraging the use of high efficiency boilers, the Efficient Boiler program directly targets the commercial sector's most significant source of gas consumption (space heating) via one of its most widely used and longest lasting gas burning appliances (boilers). Installing such boilers today has a lasting impact by reducing gas consumption now, while paving the way for market transformation and ultimately more stringent regulation of commercial boilers.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Reduce commercial sector gas consumption by encouraging the installation and use of high as opposed to standard efficiency boilers for space heating.</li> <li>• Increase year over year participation rates in view of maximizing gas savings.</li> <li>• Educate medium to large commercial customers about the advantages of high efficiency boilers and provide an incentive to facilitate the purchase of high efficiency technology. Support and prepare the way for any provincial or federal regulation requiring increased boiler efficiency.</li> <li>• Advance the level of skill, capacity, and understanding within trades/mechanical contractors on the correct installation practices and requirements of modern high efficiency commercial boilers.</li> <li>• Maintain a program TRC score greater than 1.0 and optimize the proportion of incentives over administration and marketing costs.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	<p>Program administration is handled entirely in-house by the Companies' EEC Staff. Shifting program administration to an outside service provider or dedicated program operations personnel is a requirement in 2011 in order to free up internal resources to be redirected towards new commercial program development and roll out.</p>
<b>Communications</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.fortisbc.com">www.fortisbc.com</a> – All program information, application forms, and program terms and conditions were maintained on the Efficient Boiler program webpage.</li> <li>• Commercial customer outreach initiative that saw the Companies call over 80,000 commercial customers to provide information on the Efficient Boiler program, among others.</li> <li>• Advertisements in American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE) newsletters and the Association of Professional Engineers and Geoscientists of British Columbia's ("APEGBC") magazine.</li> <li>• Stakeholder focus group/feedback session in June 2010 with suppliers, contractors, engineers, participants and potential customers, energy managers, and safety officials.</li> <li>• Speaking engagements / presentations describing the program at events such as: BC Apartment Owners and Managers Association semi-annual tradeshow, Rental Owners and Managers Society of BC tradeshow, NRCan "Spot the</li> </ul>



	<p>energy savings” workshop on Vancouver Island, BC Hydro PowerSmart forum, BC Hydro energy managers training session, FortisBC energy specialist training session, Vancouver Home Show, Union of BC Municipalities Whistler 2010, Business Improvement Association meetings in Victoria, Kamloops, and Kelowna, and Council of Education Facilities Planners International conference.</p> <ul style="list-style-type: none"> <li>• Tradeshow booth/presence at: BC Agriculture tradeshow, BC Food and Restaurant Association tradeshow, Buildex tradeshow, BC Apartment Owners and Managers Association semi-annual general tradeshow, and Rental Owners and Managers Society of BC tradeshow.</li> <li>• Program brochures describing the program specifics and how to apply were handed out at the presentations and tradeshow mentioned above.</li> <li>• Information distributed to all customer touch points including call centres, sales and service staff, and commercial account managers.</li> </ul>
<b>Evaluation Strategy</b>	<p>In 2010 the Companies:</p> <ol style="list-style-type: none"> <li>1. Completed a focus group session with program stakeholders to find out how various stakeholder groups view the program and to seek input on a revised program structure aimed at better serving stakeholder interests; and</li> <li>2. Began an evaluation study (performed by a third party consultant) of natural gas savings using actual metered data and statistical methods to better quantify the savings of the program.</li> </ol> <p>These two initiatives will serve as an evaluation of the Efficient Boiler program from both the quantitative and qualitative perspectives.</p>

#### *4.4.2.1.2 2010 Efficient Boiler Program Results*

With a solid net benefit-to-cost ratio, high efficiency boilers continue to generate a respectable TRC ratio of 1.4. Given a 58 percent increase in participation versus 2009, the Efficient Boiler program has ramped up its presence in the market and delivered significant natural gas and GHG emissions savings in 2010, as indicated in Table 4-5 below

**Table 4-5: Efficient Boiler Program Actuals**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
<b>New Const</b>	FEI	3	74	1	2,630	27,055	18%	1.6
	FEVI	1	6	1	103	1,097	18%	1.3
<b>Retrofit</b>	FEI	88	1,189	23	36,802	378,622	18%	1.4
	FEVI	8	97	5	2,919	29,642	18%	1.2
<b>TOTALS</b>		100	1,367	30	42,453	436,416	18%	1.4

In 2010, a record number of customers applied to the Efficient Boiler program, choosing high efficiency boilers over standard models. The program significantly outperformed expectations in this regard. As of the writing of this report, the program had officially recorded 100 approved participants with another 15 pending a review of their submitted documentation. By comparison, 2009 saw only 67 applicants in total, 63 of which were accepted into the program as approved participants. The next closest year in terms of participation was 2006, which saw a total of 100

applications received. The Companies believe the increased participation is a result of sustained efforts at promoting both the program itself and the Energy Efficiency and Conservation project more generally, at all available opportunities. The Companies also believe stability and consistency in the program offering (i.e. staying in market over the long term) contributes significantly to encouraging adoption of the high efficiency alternative. The decision to purchase high efficiency boilers is much influenced when the market's awareness of the program is reinforced by its time in market, and when the accepted view of the program is as a reliable source of incentives for high efficiency options.

As indicated in the "Background" section of the Table above, new efficiency regulations are currently being considered by the Government of Canada (Natural Resources Canada). The proposed regulation would see the required minimum efficiency standard of larger gas fired boilers rise from 80 percent to 90 percent by 2018. Successful installation and commissioning of high efficiency boilers requires a knowledge level beyond that of standard efficiency boilers. The Companies believe the program sends a strong signal to the market that the selection of high efficiency options should be adopted as standard practice. By encouraging the installation of high efficiency boilers today, the program is contributing to the development of the required knowledge and capacity within the market, significantly easing the implementation of new regulation over the coming years.

By year end, the efficient boiler program had committed to pay as much as \$1,367,000 (not including pending applications) to participants who successfully complete their boiler installation within one year of submitting their program application. This exceeds the previous largest ever annual commitment of \$1,075,455 from 2006. As in 2009, the objective moving forward is to build upon the current market momentum and the relationships that have been built with market participants to drive the rate of participation in the program in order to maximize commercial sector gas savings.

When total program spending is compared to the avoided cost of the gas, the program turns in a respectable TRC ratio of 1.4. With the free rider rate estimated to be approximately 18 percent, the annual net energy savings derived from the program's 2010 participants is over 42,000 GJs, or over 2,000 tons of GHG emissions reductions. This represents a volume of gas equivalent to the annual consumption of approximately 450 typical single family homes.

That said, room for improvement in the program remains. While the program largely met its objectives for participation on Vancouver Island, participants from the new construction market remain sparse. According to the available Major Projects Inventory quarterly publications, the value of building permits remains well below the peak activity level observed in 2007 and 2008, indicating new construction activity remained generally subdued in 2010. Still, 55 projects of \$15 million or more completed construction between January and September, while 65 began construction. Having garnered only nine new construction participants in 2010, it seems evident that raising the program's profile and generating participation in the new construction market remains a priority. This is despite the Companies' efforts at promoting the program to design professionals via advertisements in both ASHRAE BC and APEGBC's regular publications. More work at promoting the program to decision makers in the new construction marketplace is a must. The Companies' new energy solutions manager positions (see Section 11) will play a

central role in this effort by communicating directly with design professionals around the province. The Companies also still believe there is room for participation growth on Vancouver Island and maintaining promotional activity on the Island is critical to developing momentum and uptake.

#### *4.4.2.1.3 2011 Efficient Boiler Program Performance Forecast*

No significant changes to the cost benefit relationship of high efficiency boilers are foreseen, thus the Companies anticipate the program will continue to generate a TRC ratio of approximately 1.4. The Companies further expect the Efficient Boiler program to build incrementally upon its 2010 participation as reflected in the table below.

**Table 4-6: Efficient Boiler Program Forecast**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
New Const	FEI	8	197	2	7,013	73,434	18%	1.6
	FEVI	2	12	1	205	2,190	18%	1.2
Retrofit	FEI	97	1,308	25	40,482	424,785	18%	1.4
	FEVI	9	107	6	3,211	35,091	18%	1.4
<b>TOTALS</b>		116	1,625	35	50,911	535,500	18%	1.4

Two key initiatives were undertaken in 2010 that will guide activity around the Efficient Boiler program in 2011. First, in June 2010 the Companies conducted a stakeholder focus group to help raise awareness of the program and provide needed and direct insight from industry participants on the program's structure and operation. Second, in September 2010 the Companies began an in-depth, quantitative evaluation study of the program's performance in reducing natural gas consumption. The initial results suggest the natural gas savings are very much in line with what the Companies are currently claiming (approximately 15 percent reduction). The findings of these two initiatives will be used to restructure the program's processes, verify the savings assumptions, and readjust the incentive levels if the cost benefit analysis allows.

As a result of this work and experience gained throughout 2010, the Companies are undertaking revisions to the Efficient Boiler program with program elements designed to focus on three distinct markets:

1. Simple retrofits and new construction;
2. Detailed complex retrofits and new construction; and
3. Operations and maintenance.

The first program element, targeting simple retrofits and new construction, is expected to be operational in 2011. Based on feedback from program participants, this component of the program seeks to

- Make the incentives clear and straightforward to simplify the purchase decision; and
- Reduce the program's administrative burden / overhead for the Companies.

The second and third program elements, focusing on more detailed system design and boiler plant operations and maintenance, will likely be operational in 2012.

In addition, the program will expand the end uses that are eligible for an incentive. Currently, the program only provides incentives for boilers used for space heating. Different end uses are precluded from incentives due to the difficulty in establishing reasonable natural gas savings estimates. Commercial pool and water heating, however, may reasonably be included for incentives moving forward. Commercial pool heating, in particular, is a significant and unaddressed consumer of natural gas and, especially in the case of municipalities, represents an area where program incentive money can make a tangible difference to energy consumption and GHG emissions

It is believed these proposed changes, combined with sustained promotion of the program, will allow the Companies to further the penetration of high efficiency boiler technology in both the retrofit and new construction markets by making the program more visible and accessible to potential participants. Increasing the program's participant numbers furthers the Companies' goal of reducing the commercial sector's gas consumption and bringing about market transformation.

At present, participation is forecasted to grow at a reasonable 10 percent for the key FEI retrofit market; however, the Companies believe additional growth can be expected in the new construction and Vancouver Island markets. Central to this will be the role played by the Companies' new energy solutions managers. The energy solutions managers will be increasing awareness of and participation in Energy Efficiency and Conservation programs by actively participating in industry associations, hosting workshops for commercial customers and seminars for energy managers, and educating small commercial customers through the Service Line newsletter. They will also work one-on-one with current and future commercial customers to increase participation and ease the program's application process.

#### *4.4.2.1.4    Efficient Boiler Program Summary*

The Efficient Boiler program effectively encourages program participants to adopt high efficiency boilers in a market where standard efficiency alternatives remain prevalent. The program is helping pave the way for more stringent regulation by encouraging the market to develop the required competency and capacity to deal with high efficiency boilers now. Incremental increases in participation, in conjunction with the benefits derived from a program overhaul, will add significantly to the natural gas savings and dollar investment potential of the program by making it more accessible to a broader range of market participants.

#### 4.4.2.2 **Light Commercial ENERGY STAR® Boiler Program**

##### 4.4.2.2.1 Program Overview

<b>Light Commercial ENERGY STAR® Boiler Program</b>	
<b>Market</b>	New Construction / Retrofit
<b>Duration</b>	FEI: Aug 2009 – Dec 31, 2011 FEVI: Aug 2009 – Dec 31, 2011
<b>Incentive</b>	<p>Providing that the boiler is used for space heating and/or domestic water heating in combination with space heating:</p> <ul style="list-style-type: none"> <li>• Condensing boilers: \$5 per MBH; and</li> <li>• Near condensing boilers: \$3 per MBH.</li> </ul> <p>Incentives are available for ENERGY STAR® rated boilers ranging in size up to 299 MBH. Beyond 299 MBH no ENERGY STAR® rating is available, and boilers are covered by the Efficient Boiler program.</p>
<b>Partner</b>	None
<b>Overview</b>	
<b>Background</b>	<p>Approximately 60% of commercial gas consumption in BC is used for space heating. High efficiency boiler technology, when used as part of a properly designed heating system, generates significant annual energy savings over a comparatively long estimated measure life. In fact, high efficiency boilers represent one of the most significant sources of achievable savings for the commercial sector in British BC<sup>23</sup>. Fully 19% of such savings is attributable to high efficiency boilers.</p> <p>Minimum required boiler efficiencies for small boilers are regulated within the province by the British Columbia Energy Efficiency Act and the Energy Efficiency Standards Regulation. Similarly, minimum boiler efficiencies are regulated in Canada as a whole by the federal Energy Efficiency Act. These acts regulate products manufactured in or imported to Canada and BC for domestic sale.</p> <p>Current regulation generally requires boilers to have a minimum efficiency of 80%. A proposed amendment to Canada's energy efficiency regulations would see the minimum required thermal efficiency of small boilers climb to 88% by 2018. The Light Commercial ENERGY STAR® Boiler program is helping ease implementation of this proposed regulation by familiarizing market participants with high efficiency technology prior to the implementation of more stringent regulation.</p>
<b>Description</b>	<p>Launched in August 2009, the Light Commercial ENERGY STAR® Boiler program is FEI and FEVI's most recent offering aimed at reducing energy consumption associated with commercial space heating. In contrast to the Efficient Boiler program this program focuses on smaller boilers with a gas input rating of 299 MBH or less. The program is designed to encourage small to medium commercial customers to install energy efficient boilers by offering a cash incentive that is calculated based on the quantity, size, and type of boiler. Typical facilities that see the installation of small boilers include:</p>

<sup>23</sup> FortisBC 2010 Conservation Potential Review, Commercial Sector Report, Marbek Resource Consultants, 2011, pg 55.

	<ul style="list-style-type: none"> <li>• Small to medium apartment buildings;</li> <li>• Small to medium office buildings; and</li> <li>• Schools / universities.</li> </ul> <p>By encouraging the use of high efficiency boilers, the Light Commercial ENERGY STAR® Boiler program directly targets the commercial sector's most significant source of gas consumption (space heating) via one of its most widely used and longest lasting gas burning appliances (boilers). Installing such boilers today has a lasting impact by reducing gas consumption now, while paving the way for market transformation and ultimately more stringent regulation of commercial boilers. See background above for a brief review of the current regulatory context and proposed amendments.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Reduce commercial sector gas consumption by encouraging the installation and use of high efficiency (ENERGY STAR® rated) as opposed to standard efficiency boilers for space heating.</li> <li>• Increase year over year participation rates in view of maximizing gas savings.</li> <li>• Educate small to medium sized commercial customers about the advantages of energy efficient appliances and provide incentives for their adoption when necessary.</li> <li>• Engage the trades community and manufacturers by supporting new, energy efficient technologies.</li> <li>• Advance the level of skill, capacity, and understanding within trades/mechanical contractors on the correct installation practices and requirements of modern high efficiency commercial boilers. Maintain a program TRC score greater than 1.0 and optimize the proportion of incentives over administration and marketing costs.</li> <li>• Support and prepare the way for any provincial or federal regulation requiring increased boiler efficiency.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	<p>Program administration is handled entirely in-house by the Companies' EEC staff.</p> <p>Shifting program administration to an outside service provider or dedicated program operations personnel is a requirement in 2011 in order to free up internal resources to be redirected towards new commercial program development and roll out.</p>
<b>Communications</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.fortisbc.com">www.fortisbc.com</a> – All program information, application forms, and program terms and conditions were maintained on the Light Commercial ENERGY STAR® Boiler program webpage.</li> <li>• Commercial customer outreach initiative that saw the Companies call over 80,000 commercial customers to provide information on the Light Commercial ENERGY STAR® Boiler program, among others.</li> <li>• Program brochures describing the program specifics and how to apply were handed out at tradeshow.</li> <li>• Program brochures and cards describing the program specifics and how to apply were distributed to regional sales / operations centres and sales and service staff.</li> <li>• Approximate combined total of 2,000 pieces of cardstock / brochures</li> </ul>



	<p>distributed.</p> <ul style="list-style-type: none"> <li>Speaking engagements / presentations describing the program at events such as: BC Apartment Owners and Managers Association semi-annual tradeshow, Rental Owners and Managers Society of BC tradeshow, NRCan "Spot the energy savings" workshop on Vancouver Island, BC Hydro PowerSmart forum, BC Hydro energy managers training session, FortisBC energy specialist training session, Vancouver Home Show, Union of BC Municipalities Whistler 2010, Business Improvement Association meetings in Victoria, Kamloops, and Kelowna, Council of Education Facilities Planners international conference.</li> </ul> <p>The Companies are developing a strategic communications plan for the Light Commercial ENERGY STAR® Boiler program. The plan should include:</p> <ul style="list-style-type: none"> <li>Direct email advertising;</li> <li>Additional, targeted magazine/newsletter advertising;</li> <li>On-bill advertising to Rate 2 (Small Commercial) and Rate 3 (Large Commercial) customers;</li> <li>Contractor and engineer information sessions;</li> <li>Additional information sessions on Vancouver Island;</li> <li>More leveraging of industry partner relationships; and</li> <li>A program feedback session with key stakeholders.</li> </ul>
<b>Evaluation Strategy</b>	<p>The Companies believe it is too early to consider performing an in-depth analysis of the energy savings of the Light Commercial ENERGY STAR® Boiler program. Performing such an analysis requires enough participants with new boilers installed for at least one full heating season to generate statistically significant results.</p> <p>A study similar to that conducted on the Efficient Boiler program could be conducted after a sufficient number of program participants have had their new boilers in operation for at least one full heating season. The Companies estimate that such an evaluation could take place as early as the summer of 2012, though 2013 is more likely. Based on the final cost of the Efficient Boiler program evaluation, it is expected that an evaluation of the Light Commercial ENERGY STAR® Boiler program should cost approximately \$50,000.</p>

#### **4.4.2.2.2 2010 Light Commercial ENERGY STAR® Boiler Program Results**

As with the Efficient Boiler program, the solid net benefit-to-cost ratio of high efficiency boilers continues to generate a respectable TRC ratio, in this case of 1.6. NOTE: the TRC score for FEI new construction is based on the data from a single participant and cannot be considered representative for this segment.



**Table 4-7: Light Commercial ENERGY STAR® Boiler Program Actuals**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
New Const	FEI	1			91	936	18%	4.8
	FEVI	-	-	-	-	-	18%	0.0
Retrofit	FEI	26	90	5	6,311	64,926	18%	1.6
	FEVI	4	12	1	646	6,915	18%	1.2
<b>TOTALS</b>		31	102	6	7,048	72,777	18%	1.6

As of August 2010, the Light Commercial ENERGY STAR® Boiler program has been in market for one full year. The program garnered 56 applicants by the end of 2010, largely fulfilling expectations. Ten applications were rejected, however, as they were based on non-qualifying products (not ENERGY STAR® rated) or end uses (not space or combination space/domestic hot water heating). The rate of participation in 2010 at approximately three per month exceeds that of 2009 at two per month, suggesting time in market is essential to improving awareness, influencing the purchase decision, and increasing program participation. Forty six successful participants should be recorded once the remaining 15 applicants with pending applications submit their final documentation (i.e. proof of purchase and copy of gas permit). As with the Efficient Boiler program, all these participants have made the decision to use high efficiency boilers, thereby reducing natural gas consumption and GHG emissions. With the 31 participants who had successfully completed their application by the end of the year, the program should be responsible for a reduction of over 7,000 GJ/yr or nearly 73,000 GJs over the lifetime of the installed boilers. The annual GJ savings represent enough volume to provide gas to approximately 74 single family homes for one year. The remaining 15 applications should bring an additional savings of 3,700 GJ/yr or the equivalent of enough volume to provide gas to 40 homes. While the total incentive amount stood at just over \$100,000 by year end, inclusion of all pending applications should increase the figure to approximately \$140,000.

While the Companies believe the program largely achieved its overall objective (56 applicants versus 58 forecasted participants), it is clear that the Light Commercial ENERGY STAR® Boiler program suffers to a certain extent from cannibalization of participants by the Efficient Boiler program. The comparatively larger incentive combined with the availability of relatively small size boilers (down to 399 MBH input) makes the Efficient Boiler program more attractive to a certain proportion of participants. The Companies intend to revise the Efficient Boiler program during the course of 2011. At that time, consideration will be given to establishing comparative equality between the two programs' incentive structures.

As indicated in the background section above, new efficiency regulations are currently being considered by the Government of Canada (Natural Resources Canada). The proposed regulations would see the required minimum efficiency standard of smaller gas fired boiler rise from 80 percent to 88 percent by 2018. Successful installation and commissioning of high

efficiency boilers requires a knowledge level beyond that of standard efficiency boilers. The Companies believe the program sends a strong signal to the market that the selection of high efficiency options should be adopted as standard practice. By encouraging the installation of high efficiency boilers today, the program is contributing to the development of the required knowledge and capacity within the market, significantly easing the implementation of new regulation over the coming years.

The simplicity of the program's structure continues to work well, requiring significantly fewer hours of administration time than the Efficient Boiler program and leading to faster turnaround times on rebate processing.

No special attempt was made in 2010 to evaluate the claimed energy savings associated with the program. The Companies believe that as most program participants had not had their boilers installed for at least one full heating season, comparative consumption data does not exist to any great extent, and any attempt to independently evaluate the natural gas savings would be futile at this time.

#### 4.4.2.2.3 2011 Light Commercial ENERGY STAR® Boiler Program Performance Forecast

No significant changes to the cost benefit relationship of high efficiency boilers is foreseen, thus the Companies anticipate the program will continue to generate a TRC ratio in the neighbourhood of 1.6. As with the Efficient Boiler program, the Companies expect to build incrementally upon its 2010 participation as reflected in the table below.

**Table 4-8: Light Commercial ENERGY STAR® Boiler Program Forecast**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
New Const	FEI	4	14	1	971	10,167	18%	1.6
	FEVI	-	-	-	-	-	18%	0.0
Retrofit	FEI	45	156	9	10,922	114,375	18%	1.6
	FEVI	10	29	3	1,615	17,261	18%	1.2
<b>TOTALS</b>		59	199	13	13,509	141,803	18%	1.6

The Light Commercial ENERGY STAR® Boiler program is expected to build upon the results to 2010 and encourage even more customers to choose high efficiency boilers in 2011. While participant numbers and total natural gas savings are expected to see incremental increases over the course of the upcoming year, the underlying cost/benefit relationship of high efficiency boilers is not expected to change significantly. As such, the Companies expect the program generate a TRC score in 2011 more or less in line with what has been seen in 2010.

Raising the program's profile among the target customer groups is essential to ensuring the decision to purchase high efficiency boilers is made as often as possible. While the Companies

plan to continue standard promotional efforts, a key component of this effort will be the role played by the Companies' new energy solutions managers. The energy solutions managers will be increasing awareness of and participation in Energy Efficiency and Conservation programs by actively participating in industry associations, hosting workshops for commercial customers and seminars for energy managers, and educating small commercial customers through the Service Line newsletter. They will also work one to one with current and future commercial customers to increase participation and ease the programs application process.

#### 4.4.2.2.4 Light Commercial ENERGY STAR® Boiler Program Summary

As with its older sibling, the Efficient Boiler program, the Light Commercial ENERGY STAR® Boiler program is expected to generate reliable value in 2011. With standard efficiency options widely available and stringent new required minimum efficiency standards on the horizon, the Companies believe it makes sense to operate the Light Commercial ENERGY STAR® Boiler program.

### 4.4.2.3 **Efficient Commercial Water Heater Program**

#### 4.4.2.3.1 Program Overview

Efficient Commercial Water Heater Program	
<b>Market</b>	New Construction / Retrofit
<b>Duration</b>	FEI: Jul 2010 – Dec 31, 2011 FEVI: Jul 2010 – Dec 31, 2011
<b>Incentive</b>	<u>Storage water heaters / hot water supply boilers</u> \$5 per MBH for water heaters with a thermal efficiency of 90% or higher \$3 per MBH for water heaters with a thermal efficiency of 84% to 89.9%  <u>On-demand water heaters</u> \$2.50 per MBH for water heaters with a thermal efficiency of 90% or higher Maximum incentive is \$15,000 per water heater
<b>Partner</b>	None
Overview	
<b>Background</b>	The 2006 and 2010 Conservation Potential reviews identify water heating as the commercial sector's second greatest source of natural gas consumption by volume, yet few water heaters are as efficient as they could be. Data from the Air-Conditioning, Heating, and Refrigeration Institute ("AHRI") <sup>24</sup> and the Consortium for Energy Efficiency ("CEE") <sup>25</sup> , and discussions with manufacturer's reps indicate a

<sup>24</sup> AHRI Database of Certified Product Performance, Water Heaters, available at: <http://www.ahridirectory.org/>.

<sup>25</sup> "Market and Technology Characterization for Commercial Gas Water Heaters", CEE, June 2008.

	<p>maximum combustion efficiency of approximately 80% prevails in the market. High efficiency water heating equipment with thermal efficiencies exceeding approximately 90% is available; however, the penetration rate of high efficiency technologies in the DHW market is low<sup>26</sup>, especially for stand-alone DHW plants.</p> <p>Minimum required water heater efficiency is governed in BC by the British Columbia Energy Efficiency Act and the Energy Efficiency Standards Regulation, which require a minimum thermal efficiency of 80%. At present, the federal government does not regulate minimum required thermal efficiency for commercial gas water heaters. NRCan has, however, proposed implementing federal regulation of a variety of water heater types including commercial gas fired water heaters. Some proposed changes would coincide with future requirements in the United States and would see the required thermal efficiency of commercial gas fired storage type water tanks climb to 92% by 2016.</p>
<b>Description</b>	<p>The program captures energy savings associated with the heating of domestic hot water, identified in both the 2006 and 2010 Conservation Potential Reviews ("CPRs") as the second largest end use consumer of natural gas, after space heating.</p> <p>The program offers a financial incentive paid to the builder/developer (new construction) or account holder (retrofits or new construction) to encourage the use of high efficiency appliances in standalone DHW heating applications. Such sources include dedicated DHW high efficiency boilers and storage type water heaters. FortisBC's current boiler programs provide an incentive to generate hot water from a high efficiency source in combination Heat / DHW applications; however, a significant gap in market coverage existed prior to the launch of the Efficient Commercial Water Heater program in the case of "stand-alone" DHW systems.</p> <p>The program primarily appeals to commercial customers that typically exhibit high domestic hot water usage such as:</p> <ul style="list-style-type: none"> <li>• Commercial kitchens;</li> <li>• Multi-unit residential buildings;</li> <li>• Hotels/motels; and</li> <li>• Laundries.</li> </ul>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Reduce commercial sector gas consumption by encouraging the installation and use of high as opposed to standard efficiency water heaters for domestic hot water heating in commercial buildings.</li> <li>• Increase year over year participation rates in view of maximizing gas savings and bringing about market transformation.</li> <li>• Educate commercial customers about the advantages of high efficiency water heaters and provide an incentive to facilitate the purchase of high efficiency technology.</li> <li>• Maintain a program TRC score greater than 1.0 and optimize the proportion of incentives over administration and marketing costs.</li> <li>• Prepare the way for and support any provincial or federal regulation requiring increased water heater efficiency.</li> <li>• Given that one of the targets for this program is multifamily residential buildings, this program will help to satisfy clause 3(a) of the DSM Regulation,</li> </ul>

<sup>26</sup> "Measures and Assumptions for Demand Side Management (DSM) Planning", Navigant Consulting, April 16, 2009.

	which states that in order to be considered adequate, a utility's plan portfolio must include measures for rental accommodation.
<b>Implementation</b>	
<b>Administration</b>	<p>Program administration is handled entirely in-house by the Companies' EEC staff.</p> <p>Shifting program administration to an outside service provider or dedicated program operations personnel is a requirement in 2011 in order to free up internal resources potential to be redirected towards new commercial program development and roll out.</p>
<b>Communications</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.fortisbc.com">www.fortisbc.com</a> – includes a webpage with program information, application form for downloading, and program terms and conditions.</li> <li>• Commercial customer outreach initiative that saw the Companies call over 80,000 commercial customers to provide information on the Light Commercial ENERGY STAR® Boiler program, among others.</li> <li>• FortisBC Service Line newsletter containing a story outlining one participant's experience with the program and a new high efficiency water heater.</li> <li>• Web tile ads for use on partner websites (industry associations, municipalities, advocacy groups, and so on).</li> <li>• Online directory of qualifying hot water heaters to make selection of a high efficiency water heater as simple as possible.</li> <li>• Brochure: three panel brochure with application form and terms and conditions for hand out at tradeshow and delivery to the Companies' sales staff.</li> <li>• Engagement of suppliers' and manufacturers' representatives via information sessions designed to instill awareness of, and answer questions about the program.</li> <li>• Lunch and learn sessions with relevant engineering firms, plumbers, and gas fitters. The most relevant being those who deal most often with the target customer groups.</li> <li>• Speaking engagements and webpage advertisements with target organizations such as: <ul style="list-style-type: none"> <li>○ British Columbia Restaurant and Food Services Association;</li> <li>○ British Columbia Hotel Association;</li> <li>○ Tourism Vancouver;</li> <li>○ Vancouver Hotel Association;</li> <li>○ Mechanical Contractor's Association of British Columbia;</li> <li>○ Building Operators and Managers Association;</li> <li>○ BC Apartment Owners and Managers Association; and</li> <li>○ Magazine advertisement with publications such as: HPAC Engineering magazine, APEGBC / Innovation magazine, and ASHRAE-BC Totem newsletter.</li> </ul> </li> <li>• Direct contact with target customers, as well as their attendant suppliers, engineers, and O&amp;M service providers is essential in the initial stages of the program.</li> <li>• Information distributed to all customer touch points including call centres and sales and service staff.</li> </ul>

	<p>The Companies are developing a strategic communications plan for the Efficient Commercial Water Heater program. The plan includes:</p> <ul style="list-style-type: none"> <li>• Direct email advertising;</li> <li>• Additional, targeted magazine/newsletter advertising;</li> <li>• On-bill advertising to Rate 2 and Rate 3 customers;</li> <li>• Contractor and engineer information sessions;</li> <li>• Additional information sessions on Vancouver Island;</li> <li>• More leveraging of industry partner relationships; and</li> <li>• A program feedback session with key stakeholders.</li> </ul>
<b>Evaluation Strategy</b>	<p>The Companies are currently in discussions with a restaurant chain to have condensing water heaters along with meters measuring water flow, temperature, and gas installed in several locations. The Companies will use the data gathered to confirm its savings assumptions vis-a-vis high efficiency water heaters for one of the program's key target customer groups - restaurants. The Companies would also like to perform similar evaluations in a multi-unit residential building and a hotel.</p> <p>A study similar to that conducted on the Efficient Boiler program could be conducted after a sufficient number of program participants have had their new water heaters in operation for a sufficient period of time. Based on the final cost of the Efficient Boiler program evaluation, it is expected that an evaluation of the water heater program should cost approximately \$50,000.</p>

#### 4.4.2.3.2 2010 Efficient Commercial Water Heater Program Results

Thus far the overall TRC ratio of 1.1 has lined up fairly well with the expected result, though time and increased participation will confirm this as additional data becomes available. Overall participation was low in the first year, though this is a reflection of the program being launched midyear and efforts at promoting the program having not yet taken place. The program results are reflected in the table below.

**Table 4-9: Efficient Commercial Water Heater Program Actuals**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
<b>New Const</b>	FEI	-	-	-	-	-	5%	-
	FEVI	-	-	-	-	-	5%	-
<b>Retrofit</b>	FEI	7	15	3	592	4,607	5%	1.1
	FEVI	2	3	1	144	1,155	5%	0.9
<b>TOTALS</b>		9	18	4	736	5,762	5%	1.1



The Companies rolled out the Efficient Commercial Water Heater program in late July 2010. Overall program participation in 2010 was modest, though the Companies believe this is to be expected. The program went live comparatively late in the year, and it generally takes at least one year in market for new programs to gain traction. Moreover, encouraging the program's key target customers (restaurants, hotels, and multi unit residential buildings or "MURBs") to choose high efficiency options for water heating will involve a significant amount of working one-on-one with prominent customers to obtain buy-in and generate success stories that may be used to convince others to adopt high efficient technology. The Companies simply did not have the opportunity to begin this work in 2010. Even so, greater participant numbers are expected in 2011, the first month of which saw eight applicants; nearly as many participants as the program had in 2010.

The minimum required water heater efficiency in BC for commercial water heaters is currently at 80 percent. NRCan has, however, proposed implementing a new federal regulation that would impact commercial gas fired water heaters. The proposed changes would see the required thermal efficiency of commercial gas fired storage type water tanks climb to 92 percent by 2016. Though the regulation is as yet only a proposal, it is clear regulation is being actively considered. The Efficient Commercial Water Heater program is in operation today, helping to build awareness and capacity in the marketplace and pave the way for future regulation when implemented. The Companies believe the program will provide invaluable assistance to the government's objectives in this regard.

The program turns in TRC scores generally above 1.0, indicating that participants are cost effectively reducing their natural gas consumption; however, caution must as yet be used when interpreting the values indicated in the table above. The number of participants and the resultant amount of data collected does not yet allow the Companies to generate results with any degree of statistical significance. Further, the TRC score for the initial year is burdened by program development expenses such as website and program collateral development.

#### *4.4.2.3.3     2011 Efficient Commercial Water Heater Program Performance Forecast*

As can be seen in the table below, the Companies expect increased participation in 2011 as the market becomes aware of the program and more customers are effectively encouraged to choose high efficiency water heaters. The primary driver of this increased awareness and program uptake must be the Companies' outreach and promotions activities. Thus far, only a limited effort has been made to promote the technology and program to market participants. The program's TRC score should benefit slightly as program development costs are not incurred in 2011 and increased participation helps cover general program administration costs. Program performance forecasts for 2011 are provided in the table below.



**Table 4-10: Efficient Commercial Water Heater Program Forecast**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
New Const	FEI	3	7	2	254	2,656	5%	1.2
	FEVI	1	2		85	676	5%	1.3
Retrofit	FEI	45	99	9	3,805	39,842	5%	1.2
	FEVI	5	7	2	361	2,884	5%	1.0
<b>TOTALS</b>		54	116	13	4,504	46,058	5%	1.2

Central to the promotion of the program will be the role played by the Companies' new energy solutions managers. The energy solutions managers will be increasing awareness of and participation in Energy Efficiency and Conservation programs by actively participating in industry associations, hosting workshops for commercial customers and seminars for energy managers, and educating small commercial customers through the Service Line newsletter. They will also work one-on-one with current and future commercial customers to increase participation and ease the program's application process.

Currently, the Companies are actively collaborating with a restaurant chain and are seeking hotels and MURBs to work with to install new high efficiency water heaters, monitor the results, and produce success stories to be used to promote the high efficiency appliances to other potential program participants. The Companies believe working directly with restaurant and hotel chains, as well as apartment and condo associations to reinforce the positive benefit of high efficiency water heaters will be key to the program's success. High efficiency water heaters are relatively new compared to boilers and many who could benefit from their use either don't know they exist or have concerns about their operation. Working with several high profile customers and promoting their success is expected to change this mindset. Several MURBs opt for indirect water heaters and the Companies are looking to include these in the program to help the market.

The Companies are also eager to leverage the relationship currently being built with the Green Table Network Society (see Spray Valve program, Section 4.4.3.1) to encourage the use of high efficiency water heaters and generate program participants from the commercial food service industry.

#### 4.4.2.3.4 Efficient Commercial Water Heater Program Summary

As the marketplace becomes more aware of the program, the Companies expect this awareness to effectively encourage more customers to install high efficiency in place of standard efficiency water heaters, leading to increased participation in 2011. The program's simple structure should help to keep administrative spending low over the long run and also

contribute to an overall positive TRC score, similar to the Light Commercial ENERGY STAR® Boiler program.

#### **4.4.2.4 Energy Assessment Program**

##### **4.4.2.4.1 Program Overview**

<b>Energy Assessment Program</b>	
<b>Market</b>	Retrofit
<b>Duration</b>	FEI: 2001 – Dec 31, 2011 FEVI: May 2009 – Dec 31, 2011
<b>Incentive</b>	A walkthrough energy assessment and written report – a \$1,200 value, funded entirely by the Companies
<b>Partner</b>	None
<b>Overview</b>	
<b>Background</b>	N/A
<b>Description</b>	<p>The Energy Assessment program has been in operation since 2001 with minor modifications made over the years. This program is designed to identify inefficiencies in natural gas energy consumption and provide recommended solutions in the following sectors: condominiums and apartments, food processors, greenhouses, hospitals, hotels, industry, offices, recreation centres, restaurants, schools, warehouses, and wood products.</p> <p>Inefficiencies are identified at the participant's facilities via an onsite walkthrough assessment by an energy efficiency consultant. The consultant then produces a report, describing the observed inefficiencies and outlining proposed energy savings measures that may be implemented to reduce gas consumption. The Companies then forward the report to the participant.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Enable and encourage commercial customers to reduce gas consumption by identifying sources of high gas consumption within their facilities and proposing implementable measures aimed at reducing consumption.</li> <li>• Educate commercial customers about gas use within their own facilities and the steps they can take to minimize consumption.</li> <li>• Foster a culture of conservation among commercial sector customers, including MURBs and institutional and manufacturing customers, by assisting them with reviewing their energy consumption.</li> <li>• Where applicable, direct participants to available incentive programs including FortisBC's existing boiler programs.</li> <li>• Maintain a program TRC ratio greater than 1.0 and optimize the proportion of incentives over administration and marketing costs.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	Administration of the Energy Assessment program is handled in-house by the Companies' DSM staff as well as the external service provider Environ.
<b>Communications</b>	<ul style="list-style-type: none"> <li>• <a href="http://www.fortisbc.com">www.fortisbc.com</a> – the Companies maintained a webpage dedicated to the program that included program information, application forms, and program terms and conditions.</li> <li>• Brochure: three panel brochure with program information and terms and</li> </ul>

	<p>conditions for hand out at tradeshow and use by the Companies' sales and key accounts staff.</p> <ul style="list-style-type: none"> <li>• Speaking engagements / presentations describing the program at events such as: NRCan "Spot the energy savings" workshop on Vancouver Island, BC Hydro PowerSmart forum, BC Hydro energy managers training session, FortisBC energy specialist training session, Business Improvement Association meetings in Victoria, Kamloops, and Kelowna, and the Council of Education Facilities Planners international conference.</li> <li>• Direct promotion of the program by the Companies' key accounts staff.</li> </ul>
<b>Evaluation Strategy</b>	<p>An initial evaluation study was completed in 2008. The Companies completed a second evaluation study in early 2010 based on participation from July 2007 through July 2009.</p> <p>This study provided additional insight into the program's performance and allowed the Companies to refine the data underlying the savings assumptions. The study compared expected gas usage of program participants to actual usage post assessment to quantify energy savings. Phone interviews were then carried out to account for changes in occupancy or business activity that may have had a bearing on the observed post assessment energy consumption.</p> <p>Data from the latest evaluation study suggests participants save on average 688 GJ/yr after participating in the program. This is a significant increase over the previous study that suggested 299 GJ/yr of savings. It must be noted that the average savings in any particular round of evaluation is heavily influenced by the number and size of manufacturing sector participants, who account for the majority of the natural gas savings. For this reason, the Companies believe using the average of the two studies represents a prudent estimation of the natural gas savings in any particular period. Furthermore, the Companies have reviewed participants in the Energy Assessment Program over a 2 year period versus participants in the Companies' other incentive programs to eliminate any possible double counting of savings.</p>

#### 4.4.2.4.2 2010 Energy Assessment Program Results

The Energy Assessment program maintains a solid TRC ratio of 2.5 overall, thanks largely to the ultimate implementation of recommended measures by manufacturing companies. Program results for 2010 are provided in the following table.

**Table 4-11: Energy Assessment Program Actuals**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
<b>Retrofit</b>	FEI	55	66	25	17,446	17,446	35%	2.4
	FEVI	13	16	2	4,124	4,124	35%	2.9
<b>TOTALS</b>		68	82	26	21,569	21,570	35%	2.5

The Companies continued to operate the Energy Assessment program in 2010 as it had been operated in previous years and the program exceeded expectations in terms of participation. Vancouver Island especially saw a significant increase in assessments performed, jumping from

zero in 2009 to 13 in 2010. The program has effectively delivered facility specific energy assessments to all participants, encouraging them thereby to reduce their natural gas consumption. The latest program evaluation study demonstrates that participants do in fact implement recommended measures post assessment, though the proportion of implementation varies among the commercial market segments.

The program maintains a strong TRC score, largely due to the significant energy savings of the manufacturing sector participants who implement energy saving measures after receiving their Energy Assessment. The latest evaluation study asserts that:

*“...this program was most effective amongst manufacturing companies. These respondents were responsible for 92 percent of the total GJs reduced in this study while representing only 23 percent of the total program participant premises. In conclusion, these findings clearly indicate that the program was most effective amongst manufacturing clients.”*

While the evaluation study suggests the Companies should focus on offering energy assessments primarily to manufacturing companies and large institutional customers who are responsible for most of the savings, the Companies believe that for the time being it is important to offer the program to as many potential participants as possible. The Energy Assessment program allows the Companies to help foster a culture of conservation among commercial customers by visiting their facilities directly and helping educate them on their gas use. The program is also an important “first contact” that can lead to subsequent participation in the Companies’ other incentive programs where applicable.

#### 4.4.2.4.3 2011 Energy Assessment Program Performance Forecast

The Energy Assessment program is expected to perform in 2011 much as it did in 2010, though the TRC ratio will benefit somewhat as program evaluation costs will not be incurred in the new year. Program performance forecasts for 2011 are provided in the following table.

**Table 4-12: Energy Assessment Program Forecast**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
Retrofit	FEI	61	73	27	19,190	19,190	35%	2.7
	FEVI	14	17	2	4,536	4,536	35%	3.3
<b>TOTALS</b>		75	90	29	23,726	23,726	35%	2.8

It is expected the program will perform in 2011 much the same as in 2010, while building incrementally on participation numbers and educating additional customers on their energy use and the benefits of energy efficiency. Additional promotion of the program to light industrial and manufacturing customers will take place. Central to this will be the role played by the Companies’ new energy solutions managers. The energy solutions managers will be increasing

awareness of and participation in Energy Efficiency and Conservation programs by actively participating in industry associations, hosting workshops for commercial customers and seminars for energy managers, and educating small commercial customers through the Service Line newsletter. They will also work one-on-one with current and future commercial customers to increase participation and ease the programs application process.

#### ***4.4.2.4.4    Energy Assessment Program Summary***

The Companies believe the Energy Assessment program is a valuable tool that is, and continues to be, used to foster an awareness of energy use and energy efficiency issues among commercial customers, raise awareness of and participation in other incentive programs, and effectively encourages participants to reduce energy consumption. As such, the program remains an important component in helping to lay the foundation for longer term market transformation.

### ***4.4.2.5    Public Sector Energy Conservation Agreement (“PSECA”) Initiative***

#### ***4.4.2.5.1    Program Overview***

<b>Public Sector Energy Conservation Agreement (“PSECA”) Initiative</b>	
<b>Market</b>	Public Sector Retrofit
<b>Duration</b>	FEI: Jul, 2010 – Jul, 2012 FEVI: Jul, 2010 – Jul, 2012
<b>Incentive</b>	The Companies made use of several existing funding models to provide incentives tailored to each project’s specific situation, with all incentives falling under the umbrella of the PSECA initiative. Thus, while incentives were determined using the most appropriate program model, participants are counted under the PSECA initiative, not in the programs whose funding model was applied.  Refer to: <div style="margin-left: 40px;">Efficient Boiler Program</div> <div style="margin-left: 40px;">Efficient Commercial Water Heater Program</div> <div style="margin-left: 40px;">Commercial Custom Design Program</div>
<b>Partner</b>	Ministry of Environment, BC Hydro, Solar BC

<b>Overview</b>	
<b>Background</b>	<p>The first PSECA was created in 2007 as a partnership between BC Hydro and the Government of BC. Budget 2008 committed \$75 million over three years to help public sector organizations reduce provincial GHG emissions, energy consumption, and operating costs, as well as support government in achieving its goal of carbon neutrality. The first two rounds of PSECA's have achieved annual energy cost savings of close to \$7.4 million, GHG emissions reductions of over 18,700 tons, and conservation of 38.6 GWh of electricity. The latest iteration of PSECA is the third round and marks the first time the Companies have been involved.</p> <p>Eligible public sector organizations include all organizations listed in the Government Reporting Entity ("GRE"):</p> <ul style="list-style-type: none"> <li>• Ministries and agencies;</li> <li>• Boards of Education;</li> <li>• Universities and colleges;</li> <li>• Health authorities; and</li> <li>• Crown corporations.</li> </ul>
<b>Description</b>	<p>In 2010, the Companies participated in the Public Sector Energy Conservation Agreement, operated by the Climate Action Secretariat, a division of the Ministry of Environment. The PSECA initiative represents a major undertaking for the commercial program area staff during the second half of 2010. The Companies worked in partnership with the Climate Action Secretariat, BC Hydro, and Solar BC to encourage public sector organizations to reduce energy consumption and GHG emissions by offering incentives for the completion of qualifying projects.</p> <p>Typical projects included:</p> <ul style="list-style-type: none"> <li>• Boiler upgrades;</li> <li>• Building automation controls;</li> <li>• Water heater upgrades; and</li> <li>• Heat recovery measures.</li> </ul>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• To contribute to the Province's objective of a 33% reduction in GHG emissions from 2007 levels by 2020.</li> <li>• To encourage public sector organizations to reduce natural gas consumption.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	Administration was primarily handled in-house by FortisBC staff, including receipt and review of energy studies and communication with the Climate Action Secretariat and program partner BC Hydro.
<b>Communications</b>	External communications were managed by the provincial government. Refer to <a href="http://www.env.gov.bc.ca/cas/mitigation/pseca.html">http://www.env.gov.bc.ca/cas/mitigation/pseca.html</a> .
<b>Evaluation Strategy</b>	All projects are reviewed both before and after completion. Initially, the Companies reviewed all submitted energy studies to assess the validity of the claimed natural gas savings. On completion of a project, the participant must submit the required installation documentation. Prior to paying the incentive, the Companies perform an on-site audit of all projects to ensure equipment has been installed and is functioning

	as initially proposed. At the Companies' discretion, some projects may be subjected to a measurement and verification ("M&V") protocol, whereby metering equipment is installed to measure and verify the energy savings.
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#### 4.4.2.5.2 2010 PSECA Initiative Results

The Companies' involvement with the Public Sector Energy Conservation Agreement afforded an excellent opportunity to invest in high quality, long term energy saving measures, as well as demonstrate the leverage advantage of working with partners. While the effort consumed much time that would otherwise have been devoted to new program development and roll out, the trade-off generated a program with a TRC score of 2.3 for incentive dollars committed in 2010. Program results for 2010 are provided in the table below.

**Table 4-13: PSECA Initiative Program Actuals**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
New Const	FEI	-	-	-	-	-	-	-
	FEVI	-	-	-	-	-	-	-
Retrofit	FEI	15	531	11	18,222	163,420	0%	2.4
	FEVI	13	297	5	11,706	107,935	0%	2.2
<b>TOTALS</b>		<b>28</b>	<b>827</b>	<b>15</b>	<b>29,928</b>	<b>271,355</b>	<b>0%</b>	<b>2.3</b>

As noted above, the PSECA initiative represents a major undertaking during the second half of 2010. The Companies believe, however, that the results to date were well worth the effort. By the end of the year the Companies committed to providing nearly \$830,000 for energy saving measures at 28 locations to program participants who successfully complete the approved measures. When complete, these measures are expected to reduce natural gas consumption by approximately 30,000 GJ/yr, or enough to provide natural gas to 315 single family homes during the same time period.

The TRC score for the PSECA initiative is quite robust, which the Companies take as an indication of the high quality of the energy saving projects approved for funding.

#### 4.4.2.5.3 2011 PSECA Initiative Performance Forecast

In 2011 the Companies expect to provide additional EEC incentive dollars to successful participants in a second round of PSECA funding. This second tranche consists of projects designed to reduce natural gas consumption and greenhouse gas emissions of K through 12 schools.



**Table 4-14: PSECA Initiative Program Forecast**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
New Const	FEI	-	-	-	-	-	-	-
	FEVI	-	-	-	-	-	-	-
Retrofit	FEI	12	800	24	30,830	322,840	0%	0.7
	FEVI	2	208	9	5,497	58,745	0%	1.0
<b>TOTALS</b>		14	1,008	33	36,327	381,585	0%	0.7

Among this second group of projects are 12 central thermal plant upgrade projects, 4 of which consist of conversions to open loop type geexchange heat pump systems with gas boiler backup. These will significantly reduce natural gas consumption and greenhouse gas emissions at each of the affected facilities.

Throughout 2011 and into 2012 FortisBC staff will expend a considerable amount of time and effort to inspect completed PSECA projects to ensure the approved energy saving measures have been built as described and are fully complete and operational prior to issuing payment. This will ensure incentives are only paid out where warranted.

Further to this, in 2013, after all the approved energy saving measures have been installed for a minimum of one full heating season, FortisBC staff will review the program's actual energy savings versus the claims of the energy studies. The results of the review will be used to refine the custom design program.

#### **4.4.2.5.4 PSECA Initiative Summary**

The combined 2010 and 2011 PSECA program activity will generate an overall TRC result above 1.4 by the time work in the program is finalized in late 2011 or early 2012. The Companies believe the PSECA initiative, offered in collaboration with the Climate Action Secretariat and BC Hydro, will successfully encourage public sector organizations to significantly reduce natural gas consumption and GHG emissions.

### **4.4.2.6 Fireplace Timers Pilot Program**

#### **4.4.2.6.1 Program Overview**

Fireplace Timers Pilot Program	
<b>Market</b>	Retrofit
<b>Duration</b>	FEI: Nov 1, 2009 – Dec 31, 2011 FEVI: N/A
<b>Incentive</b>	Provision of fireplace timer at no charge, plus \$30 per timer towards the cost of installation.

<b>Partner</b>	None
<b>Overview</b>	
<b>Background</b>	<p>According to a 2005 report done by Habart &amp; Associates called Impact of Terasen Gas* Pilot Fireplace Program (2004), a decorative gas fireplace consumes approximately 14.9 GJ/yr of natural gas.</p> <p>Based on information contained in the Terasen Gas* 2008 REUS, only 12% of decorative fireplaces are used for heating purposes and 55% of these units are used for ambiance. This would seem to indicate that a significant amount of energy could be saved by encouraging consumer use of a fireplace timer to turn off their fireplace after a specified period of time.</p> <p>In a 2003 study completed by FEI at Strata Plan LMS 1685 located at 8420 Jellicoe Street in Vancouver, it was found the installation of the fireplace timer significantly reduced the gas consumed by the strata. The strata embarked on a retrofit project in 2002 as a means to reduce their gas consumption. In this study, it was determined that by installing a fireplace timer in suites, gas savings of 6 GJ/yr were achieved. A testimonial by Strata Plan LMS 1685 was later released in June 2003 validating these results.</p> <p><i>*At this time the Company operated under the name Terasen Gas.</i></p>
<b>Description</b>	<p>The purpose of this pilot program is to study the effect on gas consumption of installing electronic programmable timers on decorative gas fireplaces in MURBs. It is believed the timers will reduce instances of customers leaving gas fireplaces burning longer than is actually needed. The pilot is offered in FEI's Lower Mainland service territory. The timers are only installed in units where the fireplace is not the primary heating source.</p>
<b>Goals</b>	<p>The main purpose of this pilot program is to determine what the actual energy savings are from fireplace timers. Additionally, the pilot seeks to evaluate:</p> <ul style="list-style-type: none"> <li>• Potential difficulties with offering a full program in the awkward legal context of strata corporations;</li> <li>• Whether or not the market has sufficient installation capacity to run a full program; and</li> <li>• To enroll 1,000 participants, each saving 3 GJ/yr for a total of 3,000 gross annual savings for the program.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	Program administration entirely in-house by the commercial EEC team.
<b>Communications</b>	For the pilot, communications is achieved by a webpage on the Company's website in addition to being promoted in person to applicable customers.
<b>Evaluation Strategy</b>	<p>FEI will review the gas consumption of the participating buildings prior to the installation of fireplace timers. This data, obtained from the FEI billing system, will establish the baseline gas consumption.</p> <p>After the pilot is completed and reviewed, a larger program running over multiple years will be considered and offered throughout the Companies' service territories.</p>

#### 4.4.2.6.2 Fireplace Timers Pilot Program Results

The Fireplace Timer Pilot program has garnered some participation, though the requirements of the pilot study make gaining participants among strata properties a challenge; however, the

Companies continue to expect the pilot program will confirm a positive cost benefit ratio for the measure as indicated in the table below.

**Table 4-15: Fireplace Timers Pilot Program Results**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
New Const	FEI	-	-	-	-	-	0%	-
	FEVI	-	-	-	-	-	0%	-
Retrofit	FEI	195	10	-	585	2,374	0%	2.3
	FEVI	-	-	-	-	-	0%	-
<b>TOTALS</b>		195	10	-	585	2,374	0%	2.3

This pilot program was launched in late 2009 and operated throughout 2010. While the Companies ultimately anticipate the measure will deliver a strong TRC performance<sup>27</sup>, participation in the pilot program is not currently at the desired level of 1,000 timers installed; however, the Companies do not consider this to be a critical issue. There are two items that hinder program uptake. First, in order to ultimately quantify the impact of the fireplace timers on the overall building consumption, and thereby determine the natural gas savings per timer, the pilot program requires essentially all of any given building's decorative fireplaces to be equipped with timers. It is difficult for strata corporations to achieve this requirement, as each individual dwelling unit holder legally decides what happens within each unit. Thus essentially all of the unit holders must agree to participate in the program and have timers installed in their units before a strata can be accepted into the program. Secondly, as this is a pilot program, comparatively little effort has been expended on promoting this pilot program in 2010. The Companies have sought assistance from industry partners but to date additional participants have not been forthcoming.

It must be noted that once the savings of the fireplace timers have been established, and the positive cost benefit ratio has been confirmed, a full program will not require all of the units in the building to be equipped with fireplace timers in order to participate. Any such full scale program will not face the same difficulties in generating participation.

#### 4.4.2.6.3 Fireplace Timers Pilot Program Performance Forecast

Based on current applicants to the program (those who have submitted an application but have not finalized the remainder of the requirements) the Fireplace Timer Pilot program will increase its participation in 2011 to a level that may allow the Companies to proceed with the savings evaluation. The performance forecast for the program is provided in the following table.

<sup>27</sup> NOTE: The TRC ratio presented in the table is based on the cost benefit assumptions underlying the pilot program business case.

**Table 4-16: Fireplace Timers Pilot Program Performance Forecast**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
<b>New Const</b>	FEI	-	-	-	-	-	0%	-
	FEVI	-	-	-	-	-	0%	-
<b>Retrofit</b>	FEI	400	20	-	1,200	4,901	0%	2.5
	FEVI	30	2	-	90	370	0%	2.0
<b>TOTALS</b>		430	22	193	1,290	5,271	0%	2.5

It is expected that the greater part of the target number of installations will be installed by the end of 2011. As of January 2011 the Companies had an additional 247 potential timer installations recorded. The Companies require only that the participants accept the full terms and conditions and ensure a sufficient number of dwelling unit holders agree to participate in order to include these as participants.

After a sufficient number of timers have been installed the Companies believe analysis work can begin and may generate meaningful results as to the savings per timer. If such results are reasonably consistent it may not be required to have all of the originally projected 1,000 timers installed as part of the pilot program. Analysis of the results could begin after the winter of 2011 / 2012, when a sufficient number of fireplace timers have been installed for a least one full heating season.

#### **4.4.2.6.4 Fireplace Timers Pilot Program Summary**

The aim of this program is to reduce the amount of natural gas used for decorative fireplaces and ultimately change the behaviour of the end user. By encouraging them to control the amount of time the fireplace is on, they are also becoming more aware of their energy use and ultimately their building's energy use. The timers provide options for running times of 30 minutes, 60 minutes, or 120 minutes before the fireplace turns off automatically. If by implementing this measure a building can save approximately three GJs per unit, that would add up to significant financial savings over several years.

### **4.4.2.7 Radiant Tube Heaters Pilot Program**

#### **4.4.2.7.1 Program Overview**

<b>Radiant Tube Heaters Pilot Program</b>	
<b>Market</b>	Retrofit
<b>Duration</b>	FEI: To be determined FEVI: To be determined

<b>Incentive</b>	Established independently for each participant and governed by the cost benefit ratios specific to each site.
<b>Partner</b>	None
<b>Overview</b>	
<b>Background</b>	<p>Radiant tube heaters use infrared energy to heat buildings. Infrared energy is a form of electromagnetic radiation, and heats objects directly, instead of indirectly via the medium of heated air. Occupants feel comfortable without the need to heat all the air in the space to 24° C.</p> <p>In comparison, unit heaters heat air and comfort is maintained by keeping the air warm to avoid heat loss of occupants. Warm air is difficult to control in many commercial settings such as manufacturing facilities, warehouses, garages, workshops, barns and sheds, and so on. The warm air rises to the ceiling or gets blown out the door, resulting in significant inefficiencies and increased gas use as occupants turn up the thermostat to compensate.</p>
<b>Description</b>	The purpose of this pilot study is to assess the gas savings potential of radiant tube heaters versus unit heaters used for space heating in commercial facilities. The data gathered via this study will contribute to the development of a full scale program offering should radiant tube heaters return a positive TRC ratio. It is suspected that radiant tube heaters could achieve significant energy savings when used in place of unit heaters in manufacturing, warehousing, or similar applications.
<b>Goals</b>	<ul style="list-style-type: none"> <li>• To study the effectiveness of infrared heating technology and validate or modify the energy savings assumptions used in this business case.</li> <li>• Similarly, to validate or modify the measure cost assumptions used in this business case.</li> <li>• To gain insight into additional benefits (i.e. occupant comfort, reduced noise, and so on) that accrue to users of radiant tubes.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	To be determined
<b>Communications</b>	None
<b>Evaluation Strategy</b>	<p>The results of the pilot study shall be evaluated as follows:</p> <p>A pre/post comparison of gas consumption will be used to establish the energy savings. The facility's weather normalized pre-installation gas consumption will define the baseline consumption to which the new system's performance will be compared. Gas sub meters will be installed to independently collect consumption data for the truck bays and the office/administrative areas over the course of at least one full heating season. This data will then be compared to the baseline to establish the actual energy savings.</p> <p>Additional benefits such as increased occupant comfort will be assessed via a brief interview with the owner/occupants after one full heating season.</p>

#### **4.4.2.7.2 Radiant Tube Heaters Pilot Program Results**

In 2010, the Companies set up a pilot program to study the effectiveness of radiant tube heaters at reducing natural gas consumption due to space heating. Several other natural gas utilities in North America provide incentives to encourage the use of radiant tube heating instead of more

conventional forced air unit heaters. It is believed radiant tube heaters would work well in BC's climate, though preliminary results from the pilot will not be available before January 2012

#### 4.4.2.7.3 Radiant Tube Heaters Pilot Program Performance Forecast

As of the writing of this report, the pilot program has one active participant, located in the Interior of British Columbia. The Companies are actively seeking additional participants in the interior and coastal regions of the province. The table below presents the estimated data<sup>28</sup> associated with the initial participant. Additional estimates can be made as suitable potential participants are identified.

**Table 4-17: Radiant Tube Heaters Pilot Program Performance Forecast**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
Retrofit	FEI	1	3	7	275	2,880	0%	1.5
	FEVI	-	-	-	-	-	0%	0.0
<b>TOTALS</b>		1	3	7	275	2,880	0%	1.5

In 2011, radiant tube heaters will be installed in up to five locations in the province. Data will then be collected over the winter of 2011 / 2012 and used as support for launching a full scale program, should the cost benefit results prove positive.

#### 4.4.2.7.4 Radiant Tube Heaters Pilot Program Summary

The Companies suspect radiant tube heaters may be an effective way to reduce natural gas consumption for space heating in applicable locations. The Radiant Tube Heaters Pilot program will allow the Companies to gather empirical data specific to the climate zones in BC, while investigating available research from other jurisdictions. Should the results prove positive the Companies will proceed with a full scale prescriptive program development.

### 4.4.3 PROGRAMS IN DEVELOPMENT

#### 4.4.3.1 **Spray Valve Program**

##### 4.4.3.1.1 Program Overview

Spray Valve Program	
Market	Retrofit
Duration	FEI: Jan 31, 2011 – Dec 31, 2011

<sup>28</sup> NOTE: The TRC ratio and energy savings presented in the table are based on the estimates underlying the acceptance of the initial location into the pilot program.

	FEVI: Jan 31, 2011 – Dec 31, 2011
<b>Incentive</b>	Direct install of low flow pre rinse spray valves
<b>Partner</b>	Green Table Network Society (“GTNS”): Founded in 2007, GTNS is based in Vancouver, BC. GTNS is a group of restaurant professionals, joined by the people who supply and support them, who are making a conscious commitment to sustainability in commercial food service establishments.
<b>Overview</b>	
<b>Description</b>	<p>The Companies are currently developing another low flow pre rinse spray valve install program. Similar to previous pre rinse spray valve programs, the proposed program is designed to achieve energy savings by directly installing new, low flow pre rinse spray valves in food service establishments (“FSEs”) within the Companies’ service territories. These pre rinse spray valves will be installed in FSEs that consume domestic hot water from gas-fired water heaters only.</p> <p>Unlike previous spray valve programs, the Companies propose to partner with an external program operator (GTNS) for program outreach and delivery. The partner will install all spray valves on behalf of FortisBC and will be responsible for data collection, the inventory of spray valves, and general administration of the program.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• To install up to 300 spray valves province wide over the course of one year or to a maximum of \$25,000.</li> <li>• To achieve gas savings of approximately 2,650 GJs/yr and save our customers approximately \$24,000 in annual gas expenditures.<sup>29</sup></li> <li>• To raise awareness of energy efficiency, especially as it pertains to water heating, among FEI and FEVI’s commercial cooking customers, with a view of increasing participation in the Companies’ commercial programs.</li> <li>• To establish and evaluate a working relationship with GTNS with a view to partnering with them again on future incentive programs targeted at commercial FSEs.</li> </ul>
<b>Background</b>	Low flow pre rinse spray valves use approximately 50% less water than standard models <sup>30</sup> , significantly reducing the volume of heated water used in dishwashing operations. This in turn reduces the energy demands placed on the hot water system, and thereby the overall energy consumption of a given facility. Pre-rinse spray valves (“PRSVs”) are commonly used in restaurants, hotels, schools, grocery stores, and hospitals to rinse down plates, pots, and pans.
<b>Implementation</b>	
<b>Administration</b>	<p>GTNS will be administering the program and keeping track of all participants. They will then submit all information on the participants back to FortisBC.</p> <ul style="list-style-type: none"> <li>• The customer will contact GTNS directly to request a new valve. GTNS will set up appointments to visit the establishment and directly install a pre rinse spray valve.</li> <li>• GTNS will be required to record hot and cold water temperatures, pre- and post-installation flow rates, and estimate usage hours, amongst other data points, and enter this data into a database and calculate energy savings on a per-establishment basis.</li> <li>• GTNS will provide weekly updates on participants and program information as outlined in the agreement.</li> </ul>

<sup>29</sup> \$24,000 is based on an average of FEVI & FEI Rate 2 and Rate 3 customers as of January, 2011.

<sup>30</sup> FortisBC 2010 Spray ‘n’ Save Victoria Program Results.



	<ul style="list-style-type: none"> <li>GTNS will submit invoices to FortisBC as outlined in the agreement between FortisBC and GTNS. FortisBC will then reimburse GTNS for each valve installed in establishments using natural gas to generate hot water, to a maximum of \$85 per valve, enough to cover the cost of the valve. GTNS is responsible for the installation cost of the measure.</li> </ul>
<b>Communications</b>	<p>The program's requirement for communications material or collateral is relatively light. Program promotions and participant uptake is driven primarily by GTNS. As such communications / collateral requirements were limited to:</p> <ol style="list-style-type: none"> <li>1. Participant consent form;</li> <li>2. Information card to hand out to participants or potential participants; and</li> <li>3. A website to inform potential participants about the program and allow them to request the installation of low flow spray valve(s) by directing them towards the GTNS contact page.</li> </ol>
<b>Evaluation Strategy</b>	<p>GTNS will provide to FortisBC brief weekly updates via email on the number of new valves installed and advise if any issues have arisen with the program in the interim period since the last update.</p> <p>No later than four months after the completion of the program, GTNS will compile a final written report identifying any challenges or barriers to FSE participation and GTNS' perspective on any aspects of the program that worked especially well and any aspects that can be improved.</p> <p>These results will be compared to those of the Okanagan Spray Saver evaluation and the Victoria Spray Saver program for confirmation and verification of savings.</p>

#### *4.4.3.1.2 2011 Spray Valve Program Performance Forecast*

Based on the very solid TRC performance noted in the previous iterations of the low flow pre rinse spray valve program, the Companies expect this version of the program will be a strong performer as well. Note the TRC score presented in the table below is not as strong as presented in section 4.4.1.1. Under this version of the program the Companies are working with a partner and are not in control of all costs. To be conservative, the maximum estimated measure cost of \$130 per installed valve has been used in the TRC analysis until such time as the actual installation cost incurred by the partner is determined.

**Table 4-18: Spray Valve Program Forecast**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
<b>New Const</b>	FEI	4			32	2,252	12%	1.9
	FEVI	-	-	-	-	-	12%	0.0
<b>Retrofit</b>	FEI	235	20	3	1,861	7,554	12%	2.4
	FEVI	55	5	1	434	1,792	12%	2.4
<b>TOTALS</b>		294	25	3	2,327	11,598	12%	2.3

The Companies intend to offer a direct install, low flow pre rinse spray program once again in 2011. The program will have several key differences in comparison to its predecessor initiatives,

which the Companies believe could improve performance and extend the reach of the energy efficiency message within the commercial food service market segment. The Companies propose to partner with GTNS that will be responsible for the program operations, including overseeing the provision and installation of the pre rinse spray valves in qualifying locations. GTNS will use its network of contacts in the food service industry to generate program participants throughout the province. Further, GTNS will promote FortisBC's other commercial incentive programs wherever applicable. In practice, this will mean significant additional customer direct promotions of the Efficient Commercial Water Heater program to one of its key target groups. For their part, the Companies will pay for the new spray valves and provide promotional materials and exposure for the program at all relevant opportunities.

While the initial forecast is for approximately 300 new spray valves to be installed, the Companies will extend the agreement to allow for the installation of additional valves should the initial collaboration prove to be positive and productive. The initial run of the program should allow the Companies to invest approximately \$25,000 in natural gas efficiency among commercial food service establishments.

The Companies believe that despite the strong value proposition of low flow pre rinse spray valves, the dynamics of the food service industry make it necessary to operate a DSM program in order to capture the potential natural gas savings. The commercial food service business tends to be exposed to significant volatility, making "cheapest first cost" a critical purchase decision criteria for any item that is not critical to customer service. Food service establishments typically lack the time or resources to research energy saving options or understand the benefits provided. Though low flow spray valves pay for themselves relatively quickly, the ultimate magnitude of the dollar savings per any single valve is unlikely to move most potential beneficiaries to action. A utility funded DSM program makes it easy and straight forward for participants to save natural gas by effectively eliminating both the effort and risk that potential participants would normally associate with the selection of high efficiency options.

The spray valve program will also play an important role in introducing a new concept to the food service industry, namely that energy is a variable cost. The Companies believe most food service establishments consider energy to be a fixed cost and that changing this mindset is essential to ultimately bringing about market transformation. In this light, the Companies believe low flow pre rinse spray valve programs are an essential first step that will lead to greater energy savings down the road.

#### *4.4.3.1.3 Spray Valve Program Summary*

The program is initially expected to install approximately 300 low flow pre rinse spray valves in locations that would otherwise be using standard flow rate sprayers, generating significant natural gas savings as a result. The Companies thus believe the program will successfully deliver tangible natural gas GJ savings, as well as the non-tangible benefit of raising energy awareness in the commercial food service sector. Furthermore, the program will allow the Companies to develop and evaluate a business relationship with a potentially valuable partner in the effort to achieve market transformation in the commercial food service sector. Finally, the proposed program and partnership with GTNS represents an excellent opportunity to raise

awareness and encourage greater uptake of the Efficient Commercial Water Heater program and subsequent program offerings within this sector.

#### **4.4.3.2 Commercial Custom Design Program**

##### **4.4.3.2.1 Program Overview**

<b>Commercial Custom Design Program</b>	
<b>Market</b>	New Construction / Retrofit
<b>Duration</b>	FEI: To be determined FEVI: To be determined
<b>Incentive</b>	<ul style="list-style-type: none"> <li>All energy conserving measures must exceed a TRC score of 1.0 to be eligible for an incentive</li> <li>Incentives calculated as \$5/GJ saved on the net present value of the natural gas savings over 50% of the estimated measure life to a maximum of 10 years</li> <li>Incentives not to exceed 100% of the measure's incremental cost</li> </ul>
<b>Partner</b>	BC Hydro
<b>Overview</b>	
<b>Background</b>	<p>The Companies have historically offered incentives to commercial customers via prescriptive programs only. The prescriptive method assigns energy savings and incentive amounts to specified energy savings measures based on a generalization of how the measure will perform when installed.</p> <p>Many commercial customers have potential energy saving projects that are bigger and more complex than can be addressed in a prescriptive program due to the complexity and custom designed nature of their mechanical systems. A program to allow the Companies to encourage the implementation of these projects is necessary to capitalize on the natural gas saving opportunity they represent. The Commercial Custom Design program will meet this need by providing incentives tailored to suit the energy saving measures specific to each individual participant's project.</p>
<b>Description</b>	<p>The program seeks to capture energy savings associated with measures (i.e. technologies, systems, or operational strategies) that are otherwise difficult to incent as part of a prescriptive program because they are complex, and may include multiple measures with interactive effects in one project. This custom program will capitalize upon the creative potential of the marketplace, and help foster expertise in advanced energy efficiency design in BC.</p> <p>It is expected that most participants will be from sectors such as:</p> <ol style="list-style-type: none"> <li>1. Large commercial facilities;</li> <li>2. Large multifamily residential buildings;</li> <li>3. Institutional and government;</li> <li>4. Agriculture; and</li> <li>5. Manufacturing (where measures address space or water heating).</li> </ol> <p>For such groups, the potential to achieve gas consumption savings by incorporating measures specifically engineered to suit their particular situation and needs is</p>

	<p>expected to significantly surpass what can be accomplished via a prescriptive program. These may include measures that will:</p> <ul style="list-style-type: none"> <li>• Make use of alternative energies, with gas backup</li> <li>• improve building envelope performance;</li> <li>• use more efficient gas burning equipment or systems;</li> <li>• recover and reuse energy that is currently lost;</li> <li>• capture and use solar energy for heating air or water;</li> <li>• reduce the rate of energy consumption by systems or equipment in low occupancy periods; and</li> <li>• eliminate unnecessary energy usage by shutting off idling or unneeded equipment</li> </ul> <p>Energy saving measures will be presented to the Companies for review, in an energy study format prepared by a qualified consultant. Qualified consultants are engineering professionals, retained by the program participants, who meet the technical proficiency and experience requirements of the Companies.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• To capture energy savings from otherwise difficult to implement measures including whole building measures.</li> <li>• To foster additional capacity and design expertise with custom energy savings measures in BC.</li> <li>• Maintain a program TRC score greater than 1.0 and optimize the proportion of incentives over administration and marketing costs.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	Handled by in-house EEC staff, BC Hydro Power Smart staff, and outside service providers where necessary.
<b>Communications</b>	<p>Promotion of the custom program will be driven primarily via direct contact with target participants by the Companies' staff or the program's qualified consultants. Target customers should include:</p> <ul style="list-style-type: none"> <li>○ Health care administrators;</li> <li>○ Education administrators;</li> <li>○ Large institutional property managers (i.e. Nexacor, Profac, and so on);</li> <li>○ Municipalities – facilities and/or energy managers as well as municipal planners;</li> <li>○ Provincial government - facilities and/or energy managers; and</li> <li>○ Builders and developers.</li> </ul> <p>Additional promotion via:</p> <ul style="list-style-type: none"> <li>▪ Speaking engagements, where ever possible, to the target audience;</li> <li>▪ Lunch and learn sessions with relevant professionals such as: energy managers, architects, engineering consultants, property developers.</li> </ul> <p>Potential magazine and webpage advertisements with publications and organizations such as: AIBC / ArchitectureBC magazine, APEGBC / Innovation magazine, BOMA BC eNews, ASHRAE-BC Totem newsletter, Agriculture Climate Action Initiative funding catalogue, and BC Greenhouse Growers Association.</p>

<b>Evaluation Strategy</b>	<p>Simple deemed savings cannot be used due to the custom nature of the measures. The savings must be individually established for each and every participant.</p> <p><u>For new construction:</u> the actual gas consumption will be compared to:</p> <ol style="list-style-type: none"> <li>Consumption prescribed per ASHRAE 90.1; and</li> <li>Qualified consultant's estimated consumption.</li> </ol> <p><u>For retrofits:</u> Post retrofit, the actual gas consumption will be compared to:</p> <ol style="list-style-type: none"> <li>Weather normalized pre-retrofit gas consumption; and</li> <li>Qualified consultant's estimated consumption.</li> </ol> <p>Evaluation of the program savings and performance is assured by comparing pre construction data to post construction data. A thorough review could occur after approximately 30 participants have had their energy saving measures in place for at least one full year.</p>
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#### *4.4.3.2.2 2010 Commercial Custom Design Program Results*

The Companies have worked throughout 2010 on the development of the Commercial Custom Design program, in preparation for a phased roll out of the program in 2011. The Companies have completed the following items:

- Business case development and approval;
- Development of qualified consultant eligibility criteria and application;
- Development of joint Energy Study Guide for retrofit projects with program partner BC Hydro; and
- Development of Capital Cost Agreement, including approval letter, application form, and program general terms and conditions.
- Collaboration with School District No 23 (Central Okanagan) on a pilot study of a geo exchange heating system in a school setting.

The Companies have also worked with BC Hydro to develop the framework of a program specific partnership agreement that will allow the two utilities to operate the Commercial Custom Design program in tandem with BC Hydro's High Performance New Construction program and Power Smart Partners Retrofit program.

Significantly, the Companies have been using the proposed program's process flow and funding model within the PSECA initiative discussed above. As such the Companies have gained a great deal of experience working collaboratively with BC Hydro, as well as insight into the results that may be expected from the application of the funding model. Given that all energy saving measures must exceed the TRC hurdle to be eligible for funding, the Companies also expect a strong cost benefit ratio from the program, indicating cost effective energy saving measures are being incented.

#### **4.4.3.2.3 2011 Commercial Custom Design Program Performance Forecast**

Rolling out the Commercial Custom Design program will be a primary focus of the commercial programs team in 2011. Several items remain to be completed before the program can officially begin providing incentives. These include:

- Contribution agreement with BC Hydro to be finalized and signed;
- Program operations / process flow to be worked out with BC Hydro; and
- Energy Study agreement for natural gas only retrofit projects to be developed.

The Companies foresee adopting a phased roll out of the program. The new construction version of the program will be launched first and will begin providing incentives in collaboration with BC Hydro's High Performance New Construction program. Natural gas only projects for the retrofit market will be the next market segment served. Finally, retrofit projects touching on both electricity and natural gas will be provided with incentives. This will allow the utilities the opportunity to roll out the new construction program early in the new year while working through how to collaborate on retrofit projects. Meanwhile the Companies will be able to encourage retrofit projects that focus on natural gas reductions only. It should be noted that the Companies also intent to pursue a similar arrangement with FortisBC Inc. The program is complex, however, requiring a great deal of collaboration, well organized and detailed program processes, and ultimately dedicated administrative resources in order to ensure smooth operation. For this reason, the Companies are focusing on building the program with one partner at a time, beginning with BC Hydro.

#### **4.4.3.2.4 Commercial Custom Design Program Summary**

The Companies believe that, similar to the PSECA initiative, the new Commercial Custom Design program will encourage participants to implement energy saving measures that would not otherwise be installed without the incentive. The program will fill a role that is currently void within the Companies' commercial program offerings: providing incentives for non-prescriptive, custom designed and built measures to reduce natural gas consumption at the participant's facility. The program will leverage the reach of BC Hydro PowerSmart's current programs, to encourage the participation of more projects that the Companies could achieve by themselves. The Companies believe the proposed program will be a strong generator of value and successfully contribute to reduced natural gas consumption.

### **4.4.3.3 Continuous Optimization Program**

#### **4.4.3.3.1 Program Overview**

<b>Continuous Optimization Program</b>	
<b>Market</b>	Retrofit
<b>Duration</b>	FEI: To be determined



	FEVI: To be determined
<b>Incentive</b>	Financial incentives based on implementation of commissioning measures
<b>Partner</b>	FortisBC Inc / BC Hydro
<b>Overview</b>	
<b>Background</b>	<p>In most commercial buildings, operational problems such as duct leakage, unbalanced airflow, and poor scheduling are not always obvious and tend to be ignored or simply missed, resulting in inefficiencies and increased natural gas consumption.</p> <p>Building commissioning and real time energy consumption monitoring identifies otherwise virtually undetectable building faults/deficiencies that otherwise tend to go unnoticed by building designers, operators, and owners. In a continuous optimization program, problems are more easily detected, evaluated, and solved.</p> <p>Moreover, building commissioning represents one of the most cost effective sources of energy savings and GHG emissions reductions. Monitoring based commissioning ("MBCx") helps ensure the benefits of building commissioning are not lost over time by providing support for real time energy monitoring.</p>
<b>Description</b>	<p>The Continuous Optimization program will capture gas savings by ensuring participating facilities / buildings are operated in the most efficient and effective manner possible. Beyond reducing natural gas consumption, the program is also aimed at entrenching a culture of conservation. This will be accomplished by providing incentives for:</p> <ol style="list-style-type: none"> <li>1. Commissioning: Utility funded commissioning studies and a concomitant obligation on the part of the participants to implement any measures identified therein with a two year payback or less.</li> <li>2. Real-time monitoring: Utility funded installation of pulse meters and monitoring software for natural gas.</li> </ol> <p>Target participants will generally include government, medium to large commercial, large multi-residential, health care, education, and institutional organizations. The program will likely be delivered in the form of a performance based incentive, wherein participants will be given a certain dollar amount per GJ actually saved.</p> <p>The Companies are looking to partner with FortisBC Inc. on a new program and BC Hydro on its currently operating Continuous Optimization program.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Reduce gas consumption among the commercial sector's existing building stock by providing an incentive to help commercial customers maximize their facilities operating performance.</li> <li>• Educate commercial sector customers about the impacts of poorly maintained / operated building systems and provide an incentive to facilitate both the maintenance of existing equipment, as well as the implementation of proper operating strategies.</li> <li>• Maintain a program TRC score greater than 1.0 and optimize the proportion of incentives over administration and marketing costs.</li> <li>• Increase year over year participation rates in view of maximizing gas savings.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	Administration to be handled by the program partners: FortisBC Inc. and BC Hydro.
<b>Communications</b>	To be determined



<b>Evaluation Strategy</b>	Evaluation of the program savings and performance is inherent to the program. The digital Energy Management Information System will provide real time energy consumption monitoring allowing for extremely granular data collection and reporting. The information could be used as a baseline for other projects and as a leading example for other campuses and buildings around the province.
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#### 4.4.3.3.2 2010 Continuous Optimization Program Results

In 2010, the program was not yet launched, but extensive research was undertaken in order to lay the foundation for the program. Based on the available data from BC Hydro's current program, as well as the conclusions of various research papers, the potential natural gas savings are significant. The Companies' own work to assess the costs associated with the measure strongly suggests the cost benefit ratio for commercial facilities of sufficient size will be generally positive.

In order to further validate the Companies' conclusions and gain experience with this potentially large program the Companies have completed a business case and set up a pilot program in partnership with FortisBC Inc. to be launched in 2011. The Companies expect this program will lead to reduced natural gas consumption and assist in driving behaviour change by highlighting the performance and efficiency of a well operated facility. Increased awareness and emphasis on building operations will thereby be achieved.

#### 4.4.3.3.3 2011 Continuous Optimization Program Performance Forecast

The Companies will launch a pilot version of the Continuous Optimization program in partnership with FortisBC Inc., as of March 28. This limited scale pilot will allow the Companies to become familiar with the details of a Continuous Optimization program and use the insight gained to develop a full scale program.

This pilot program will provide funding towards the implementation of a Continuous Optimization program at nine buildings on the UBC Okanagan campus. The pilot program's objectives are:

1. To save approximately 19,000 GJs over a three year period;
2. To gain expertise with the design, operation, and savings potential of a Continuous Optimization program; and
3. To further inter-utility cooperation on DSM initiatives by working with FortisBC Inc. with a view of eventually implementing a full scale Continuous Optimization program.

Also in 2011, the Companies will be working with BC Hydro to develop a business case for the remainder of FEI and FEVI's service territories. Providing the necessary tools to industry, the program will help bring about behaviour change, encouraging applicants to reduce natural gas consumption. BC Hydro has indicated the financial commitment is considerable.

## Continuous Optimization Program Summary

The Companies believe the program will effectively encourage reduced natural gas consumption by providing building operators with greater insight into the ongoing, day-to-day operations of their facilities. The role of building commissioning will especially be highlighted while capacity and expertise will be developed within the industry in BC. Overall, the Companies believe a Continuous Optimization program has a genuine potential to raise the profile of building operations within discussions on energy efficiency and lead to improved building management practices, and thereby reduced natural gas consumption in the long term.

### 4.4.3.4 Commercial Kitchen Program

#### 4.4.3.4.1 Program Overview

Commercial Kitchen Program	
<b>Market</b>	New Construction / Retrofit
<b>Duration</b>	FEI: To be determined FEVI: To be determined
<b>Incentive</b>	To be determined
<b>Partner</b>	To be determined
Overview	
<b>Background</b>	<p>According to the preliminary results of the 2011 Commercial Sector Conservation Potential Review, commercial cooking represents the third greatest consumer of gas by volume. Cooking operations are estimated to consume 9.2% of total commercial natural gas consumption in the province. In fact, commercial food service establishments are the most intensive users of natural gas, on a per square foot basis, of all commercial sector market participants.</p> <p>The Companies are not aware of any current regulation establishing minimum required efficiency standards for commercial cooking appliances; however, higher efficiency options exist and their use is commonly encouraged by utilities in the United States.</p>
<b>Description</b>	The Commercial Kitchen program will capture gas savings by encouraging the use of high efficiency (i.e. generally ENERGY STAR® rated or equivalent) cooking appliances in commercial kitchens. Typical appliances include fryers, ovens, boilers, steamers, and ranges. Target participants will include restaurants, health care facilities, care homes, education facilities, and institutional organizations. The program will likely be delivered in the form of an appliance purchase rebate.
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Reduce gas consumption in commercial cooking operations by encouraging the installation and use of high as opposed to standard efficiency cooking appliances.</li> <li>• Increase year over year participation rates in view of maximizing gas savings and bringing about market transformation.</li> <li>• Educate commercial kitchen customers about the advantages of reducing gas consumption and provide an incentive to facilitate the purchase of high efficiency technology.</li> <li>• Maintain a program TRC score greater than 1.0 and optimize the proportion</li> </ul>

	of incentives over administration and marketing costs. <ul style="list-style-type: none"> <li>• Prepare the way for and support any provincial regulation requiring increased commercial cooking appliance efficiency.</li> </ul>
Implementation	
<b>Administration</b>	To be determined
<b>Communications</b>	To be determined
<b>Evaluation Strategy</b>	To be determined

#### 4.4.3.4.2 2011 Commercial Kitchen Program Performance Forecast

The Companies are currently in the process of engaging an external consultant to develop an outline of a commercial cooking natural gas efficiency program for FortisBC.

As with the low flow pre rinse spray valve programs, the Companies believe the dynamics of the food service industry make it necessary to operate a DSM program in order to capture the potential natural gas savings offered by higher efficiency cooking equipment. The commercial food service sector tends to be exposed to significant volatility, making “cheapest first cost” a critical purchase decision criteria for any item not critical to customer service. Food service establishments typically lack the time or resources to research energy saving options or understand the benefits provided. A utility funded DSM program would make it easy for participants to save natural gas by largely eliminating both the effort and risk that potential participants would normally associate with the selection of high efficiency options.

The Commercial Kitchen program will also help to introduce a new concept to the food service industry, namely that energy is a variable cost. The Companies believe most food service establishments consider energy to be a fixed cost, and believe that changing this mindset is essential to ultimately bringing about market transformation.

The remaining development work preceding the program roll out is significant; however, the Companies’ hope to launch the program towards the end of 2011. BC Hydro has recently launched a new program aimed at encouraging energy efficiency in commercial food service establishments. The Companies and BC Hydro have expressed interest in working together to promote greater energy efficiency among commercial food service establishments.

#### 4.4.3.4.3 Commercial Kitchen Program Summary

The Companies believe commercial cooking operations represent a significant consumer of natural gas that is underserved by the current program offerings. Providing incentives to significantly reduce the incremental cost of higher efficiency cooking equipment is expected to encourage customers who would normally purchase and install standard efficiency equipment to purchase high efficiency options instead and reduce natural gas use as a result.

#### 4.4.3.5 *Process Heat Program*

##### 4.4.3.5.1 *Program Overview*

Process Heat Program	
<b>Market</b>	Retrofit
<b>Duration</b>	FEI: To be determined FEVI: To be determined
<b>Incentive</b>	To be determined
<b>Partner</b>	To be determined
Overview	
<b>Background</b>	<p>Process loads can be defined as the consumption of natural gas for purposes other than space and/or domestic water heating for human comfort and sanitation. For process loads the consumption of natural gas is directly related to the production of some good or product of economic value. Process loads are a major driver of natural gas consumption among industrial customers, both large and small.</p> <p>According to the Companies' 2010 Conservation potential review industrial accounts consume over 39,846,000 GJ/yr of natural gas in 2010. Non-interruptible consumption in 2010 is approximately 11,466,000 GJ. This consumption is largely driven by process loads such as food and beverage processing, agricultural processes and wood product processing and drying.</p> <p>Currently the Companies do not offer any programs designed specifically to encourage capital upgrades or behaviour change to reduce natural gas consumption for light/small scale industrial processes. According to the process heat program development undertaken thus far, higher efficiency options do exist however; technologies such as high efficiency boilers, water heaters, ovens, steam boiler upgrades and direct fired equipment can be used to substantially reduce the natural gas consumption of manufacturing processes.</p>
<b>Description</b>	<p>The Process Heat program will capture gas savings by directly addressing inefficient equipment or operations in manufacturing processes. This may include items such as old boilers, piping insulation, process controls, and so on. Target participants will include organizations in agriculture, food processing, and manufacturing (i.e. asphalt production). The program is likely to include a capital cost incentive and may include an additional monitoring and performance incentive.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Reduce gas consumption among manufacturing / light industrial customers by encouraging the installation and use of high as opposed to standard efficiency water appliances in manufacturing processes.</li> <li>• Increase year over year participation rates in view of maximizing gas savings.</li> <li>• Educate manufacturing / light industrial customers about the advantages of reducing gas consumption and provide an incentive to facilitate the purchase of high efficiency technology.</li> <li>• Maintain a program TRC score greater than 1.0 and optimize the proportion of incentives over administration and marketing costs.</li> </ul>

Implementation	
<b>Administration</b>	To be determined
<b>Communications</b>	To be determined
<b>Evaluation Strategy</b>	To be determined

#### **4.4.3.5.2     2011 Process Heat Program Performance Forecast**

The Companies have been working with a consultant to outline an incentive program designed to reduce the natural gas consumption of light industrial processes. It is expected that in 2011 work will be complete on the initial research and the Companies will be able to finalize a program design and launch the initiative in the second half of the year.

#### **4.4.3.5.3     Process Heat Program Summary**

Process heating in manufacturing and light industrial businesses represents a considerable consumption of natural gas that is not currently addressed by the Companies' existing incentive program. The Companies' experience with the Energy Assessment Program, however, suggests these customers represent a considerable energy savings potential. It is comparatively easy to encourage these customers to choose high efficiency options as they are predisposed to consider carefully the costs of all inputs to their business processes. The Companies expect that making incentives available to such customers will tip the balance of investment decisions in favour of high efficiency options by helping eliminate the risk of a higher capital investment in sometimes uncertain business climates.

### **4.4.3.6     *Multi Unit Residential Building Program***

#### **4.4.3.6.1     Program Overview**

Multi Unit Residential Building Program	
<b>Market</b>	New Construction / Retrofit
<b>Duration</b>	FEI: To be determined FEVI: To be determined
<b>Incentive</b>	To be determined
<b>Partner</b>	To be determined
Background	
<b>Background</b>	The 2005 Conservation Potential Review has indicated that MURBs represent one of the most significant sources for energy savings in the commercial sector. Although several of the current commercial programs can be applied to MURBs, there are several other smaller measures the Companies can implement for this sector that reflect rather large savings potentials.

<b>Description</b>	A suite of rebates targeted primarily at "in-suite" energy saving measures for MURBs. This may include measures such as low flow fixtures, fireplace programs, natural gas appliance upgrades, and/or building envelope upgrades. With large potential savings, this program will be targeting both new construction and retrofit applications.
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Educate builders and developers about installing energy efficient appliances and fixtures to drive market transformation.</li> <li>• Reduce natural gas consumption in the MURB sector by encouraging the installation and use of high efficiency options as opposed to standard efficiency models.</li> <li>• Maintain a program TRC score greater than 1.0 and optimize the proportion of incentives over administration and marketing costs.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	To be determined
<b>Communications</b>	To be determined
<b>Evaluation Strategy</b>	To be determined

#### **4.4.3.6.2     2011 Multi Unit Residential Building Program Performance Forecast**

The Companies began their involvement in 2010 by participating in a MURB remediation study and reviewing energy consumption (among other items) in strata properties throughout the year. A cross functional team was established in early 2011 to start developing the MURB program. For resources, the commercial team is drawing on experience from the residential team, the sales team, and an energy specialist working in industry funded by the Companies. Initial talks are looking at the measures that show the most potential energy savings. The savings projections for low flow fixtures are very positive, as are fireplace programs and building envelope and domestic natural gas appliances upgrades.

The team is looking towards providing FortisBC Energy packaged options for MURBs for both new construction and retrofit applications – each targeting different groups. The ‘package of measures’ idea would work well in new construction when targeting developers. Working with the developer in the early stages and providing enticing financial incentives would ensure more MURBs were built from the ground up with energy efficient appliances and fixtures.

In retrofit applications, the program will primarily target apartment building owners and strata corporations. The program will look at several measures these target groups can take advantage of for upgrading to more energy efficient options in their buildings and will allow them to participate whether they are upgrading to low flow fixtures or replacing the decorative fireplaces with EnerChoice models. By allowing a broad range of options for the buildings, the program will hopefully increase participation levels and provide the target groups that represent buildings of different sizes, age, and ‘green status’ with the flexibility to choose what works for them.

#### 4.4.3.6.3 Multi Unit Residential Building Program Summary

This program is targeted at overall behavioural change in the MURB sector. By providing substantial incentives to developers, there will start to be a shift in the industry that will help drive market transformation. As more MURBs undergo retrofits using energy efficient measures, there will not only be substantial energy savings, but also increased capacity and industry experience. With such a range of upgrade options and financial incentives, more target groups will choose to take advantage of these incentives than normally would if no such program was in place. The program development team is currently researching the measures and implementation options to best decide how to proceed to the next steps for a 2011 program launch.

#### **4.4.4 ON FARM ENERGY ASSESSMENTS**

Throughout 2010 and into 2011 the Companies have provided support to the On Farm Energy Assessment program managed by the BC Agriculture Research and Development Council (“ARDCorp”). The aim of participation in this initiative is to gain a clear understanding of how farms use natural gas, and what an appropriate incentive program may be for this customer segment. While the provincial utility companies do offer some energy efficiency support to agri-food operations, the Companies believe a specialized approach is ultimately required for agriculture because of the sector’s specific production systems and technologies.

##### **Project Objectives**

- To determine the sector’s key energy efficiency needs and to identify gaps in current programming and incentives.
- To determine the potential for cost savings and GHG emissions reductions through on farm energy efficiency assessments in BC.
- To identify opportunities associated with recovery/recycling of wasted energy and/or on farm energy production.

Upon completion of the initiative the Companies will be provided with the findings in a report format. These findings will be used to develop incentive programs designed for the specific needs of the agriculture sector. The preliminary findings suggest that significant savings potential exists among greenhouse operations first and foremost and poultry operations next. Field crops represent limited savings potential for natural gas.

#### **4.5 Summary**

Energy efficiency in the commercial sector represents a considerable opportunity to achieve natural gas savings and GHG emissions reductions. With more options available for investment and fewer minimum equipment efficiency standards than in the residential sector, at least in the short to medium term, sizeable cost effective investments can be made to help commercial sector customers reduce their energy consumption, as demonstrated by the PSECA initiative.



The challenge to achieving these savings is having the right programs, designed to suit the myriad of commercial sector needs, in place and effectively delivered to potential participants.

The commercial energy efficiency and conservation programs have delivered value and will continue to do so by effectively encouraging commercial customers to implement measures that reduce their natural gas consumption. Encouraging reduced consumption today paves the way for market transformation and the achievement of the government's energy and climate change objectives over the long run.

## 5 HIGH CARBON FUEL SWITCHING PROGRAMS

### 5.1 Overview

The High Carbon Fuel Switching program area initiatives are designed to result in lower overall GHG emissions by using natural gas in place of higher emissions carbon fuels such as coal, oil, diesel, or propane. In addition, further GJ savings are recovered by replacing older, less efficient high-carbon appliances with high efficiency natural gas technologies. The first fuel switching program is the residential retrofit program, focused on converting oil or propane heating systems to ENERGY STAR® natural gas appliances. This program, called the Switch N' Shrink program, saves money and energy and results in significant GHG emissions reductions.

In Order No. G-36-09, the Companies received approval for residential fuel switching program funding for fuel switching from fossil fuels with higher carbon content than that of natural gas. In the residential sector, this applies to the installation of ENERGY STAR® and EnerChoice equipment for customers choosing to convert to natural gas. FEVI received approval for the extension of 2010 high carbon fuel conversion funding amounting to \$1.5 million for 2011 in Order No. G-140-09, as part of the 2010-2011 Revenue Requirements Application's Negotiated Settlement Agreement. This funding is in place to develop EEC programs that benefit customers transitioning from higher carbon fuels such as coal, oil, diesel, or propane to natural gas.

This principle of moving customers from higher carbon fuel to natural gas also applies in other sectors, including the transportation sector. As described in the Innovative Technologies program area, heavy duty vehicles fuelled by lower carbon Compressed Natural Gas ("CNG") can displace higher carbon diesel to achieve significant environmental benefits. The Companies' target market includes operators of commercial, return-to-base heavy duty fleet vehicles such as garbage trucks, waste haulers, and buses. Improvements in engine technology, combined with an attractive price differential between natural gas and diesel have stimulated renewed interest in CNG NGVs in recent years.

#### 5.1.1 RESIDENTIAL HIGH CARBON FUEL SWITCHING PROGRAM GOALS

Residential fuel switching programs encourage households to replace their higher carbon heating systems with lower carbon natural gas. These programs add value to new and existing customers through reduced fuel costs, minimizing the environmental hazards associated with oil storage tanks, decreasing the need to import fuel from other provinces, and improved air quality in the home. Residential fuel switching programs support the following objectives:

- Educate customers about the advantages of replacing higher carbon heating systems with lower carbon natural gas in terms of lower fuel cost, GHG emissions reductions, and other benefits;
- Upgrade low efficiency systems to high efficiency systems in order to capture energy savings associated with reducing the overall consumption of fuel; and

- Support government policy on energy efficiency and GHG emissions reductions, especially in relation to efficient building strategies<sup>31</sup> through incentives and education to customers and other industry stakeholders.

## 5.2 2010 Residential High Carbon Fuel Switching Program Area Results

The 2010 High Carbon Fuel Switching program, Switch N' Shrink, resulted in the replacement of 178 heating systems through a cost effective program with a TRC score over 1.2, as outlined in Table 5-1. Further analysis based on the amount of oil displaced reveals that customers reduced their fuel costs by \$596,000<sup>32</sup> over the lifetime of the measure, thereby reducing over 1,170 tons of GHG emissions. Please note natural gas savings are negative for this program since the addition of these customers is building load.

**Table 5-1: High Carbon Fuel Switching 2010 Results**

Program	Incentives & Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
Switch 'N' Shrink	75	225	299	(6,103)	(32,529)	(38,632)	1.2	1.4

In addition to appliance replacement, this program met EEC program objectives by educating customers and trades about the benefits of replacing higher carbon heating systems with energy efficient appliances. These benefits include the reduction of ongoing fuel costs, improved air quality, and decreased environmental risk associated with oil tanks and fuel transport. The primary program benefit was supporting government policy initiatives to reduce GHG emissions.

## 5.3 2011 Residential High Carbon Fuel Switching Program Area Outlook

The 2011 outlook for the High Carbon Fuel Switching program area at this time consists only of the residential Switch N' Shrink program although. The Companies are assessing other opportunities for this program area in the coming months. By building on 2010 program awareness, program participation is expected to more than double for a total of 420 participants as outlined in Table 5-2 for the 2011 forecast. The 2011 program cost effectiveness is higher than 2010 due to decreased marketing expenditures required in the second year and the higher avoided cost of oil that is forecasted to increase from \$22 per GJ in 2010 economic models, to \$25 per GJ in 2011 based on Vancouver, BC pricing.<sup>33</sup>

<sup>31</sup> BC Energy Efficient Buildings Strategy: More Action, Less Energy. BC Ministry of Energy and Mines Publication, 2008.

<sup>32</sup> [www.kentmarketingservices.com](http://www.kentmarketingservices.com) Prepared by MJ Ervin, Kent Marketing Services, for source of Vancouver fuel oil prices. For economic modeling, 2010 cost of oil was assumed to be \$22.01 and 2011 cost of oil was assumed to be \$25.39.

<sup>33</sup> *ibid*

**Table 5-2: High Carbon Fuel Switching 2011 Outlook**

Program	Incentives & Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
Switch 'N' Shrink	121	403	524	(17,116)	(69,861)	(86,976)	1.7	1.8

## 5.4 Residential High Carbon Fuel Switching Program Details

### 5.4.1 ACTIVE PROGRAMS

#### 5.4.1.1 Switch N' Shrink Program

##### 5.4.1.1.1 Program Overview

Switch N' Shrink Program	
<b>Target Audience</b>	Residential retrofit households with oil or propane as primary fuel source FEVI is the primary market where oil heating is prevalent
<b>Duration</b>	Jan 1, 2010 - Dec 31, 2011
<b>Incentive</b>	\$1,000 for upgrading an oil/propane primary heating system to an ENERGY STAR® natural gas primary heating system. An additional \$50 for Electronically Commutated Motors ("ECM") incentive is funded by BC Hydro and FortisBC Inc
<b>Partners</b>	BCHydro and FortisBC Inc. for ECM motors
Overview	
<b>Background</b>	<p>The Switch N' Shrink program is offered to all BC residents; however, the primary focus will be on Vancouver Island where the use of oil is more prevalent than in the rest of the Companies' service territories. Furthermore, the program will engage residents near a gas main who are more likely to participate and take advantage of this program. On-Main market potential for FEVI oil and propane conversions is difficult to estimate, but could range from 20,000 to 40,000 households. According to 2005 data from Statistics Canada, 21% of households within the Victoria market still used oil as their primary heating fuel while only 19% used natural gas<sup>34</sup>. This market potential demonstrates a significant opportunity to reduce GHG emissions through natural gas conversions for Vancouver Island communities.</p> <p>There are also opportunities for conversion projects in the Interior, as well as the opportunity for customers in regions such as Revelstoke, which are serviced by propane, to switch from higher carbon oil to propane.</p> <p>In addition to the benefit of GHG emissions reductions, participants will lower</p>

<sup>34</sup> 2005 Statistics Canada - Table 203-0019 - Survey of household spending (SHS), dwelling characteristics at the time of interview by province, territory, and selected metropolitan areas, annual (1,2,3,9,11). Survey or program details: Victoria, British Columbia [59935], Survey of Household Spending – 3508.

	their energy bills, increase their property values, and reduce the potential of an environmental hazard associated with oil tank leaks.
<b>Description</b>	The Switch N' Shrink program offers a \$1,000 incentive to new or existing customers who upgrade their primary home heating system (furnace or boiler) from oil/propane to a high efficiency ENERGY STAR® natural gas heating system. An additional \$50 rebate, funded by BC Hydro and FortisBC Inc., will be provided to those participants who purchase a model with an ECM motor.
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Provide a \$1,000 incentive to encourage homeowners to convert their primary heating system from higher carbon oil or propane to a high efficiency natural gas heating system.</li> <li>• Work with the Ministry of Energy to include this program as part of the provincial GHG emissions reduction strategy.</li> <li>• Develop a cost effective program with a TRC score greater than 1.0 that achieves significant energy savings, cost savings, and GHG emissions reduction benefits.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	Consumer Response Marketing Ltd.
<b>Communications</b>	The Companies adopted an integrated marketing approach with print ads and radio to drive program awareness, contractor communications, co-marketing with furnace manufacturers, and educating internal stakeholders such as the customer service installation centre and sales and service staff who can help promote higher carbon to lower carbon conversions.
<b>Evaluation Strategy</b>	The Companies will be conducting a survey with participating contractors to determine how to drive program participation and other ideas to improve the program.

#### 5.4.1.1.2 2010 Results

**Table 5-3: 2010 Switch N' Shrink Program Results**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditures (\$000s)	Annual Energy Savings (GJ/yr)*	NPV Energy Savings (GJ)*	Free Rider Rate	TRC
	FEI	29	29	46	(624)	(6,103)	50%	1.2
	FEVI	149	149	76	(3,204)	(32,529)	50%	1.4
	<b>Total</b>	<b>178</b>	<b>178</b>	<b>121</b>	<b>(3,827)</b>	<b>(38,632)</b>	<b>50%</b>	<b>1.5</b>
* Note: Energy savings in a fuel switching program are negative since this is a load building program from higher carbon fuel sources (oil and propane) to lower carbon natural gas.								

The Switch N' Shrink program provided EEC funding for 178 conversions from oil to natural gas. Table 5-4 demonstrates the program is cost effective with a TRC score of 1.4. Approximately \$100,000 was invested in print and radio advertising in the fall of 2010 to drive program awareness and educate homeowners about the benefits of replacing higher carbon fuels with lower carbon fuels.

**Table 5-4: 2010 Switch N' Shrink Program Benefits**

Utility	NPV Natural Gas Incurred (GJ)	NPV Oil Displaced (GJ)	NPV Energy Savings (GJ)	NPV Costs to Purchase Natural Gas (\$000s)	NPV Costs to Purchase Oil (\$000s)	NPV Cost Savings upon Conversion (\$000s)	GHG Savings (Ton CO2 equivalents)
FEI	6,103	7,222	1,119	61	159	98	200
FEVI	32,529	37,106	4,577	337	835	498	971
<b>Total</b>	<b>38,632</b>	<b>44,328</b>	<b>5,696</b>	<b>398</b>	<b>994</b>	<b>596</b>	<b>1,171</b>

Table 5-5 provides insight into the considerable program benefits over the lifetime of the measure. For 178 conversions, there were 5,696 net GJs of energy saved, \$596,000<sup>35</sup> in net cost savings for these customers, and 1,171 net tons of CO2e reductions.

#### 5.4.1.1.3 2011 Performance Outlook

**Table 5-5: 2011 Switch N' Shrink Program Performance Forecast**

Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditures (\$000s)	Annual Energy Savings (GJ/yr)*	NPV Energy Savings (GJ)*	Free Rider Rate	TRC
FEI	100	100	21	(1,720)	(17,116)	50%	1.7
FEVI	320	320	83	(6,880)	(69,861)	50%	1.8
<b>Total</b>	<b>420</b>	<b>420</b>	<b>104</b>	<b>(8,600)</b>	<b>(86,976)</b>	<b>50%</b>	<b>1.8</b>

\* Note: Energy savings in a fuel switching program are negative since this is a load building program from higher carbon fuel sources (oil and propane) to lower carbon natural gas.

The Switch N' Shrink program will remain in market for 2011 and 2012 subject to BCUC funding approval for fuel switching activities. By leveraging program awareness from the fall 2010

<sup>35</sup> [www.kentmarketingservices.com](http://www.kentmarketingservices.com) Prepared by MJ Ervin, Kent Marketing Services, for source of Vancouver fuel oil prices. For economic modeling, 2010 cost of oil was assumed to be \$22.01 and 2011 cost of oil was assumed to be \$25.39.

advertising campaign, the Companies anticipate doubling participation from 178 to 420 participants. A fall 2011 advertising campaign is under consideration, with a decision to be made based on contractor feedback and program participation trends.

**Table 5-6: 2011 Switch N' Shrink Forecasted Program Benefits**

Utility	NPV Natural Gas Incurred (GJ)	NPV Oil Displaced (GJ)	NPV Energy Savings (GJ)	NPV Costs to Purchase Natural Gas (\$000s)	NPV Costs to Purchase Oil (\$000s)	NPV Cost Savings upon Conversion (\$000s)	GHG Savings (Ton CO2 equivalents)
FEI	17,116	19,923	2,807	178	506	328	539
FEVI	69,861	79,691	9,831	741	2,023	1,283	2,085
<b>Total</b>	<b>86,976</b>	<b>99,614</b>	<b>12,637</b>	<b>918</b>	<b>2,529</b>	<b>1,611</b>	<b>2,624</b>

Table 5-6 provides insight into the considerable program benefits over the lifetime of the measure. For the forecasted 420 conversions, there are 12,637 net GJs of energy saved, \$1,611,000<sup>36</sup> in net cost savings for these customers, and 2,624 net tons of CO2e reductions.

## 5.5 Summary

The overall program benefits are captured by avoiding higher carbon fuel costs while incurring lower natural gas fuel costs for an overall reduction in net GHG emissions. The net benefit for the participant is in reduced energy costs while helping BC meet its provincial GHG emissions reduction targets. From a utility standpoint, the benefit is in adding more customers to the distribution system, especially where a gas service already exists in close proximity, keeping the overall system costs per customer down. The 2011 performance outlook illustrates these points and the significant energy, cost, and GHG emissions savings that are obtained based on 420 heating systems converted from oil to natural gas.

The Companies will be assessing other opportunities to utilize this funding for high carbon to lower carbon initiatives. As the price of oil appears to be rising, there will be even greater cost benefits to customers to define programs for this program area.

<sup>36</sup> Ibid.



## 6 CONSERVATION FOR AFFORDABLE HOUSING PROGRAMS

### 6.1 Overview

The Conservation for Affordable Housing program area is the Companies' area of DSM programming specifically created to meet the needs of our low income customers. One of the EEC program principles is that "programs will have a goal of being universal, offering access to energy efficiency and conservation for all residential and commercial customers, including low income customers through the DSM for Affordable Housing initiative" (Energy Efficiency and Conservation Programs Application, May 28, 2008, pg 47). The Companies are staying true to this principle by developing and implementing programs that are of no cost or low cost to low income participants. Further, as per the Demand-Side Measures Regulation, a utilities' DSM portfolio is considered adequate (by the authorities) when there is "a demand-side measure intended specifically to assist residents of low income households to reduce their energy consumption" (November 7, 2008, Regulation of the Minister of Energy, Mines and Petroleum Resources, Ministerial Order No. M 271, Section 3[a]). In order to recognize its importance, the Companies created a discrete program area for Conservation for Affordable Housing in 2009, which focuses on assisting our low income customers to reduce their energy consumption, which in turn reduces their energy costs.

In line with the Commission's encouragement to "re-allocate funding from other approved areas" (EEC Decision, Order No. G-36-09), the Companies requested and were approved for an annual total budget of \$3 million for 2010 and 2011, encompassing both FEI and FEVI in this program area (as part of Orders G-141-09 and G-140-09 approving negotiated settlement agreements in FEI's and FEVI's 2010 - 2011 Revenue Requirements Applications). With energy rates generally increasing, it will remain important for the Companies to create energy conservation opportunities for this segment in a manner that allows customers to participate without having to spend a significant amount of their limited income.

Low income customers are known to be difficult to reach and be integrated into utilities' DSM programs; therefore, this program area is especially well suited to working collaboratively with FortisBC Inc. and BC Hydro in order to simplify the application processes for the customer and share administration and outreach activities and costs. This streamlined approach allows the Companies to maximize every contact to ensure that once a low-income customer is engaged, an optimal amount of energy savings can be realized.

It should be noted that providing conservation and energy efficiency programs for low income customers can be challenged in terms of achieving a positive TRC score, both at the program area and individual program levels, despite the 30 percent benefits adder provided for in the DSM regulation. This is because of the relatively high cost of providing conservation services to this important customer segment. Recognizing that the provision of conservation services to low income customers is a requirement for adequacy of utility DSM activity, the Companies intend to work with government to explore amending the DSM regulation to ensure conservation activity serving this customer segment is able to continue.

## **6.2 2010 Conservation for Affordable Housing Program Area Results**

While 2009 laid some good foundations in research, facilitation, and planning, 2010 saw the launch of two significant Conservation for Affordable Housing programs, the completion of an insightful study, and investments made under the Ministry of Energy and Mines Low Income Partnership grant. We also laid further groundwork on a much expanded program offering for 2011.

Despite the added time required to effectively collaborate with partnering utilities, the Companies successfully launched two Conservation for Affordable Housing programs in 2010: the Residential Energy and Efficiency Works (“REnEW”) program and the Energy Saving Kit (“ESK”) program. The REnEW program is an innovative approach to energy efficiency trades training that simultaneously provides support to individuals facing barriers to employment. The ESK program provides a bundle of easy-to-install energy saving measures to low income customers.

In 2010, the Companies also saw the completion of the Strategic Energy Management Plan, a study that provided insight into the energy performance of over 900 buildings in the non-profit housing sector. Amongst many insightful findings, the study highlighted the importance of educational and engagement programs in the non-profit housing sector, as well as the need for dedicated energy professionals working in non-profit housing organizations.

The Companies continue to work collaboratively and in partnership with the Ministry of Energy and Mines on programs and projects focused on low income customers. This partnership involves a \$5.155 million grant that was awarded to the Companies in March 2009. The work completed in 2010 under this grant was specific to a new initiative, the Super Efficient New Construction (“SENC”) project, which seeks to incent both new construction that is far more efficient than current building code requirements and new housing units for low-income tenants. It’s important to note that activities associated with the Low Income Partnership grant are described within this report; however, they are incremental to the EEC portfolio and thus are not included in the EEC portfolio TRC calculations, or the Conservation for Affordable Housing program area TRC calculations.

Further, the Companies have laid the groundwork for greatly expanded programming in the low income sector for 2011. The Companies have made good progress in a partnership with BC Hydro on the Energy Conservation Assistance (“ECAP”) program, which will be the first program to provide deep energy savings for low income gas customers through the direct installation of measures such as furnaces, draft-proofing, and insulation. Work also continued on a study that focuses on the opportunities within the complex co-operative housing sector of BC and a study that explores energy efficiency opportunities within the mobile home sector.

As demonstrated in the table below, the Companies have invested a total of \$324,000 in 2010 and achieved a program area TRC score of 0.7 in FEI and 1.6 in FEVI. The main reason for the variance between FEI and FEVI is that the Companies have not implemented a REnEW session in the FEVI territory. In 2011, the intent is to expand the REnEW program into the FEVI territory. The Companies endeavoured to deliver the REnEW program in the FEVI territory in 2010;

however, the delivery partner on Vancouver Island experienced some organizational restructuring that conflicted with their ability to deliver the program. The delivery partner will be offered the opportunity to deliver the REnEW program in 2011.

The TRC score of 0.7 in FEI is due to the REnEW program's influence on the TRC. The REnEW program is a good example of a program that is hindered by conventional approaches to DSM program evaluation as there are no direct energy savings attributable to the program. In this sense, it can be considered an enabling activity. Further, because the REnEW program ran for a full year, while the ESK program (which had a very favourable TRC) was only available for the second half of the year, the REnEW program had a disproportional impact on the TRC. In other words, had both the REnEW program and the ESK program been available for the entire year, the portfolio TRC would have been improved.

**Table 6-1: 2010 Conservation for Affordable Housing Investments**

Program	Incentives & Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
Strategic Energy Management Plan (Study)	\$14	\$3	\$17	N/A	N/A	N/A	N/A	N/A
REnEW	\$148	N/A	\$148	N/A	N/A	N/A	N/A	N/A
Energy Savings Kit	\$83	\$21	\$104	15,520	3,959	19,479	2.3	2.4
Mobile Homes (Study)	\$8	\$2	\$10	N/A	N/A	N/A	N/A	N/A
<i>Non-Program Specific Expenditures</i>	\$43	\$2	\$45	N/A	N/A	N/A	N/A	N/A
<b>Total</b>	<b>\$296</b>	<b>\$28</b>	<b>\$324</b>	<b>15,520</b>	<b>3,959</b>	<b>19,479</b>	<b>0.7</b>	<b>1.6</b>

Notable achievements through in 2010 in the Conservation for Affordable Housing program area are:

- The completion of the Strategic Energy Management Plan, a study focusing on the opportunities and best approaches for achieving energy efficiency and conservation within the non-profit housing sector;
- Investment of \$148,000 in the REnEW program, which brought about the development of a robust course curriculum, strong partnerships with social agencies that serve various sub-segments of the low income sector, 59 REnEW participants, and participant satisfaction scores of 85%;
- Investment of \$104,000 in the ESK program resulting from over 5,000 participants in the first six months of the program. The resultant savings from the ESK program is 19,479 GJs (NPV) and we are well positioned to reach an even greater breadth of the market in 2011; and
- Of the \$5.155 million the Ministry of Energy and Mines granted to the Companies through the Low Income Partnership Grant, \$515,000 was invested in SENC in 2010 and the Companies are well positioned to invest \$1.5 million in collaboration with BC Hydro on the ECAP program in 2011. Note that this investment is not shown in the table above because the Ministry of Energy and Mines Low Income Partnership grant is incremental to the EEC funds.

- Overall, including both EEC funds shown in the table above, and the Ministry of Energy and Mines Low Income Partnership grant, the Companies have been successful in investing \$839,000 in 2010.

### 6.3 2011 Conservation for Affordable Housing Program Area Outlook

Considerably expanded investment in the Conservation for Affordable Housing program area is expected in 2011. The most significant enhancement will be the launch of the partnership with BC Hydro on the ECAP. This program will see investments from both EEC funds and from the Ministry of Energy and Mines Low Income Partnership grant. The Companies will continue with their commitment to build expertise in this program area through additional research specifically in the co-operative housing sector and the mobile housing sector. The REnEW program and the ESK program will also continue throughout 2011. Table 6-2 provides an estimate of 2011 investment in the Conservation for Affordable Housing program area.

**Table 6-2: 2011 Conservation for Affordable Housing Investment Forecast**

Program	Incentives & Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
REnEW	\$150	\$35	\$185	N/A	N/A	N/A	N/A	N/A
Energy Savings Kit	\$186	\$47	\$233	31,271	7,903	39,174	2.2	2.3
Energy Conservation Assistance Program	\$1,694	\$424	\$2,118	53,242	13,089	66,331	0.6	0.6
Mobile Homes (Study)	\$8	\$2	\$10	N/A	N/A	N/A	N/A	N/A
CHF Co-ops (Study)	\$12	\$3	\$15	N/A	N/A	N/A	N/A	N/A
<i>Non-Program Specific Expenditures</i>	\$7	\$3	\$10	N/A	N/A	N/A	N/A	N/A
<b>Total</b>	<b>\$2,058</b>	<b>\$513</b>	<b>\$2,571</b>	<b>84,514</b>	<b>20,992</b>	<b>105,505</b>	<b>0.7</b>	<b>0.7</b>

Note that wherever a TRC result is presented in the Conservation for Affordable Housing program area, it includes a deemed benefit that includes a 30 percent “adder” in accordance with clause 4.2.b of the Demand Side Measures Regulation, attached as Appendix C. It should also be noted that there is a challenge in meeting a TRC score of 1.0 (even after applying the low income adder) for programs that seek to achieve a deeper level of savings (i.e. ECAP program) for the following reasons:

- Direct install low income programs will incur higher costs for administration and implementation. The Companies will need to hire skilled contractors and ensure they are trained in the sensitivities of working in low income households. They will also need to ensure these contractors are very familiar with the utilities’ safety requirements and are trained to assess potential problem situations such as mould; and
- It is difficult to reach and integrate low income customers in programs that involve some effort on behalf of the customer to provide sufficient documentation of their household income. To overcome these barriers additional investments are required to support the customer through the application process.

To address these challenges, the Companies are working with government to explore alternatives to evaluating low income programs that better recognize the higher costs required

to perform this type of work, as well as recognize the extensive benefits in performing this work that extend well beyond energy efficiency.

#### **6.4 Conservation for Affordable Housing Program Details**

As the Companies progress and enhance their program offerings and partnerships, the Companies continue to meet the regulatory requirement of designing programs that specifically “assist low income households to reduce their energy consumption.” (November 7, 2008, Regulation of the Minister of Energy, Mines and Petroleum Resources, Ministerial Order No. M 271, Section 3[a]). We will continue to also stay true to our EEC program principle of “offering access to energy efficiency and conservation for all residential and commercial customers, including low income customers.” (Energy Efficiency and Conservation Programs Application, May 28, 2008, pg 47).

The Companies have made good progress in 2010 with the successful launch of two solid EEC programs geared specifically to low income customers. These programs will both continue in 2011. Through studies performed in 2010, relationships that have been built with non-profit housing providers, and collaborations with other BC utilities, 2011 is set to be a year of much expanded investment in the Conservation for Affordable Housing program area.

Conservation for Affordable Housing programs are outlined in Table 6-3 and described in further detail below.

**Table 6-3: Conservation for Affordable Housing Initiatives for TGI and TGV**

Program	Utility		Description	TRC	
	FEI	FEVI		FEI	FEVI
Completed Programs					
Strategic Energy Management Plan	X	X	A study that provided insight into the energy performance of over 700 non-profit housing buildings.	N/A	N/A
Active Programs					
REnEW (Training program)	X		Energy efficiency trades training targeted to individuals that are facing barriers to employment.	N/A	N/A
Energy Savings Kit	X	X	A bundle of easy to install energy saving measures available to all low income customers.	2.3	2.4
Ministry of Energy Low Income Partnership Grant	X	X	Incentives invested in a number of initiatives including the Super Efficient New Construction project.	N/A	N/A
Programs in Development					
Energy Conservation Assistance Program	X	X	Energy audits and installed measures that will lead to deep energy savings for low-income customers.	0.6	0.6
CHF BC Energy Performance Housing Inventory	X	X	A study that will provide insight into the energy performance of the co-operative housing sector in BC.	N/A	N/A
Mobile Homes Study	X	X	A study focused on a survey of mobile home tenants, their attitudes towards energy efficiency, and opportunities that may be available within this housing type.	N/A	N/A

#### 6.4.1 COMPLETED PROGRAMS

##### 6.4.1.1 Strategic Energy Management Plan (“SEMP”) Study

###### 6.4.1.1.1 SEMP Study Overview

SEMP (Study)	
<b>Target Audience</b>	Non-profit Housing Sector in BC
<b>Duration</b>	Completed in October 2010
<b>Financial Contribution</b>	\$16,984 of the Companies’ contribution

<b>Partners</b>	The Strategic Energy Management Plan ("SEMP") was commissioned by the Companies and BC Hydro.
<b>Overview</b>	
<b>Research Goals</b>	This study was specifically focused on the non-profit housing sector and involved an analysis of energy data (consumption and behavioural habits) to create the benchmarking of building energy performance. A related goal of the study was to use the information to start to prioritize energy efficiency upgrades based on cost effectiveness, energy savings, and GHG emissions reduction potential.
<b>Implementation</b>	
<b>Administration</b>	The study was administered jointly by City Green Solutions and the BC Non-Profit Housing Association.
<b>Key Findings</b>	<p><b>Key Finding:</b> The average energy intensity of buildings where the society pays the utility charges was more than double the intensity of buildings where the tenants pay the utility charges; and, every one percent of energy reduction in the non-profit housing sector would result in \$500,000 in energy savings annually.</p> <p>Study recommendations:</p> <ul style="list-style-type: none"> <li>• Prioritize energy efficiency retrofits in buildings where societies pay the utility charges;</li> <li>• Implement educational programs in buildings where societies pay the utility charges to bridge the gap between tenant behaviour and the cost to societies; and</li> <li>• Where feasible, explore sub-metering structures that draw a better correlation between tenant behaviour and the resultant benefits to the tenant.</li> </ul> <p><b>Key Finding:</b> Non-profit buildings in the Lower Mainland are both the largest consumers of energy and the most energy intensive.</p> <p>Study recommendation:</p> <ul style="list-style-type: none"> <li>• Prioritize energy efficiency programming in the Lower Mainland.</li> </ul> <p><b>Key Finding:</b> The range and depth of responsibilities required to manage energy use in non-profit housing is extensive. From the initial budgeting of capital costs and organizing energy assessments, to project oversight of building retrofits and tracking and monitoring energy performance, the capacity required for housing providers is beyond the existing organizational resources of most societies.</p> <p>Study recommendation:</p> <ul style="list-style-type: none"> <li>• A key recommendation to managing the responsibilities of energy efficiency within the non-profit sector is to add an energy manager(s) designated to the sector. The energy manager would provide the necessary link between government and utility programs and services and the buildings that could benefit from these services.</li> </ul>



<b>Actions</b>	<p>In alignment with the study recommendations, the Companies have undertaken the following initiatives:</p> <ul style="list-style-type: none"> <li>• In 2010, the Companies funded an energy specialist at BC Housing who will work closely with the Companies to spearhead energy efficiency programming in the sector. The Companies will encourage the prioritization of buildings that have the highest energy intensity; and</li> <li>• In 2011, the Companies will be collaborating with BC Housing on a tenant engagement pilot program that will educate on, and encourage, energy efficiency behaviours. The intention is to develop a successful engagement program that can be rolled out on a larger scale and on a more permanent basis.</li> </ul>
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## 6.4.2 ACTIVE PROGRAMS

### 6.4.2.1 Residential Energy and Efficiency Works Program (“REnEW”)

#### 6.4.2.1.1 REnEW Program Overview

Residential Energy and Efficiency Works Program (“REnEW”)	
<b>Target Audience</b>	Participants trying to overcome barriers to employment and poverty who also have a desire to work in the energy efficiency retrofitting industry
<b>Duration</b>	Jan 1, 2010 - Dec 31, 2011
<b>Incentive</b>	Energy efficiency trade training at no cost to participant including course materials, first aid, Workplace Hazardous Materials Information System (“WHMIS”) and other trade industry certifications, a set of tools and a tool belt, and two nutritious meals per day during training
<b>Partners</b>	BC Hydro, FortisBC Inc.
Overview	
<b>Background</b>	<p>In recognition that BC has a shortage of skilled tradespeople that are well versed in energy efficiency, this program was launched with the objective of building capacity within the industry while simultaneously providing opportunities for a segment of our society that faces barriers to employment.</p> <p>This FortisBC Energy Inc. led training program provides an overview of the energy efficiency industry and its many associated trades. The training includes both entry-level trade skills, with respect to the installation of energy efficiency measures (i.e. showerheads, faucet aerators, and pipe insulation), and an introduction to more technical trade skills (i.e. installing energy efficient windows and insulation).</p> <p>This training program is targeted to participants with barriers to employment and has been designed with the following parameters:</p> <p><b>Accessibility</b> – minimal experience/educational prerequisites.</p> <p><b>Efficiency</b> – minimize the number of weeks of training (class and practical)</p>

	<p>needed to gain the required skills.</p> <p><b>Quality</b> – provide sufficient training and experience so graduates can confidently install energy efficiency devices and educate others on behaviours that encourage energy conservation.</p> <p>The Companies, in collaboration with funding partners and delivery agents, has created a student manual and instructor manual for the REnEW program and is actively involved in helping the delivery agents find industry professionals to train the participants. In all four REnEW training sessions held in 2010, the energy efficiency component of the training was rounded out with training that the delivery agents recommended. This additional training typically included topics such as job readiness (i.e. expectations in the workplace), life skills training (i.e. healthy eating, budgeting, and so on), and third party trade certifications (i.e. first aid, WHMIS, fall protection, working in confined spaces, and the Construction Safety Training System).</p> <p>When a participant graduates from the program they are equipped with energy efficiency retrofit skills, industry certifications, renewed self-confidence, and a full set of tools. Graduates are job-ready.</p>
<b>Description</b>	<p>This training program is a full-time course that typically takes four to five weeks to complete. Half of the time is spent in the classroom and half is spent learning and practicing trade skills with a team of energy efficiency trade experts.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Increase market capacity in the energy efficiency retrofit industry.</li> <li>• Increase the quality of energy efficiency retrofitting installations.</li> <li>• By increasing the supply of skilled energy efficiency tradespeople, the cost of having these retrofits implemented will ultimately decrease for both customers and utilities.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	<p>In 2010, the Companies worked with three non-profit delivery agents including:</p> <ul style="list-style-type: none"> <li>• John Howard Society of the Central and South Okanagan;</li> <li>• A.C.C.E.S.S. (Aboriginal Community Career Employment Services Society); and</li> <li>• Sto:Lo Nation.</li> </ul> <p>Each of these delivery agents were able to leverage their networks and relationships to create greater sharing of financial costs. Some of the additional funding that came through the delivery agents included contributions from BladeRunners, Service Canada, Province of British Columbia, Community Living, and the Ministry of Advanced Education and Labour Market Development.</p>
<b>Communications</b>	<p>The REnEW program is a highly targeted program, so very little marketing of the program has been necessary other than direct contact with delivery agents by the Conservation for Affordable Housing program manager. The Companies created posters that delivery agents use to inform and recruit participants to the program.</p>

<b>Evaluation</b>	The REnEW program's success is predicated on providing a high quality and engaging training experience to participants in communities across BC. To measure this, participants are surveyed to gauge the Companies' success in providing a positive training experience; and, their satisfaction with the program is our indicator of how positive the training experience was. For the goal of increasing energy efficiency expertise in the trade industry, employment after graduating from the program is used as a gauge to measure direct impact on the industry. To this end, employment within two months of graduating from the REnEW program is tracked through our delivery agents.
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#### *6.4.2.1.2 2010 REnEW Program Results*

In 2010, the Companies saw the launch of this innovative approach to creating capacity in the energy efficiency trade industry. Table 6-4 below shows the Companies invested \$148,000 in the REnEW program in 2010. This investment was spread across the four REnEW sessions and the three delivery agents mentioned above, and resulted in 59 participants in the program.

**Table 6-4: 2010 Program Actuals**

<b>Utility</b>	<b>Participants</b>	<b>Incentive Expenditures (\$000s)</b>	<b>Non-Incentive Expenditure (\$000s)</b>	<b>Annual Energy Savings (GJ/yr)</b>	<b>NPV Energy Savings (GJ)</b>	<b>Free Rider Rate</b>	<b>TRC</b>
FEI	59	N/A	\$148	N/A	N/A	N/A	N/A
FEVI	0	N/A	\$0	N/A	N/A	N/A	N/A

During the first implementation of this program, the Companies learned that smaller size classes are crucial to meeting the needs of the clientele who participate in this training program. Consequently, even though there were 59 participants within the four sessions we implemented in 2010, in 2011 we will set the maximum class size to 12 participants per session. By working with a very proficient group of non-profit delivery agents, using highly skilled trainers, and creating an engaging training experience, 95 percent of registered participants completed the course. At the end of every session, the participants completed a satisfaction survey and were asked to rate their satisfaction on a scale of one to five, with one representing poor satisfaction and five representing excellent satisfaction, and the average score for all four sessions was 4.2 or 85 percent.

In terms of direct impact on the energy efficiency trade, the Companies also tracked how many of the graduates were employed within two months of graduating from the program. The last two sessions were completed in December; therefore, at the time of writing this report, final results of employment from the last two sessions has not yet been determined. From the first two sessions, an average of 38 percent of participants were employed within two months of completing the program. Given that many of the participants were disconnected from the workforce entirely before completing this program, this is a very respectable result. Another favourable result is that the REnEW program had such a positive effect on participants' confidence that an average of 12 percent from the first two sessions went on to further their

education. For example, one graduate went on to enrol in a GateWay to the Trades for Women course at Okanagan College. REnEW program results are summarized below in Table 6-5.

**Table 6-5: 2010 REnEW Program Success Indicators**

Indicator	2010 Performance
Participants in the program	59
Course completion rate	95%
Number of participants employed or furthering their education within two months of graduating	50%
Satisfaction of participants	85%

From the very early stages of program design, the Companies have worked collaboratively with other utilities and non-profit social agencies, and this approach has led to very efficient use of our investment in this program. The four sessions that were implemented in 2010 had a total cost of \$489,031. By leveraging our relationships with FortisBC Inc. and BC Hydro, and leveraging funding that many non-profit organizations have in place, the Companies have invested \$147,691 (30 percent of total costs). See Table 6-6 for REnEW cost sharing.

**Table 6-6: 2010 REnEW Program Cost Sharing**

Administrator	Total
Number of Participants	59
Total Cost of Program	\$ 489,031
Contributions from Delivery Agents	\$ 129,120
Contributions from Other Utilities	\$ 212,219
Contribution from the Companies	\$ 147,691

#### 6.4.2.1.3 2011 REnEW Program Performance Forecast

**Table 6-7: REnEW Program Performance Forecast for 2011**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	44	N/A	\$150	N/A	N/A	N/A	N/A
FEVI	11	N/A	\$35	N/A	N/A	N/A	N/A
Total	55	N/A	\$185	N/A	N/A	N/A	N/A

In 2010, the Companies implemented four sessions of the REnEW program throughout communities in the FEI territory. In 2011, the intention is to implement an additional four sessions of the REnEW program in FEI's territory and extend the reach to the FEVI service territory as well. As additional programs are rolled out in 2011 under the Conservation for Affordable Housing program area, the Companies envision the opportunities for the graduates of the REnEW program to also evolve.

#### **6.4.2.1.4 REnEW Program Overall Summary**

The REnEW program is a great example of the holistic approach the Companies have taken in their activities that serve British Columbia's low income sector. By working with non-profit social agencies and skilled trade experts we are not only having a positive impact on the capacity within the energy efficiency trade sector, but also providing opportunities for individuals that are facing barriers to employment to overcome their barriers. Further, by collaborating and partnering with utilities and non-profit social agencies, we are able to lead this initiative in a very cost efficient manner.

### **6.4.2.2 Energy Saving Kit Program**

#### **6.4.2.2.1 Energy Saving Kit Program Overview**

<b>Energy Saving Kit Program</b>	
<b>Target Audience</b>	Low Income Residential Retrofit Customers
<b>Duration</b>	Jul 1, 2010 - Dec 31, 2011
<b>Incentive</b>	Kits delivered at no cost to program participants Approximate retail value of the kit is \$75
<b>Partners</b>	BC Hydro FortisBC Inc. will be added in 2011
<b>Overview</b>	
<b>Background</b>	<p>The Energy Saving Kit ("ESK") program is the first widely available low income program for the Companies. By partnering with other utilities, the process is simplified and administration and marketing costs are reduced.</p> <p>The ESK offer is a broadly marketed and easily accessed program available to customers in all utility partners' regions, regardless of their fuel type. Based on the qualification of a customer's application, instructions are sent to a supplier to send out the kit. The eligibility criterion is consistent across utilities and is based on the participants' household income. The definition of low income customer for this program is based upon Statistics Canada low income cut-offs ("LICOs").</p> <p>The kit is delivered at no cost to the participants and includes several easy to install energy savings measures, such as water heater pipe wrap, low flow showerheads, faucet aerators, weather stripping, foam tape for door draft-proofing, and other measures. The ESK also includes educational brochures that will help customers reduce their energy consumption through simple behavioural</p>

	<p>changes.</p> <p>Although ESKs are most often mailed to individual participants, there are also options that allow non-profit housing societies and First Nation bands to apply on behalf of their tenants and receive a bursary. The bursary (currently administered through BC Hydro) allows the society or band to hire an individual to install the kits for their tenants.</p> <p>Currently, customers must call to apply for the program. In 2011, an online form will be created that is expected to enhance the application process and reduce administration costs associated with the telephone application channel.</p>
<b>Description</b>	The ESK is a bundle of easy to install energy saving measures and is delivered to the participants' home free of charge.
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Make energy efficiency more accessible to low income customers by addressing the key barriers to energy efficiency in this sector (including affordability, availability, and awareness).</li> <li>• Provide low income customers with the opportunity to reduce their energy consumption, which will also reduce their energy bills and GHG emissions.</li> <li>• Enable low income participants to self-install energy efficiency measures in their homes.</li> <li>• Create a culture of conservation through increased knowledge and awareness of conservation behaviours.</li> <li>• Provide energy savings for the Companies.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	BC Hydro, Consumer Response Marketing
<b>Communications</b>	The main communication channels used in 2010 were bill inserts and print ads in free community newspapers. Through BC Hydro, we are also reaching participants through food banks and a promotional letter to the clientele of the Ministry of Housing and Social Development.
<b>Evaluation Strategy</b>	Evaluation of the savings of the gas measures within the ESK is based on engineering calculations and third party studies. Further, we are able to leverage BC Hydro's evaluation of the ESK, which includes surveys to participants to confirm assumptions with respect to installation rates, free-ridership, and the popularity of various measures.

#### 6.4.2.2.2 2010 ESK Program Results

In the first six months of the ESK program, over 5,200 participants have qualified for the program and received ESKs. This is a very strong response and reinforces that there are great opportunities for providing meaningful programs to our low income customers. Because this program has a very simple process and most of the administration of the program is performed by BC Hydro, the Companies' costs are low and the energy savings are high overall. This resulted in a high TRC score of 2.3.

**Table 6-8: 2010 ESK Program Actuals**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	4,206	\$39	\$44	2,637	15,520	27%	2.3
FEVI	1,052	\$10	\$11	660	3,959	27%	2.4
Total	5,258	\$49	\$55	3,297	19,479	27%	2.3

The Companies partner with other utilities in this program. One of the benefits in partnering with other utilities to administer EEC programs is the cost efficiencies of shared program evaluations. In 2010, BC Hydro performed an evaluation of the Energy Saving Kit program and there were two significant findings that impacted the above results. First, due to higher than expected installation rates of various measures that reduce gas consumption, the energy savings per kit is higher than what was anticipated at the onset of the program (0.86 GJ/kit vs. 0.46 GJ/kit). Second, free-ridership in the program was greater than anticipated at 27 percent. Some of the reasons suspected for high free-ridership include the low cost of some of the individual items in the kit, general familiarity with the energy savings benefits of items in the kit, and a desire by the surveyed population to be seen as socially responsible by the interviewer (i.e. reporting bias). In spite of the deemed free-ridership, by virtue of participating in this program, low income customers are exhibiting socially desirable energy efficiency behaviours, which fits with the Companies' overall objectives as well as the objectives of British Columbia's social and environmental policies.

#### **6.4.2.2.3 2011 ESK Program Performance Forecast**

The successful enrolment of low income participants in the ESK program in 2010 is expected to continue throughout 2011. We will make adjustments to the measures in the kits based on the evaluation performed in 2010 in order to supply more of the measures that are being utilized and remove measures that are not being utilized adequately. In 2011, we will be able to offer all our low income customers an internet-based application process, which is expected to expand our reach while also reducing call centre costs.

The following table shows the forecast result of the continuation of the program in 2011, continuing with a positive TRC ratio of 2.2 for the program.



**Table 6-9: 2011 ESK Program Forecast**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	8,400	\$88	\$98	5,267	31,271	27%	2.2
FEVI	2,100	\$22	\$25	1,317	7,903	27%	2.3
Total	10,500	\$110	\$123	6,584	39,174	27%	2.2

#### 6.4.2.2.4 ESK Program Overall Summary

The ESK program is the Companies' first broadly available EEC program in the Conservation for Affordable Housing category and the program has received outstanding response from our customers. In half a year over 5,000 customers have participated in the program. In 2011, we will continue to collaborate with our utility partners on our marketing and communication efforts, thereby achieving further cost efficiencies and greater reach. By partnering with BC Hydro in 2010 and FortisBC Inc. in 2011, we are ensuring that through this program our low income customers are served in a streamlined fashion that minimizes the customer's effort and the utilities' administration costs.

#### 6.4.2.3 **Ministry of Energy and Mines Low Income Partnership Grant Program**

##### 6.4.2.3.1 Ministry of Energy and Mines Low Income Partnership Grant Program Overview

Ministry of Energy and Mines Low Income Partnership Grant Program	
<b>Target Audience</b>	New Construction / Retrofit
<b>Duration</b>	To be invested by Mar 31, 2012
<b>Incentive</b>	Varies
<b>Partner</b>	Ministry of Energy and Mines

<b>Overview</b>	
<b>Background</b>	<p>On March 31, 2009, through the Low Income Partnership Grant agreement, the Ministry of Energy and Mines awarded FEI and FEVI a grant of \$5.155 million to support and develop DSM programs for low income individuals in BC. These funds are incremental to the funds approved in the EEC Decision.</p> <p>This grant stipulates that:</p> <ul style="list-style-type: none"> <li>• \$1 million is to be used to deliver the Super Efficient New Construction program;</li> <li>• \$1.5 million is to be used to support BC Hydro's low income programs;</li> <li>• \$954,189 is to be used to fund retrofits under the LiveSmart BC Carry Over project; and</li> <li>• \$1,700,811 is to be used to develop new programs for low income customers.</li> </ul>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Encourage energy efficient new construction that far exceeds the current building codes.</li> <li>• Achieve deep energy savings in low income units.</li> <li>• Reduce GHG emissions.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	The Companies
<b>Communications</b>	The intention is to issue press releases at various milestones in the project. In 2011, we will issue a press release when the SENC project is fully committed.
<b>Evaluation Strategy</b>	<p>The SENC project's energy performance will be measured over time to validate the savings expected.</p> <p>The \$1.5 million used to support BC Hydro's low income programs will be specifically contributed to BC Hydro's Energy Conservation Assistance program and will be evaluated alongside the general evaluation of that program.</p> <p>The Livesmart BC Carry Over project was evaluated based on modelled energy savings. (Note: TRC calculations were not required by the Ministry of Energy and Mines for this project and the evaluation was carried out by the delivery agent that was contracted to complete the work.)</p> <p>The new energy efficiency programs the \$1,700,811 is to be invested in are still under development.</p>

#### **6.4.2.3.2 2010 Ministry of Energy and Mines Low Income Partnership Grant Program Results**

In 2010, the SENC component of the Low Income Partnership Grant program made good progress. Through the SENC program, four projects have received a total of \$515,000 to advance their developments, and these four projects will each receive an additional 20 percent contribution at completion of their projects. The Livesmart BC Carry Over project was completed in 2009. This project involved energy efficiency retrofits in six building complexes (557 units)

throughout the Lower Mainland. Total modeled energy savings from the project was 5,026 GJs (as reported by Eaga Canada).

The table below shows the funding amount and the investments already made.

**Table 6-10: 2009-2010 Program Investments**

Funding Components	Funding Agreement Amounts	Funds Invested at Dec 31, 2010
SENC	\$ 1,000,000	\$ 515,000
BC Hydro	\$ 1,500,000	\$ -
LiveSmart CarryOver	\$ 954,189	\$ 954,189
New DSM Projects	\$ 1,700,811	\$ -
<b>Total</b>	<b>\$ 5,155,000</b>	<b>\$ 1,469,189</b>

The SENC Program Oversight and Evaluation Committee, chaired by the Ministry of Energy and Mines, includes representatives from the Companies, BC Hydro, and FortisBC Inc. This committee is currently exploring other projects to invest the remaining \$353,000 of uncommitted funds in the SENC project.

#### 6.4.2.3.3 2011 Ministry of Energy and Mines Low Income Partnership Grant Program Forecast

In 2011, the Companies intend to form a partnership with BC Hydro on their Energy Conservation Assistance program. Substantial progress towards forming this partnership has already been achieved. The Companies intend to invest both grant funds and EEC funds in this program in 2011. The Energy Conservation Assistance program is described in the following section of this report.

Several avenues are being explored and researched to develop new DSM projects to invest the remaining \$1,700,811. One avenue of research is with respect to opportunities within the mobile home segment of BC. The research is described further in Section 6.4.3.3. Also, information is being gathered on specific low income buildings in the Okanagan corridor to assess opportunities for deep retrofits in buildings that are not currently being served by any utilities' DSM programs.

#### 6.4.2.3.4 Ministry of Energy and Mines Low Income Partnership Grant Program Summary

The Companies continue to facilitate the investment of the Ministry of Energy and Mines Low Income Partnership Grant in low income units across BC. In 2010, investments in the SENC program were achieved and some research is being conducted on opportunities for investing the remaining unallocated funds. As well, the Companies expect to be able to invest \$1.5 million in a partnership with BC Hydro on the Energy Conservation Assistance program, which will see investments from this grant as well as the Companies EEC funds.

### 6.4.3 PROGRAMS IN DEVELOPMENT

#### 6.4.3.1 Energy Conservation Assistance Program (“ECAP”)

##### 6.4.3.1.1 ECAP Overview

Energy Conservation Assistance Program (“ECAP”)	
<b>Target Audience</b>	Low income residential retrofit customers Applies to renters (with landlords consent) or homeowners in single family dwellings or row housing
<b>Duration</b>	One year to confirm business case assumptions with the intention of extending the program indefinitely
<b>Incentive</b>	The average incentive per participant is \$1,765 worth of installed measures in their home
<b>Partner</b>	BC Hydro
Overview	
<b>Background</b>	<p>The Energy Conservation Assistance Program (“ECAP”) is positioned to be the Companies’ flagship program that achieves the deepest levels of energy savings in low income homes.</p> <p>ECAP is a targeted program that, in its current state, is offered only by BC Hydro to low income electricity customers. The Companies intend to participate in this program and broaden the program’s reach and impact to include low income natural gas customers. The Companies also intend to eventually expand the types of retrofits that are performed through this program to include items such as furnace filters and new high efficiency furnaces.</p> <p>Due to the fact that low income customers often have priorities other than learning about or implementing energy efficiency in their homes, this program takes a unique approach to making it easy for customers to participate. This involves a straightforward, single application process, which is used by both BC Hydro and the Companies to qualify the participants, and, once the participants qualify, they are fully serviced by the ECAP program’s delivery agents. All the participant needs to do is receive the calls from the delivery agents and be home at an agreed upon time to start receiving the benefits of the program’s services.</p> <p>Quality assurance of the retrofits will be performed through an independent third party contractor and is performed on 10 percent of the homes that receive basic measures (i.e. low flow showerheads and light bulbs) and 20 percent of the homes that receive more advanced measures (i.e. insulation, draft proofing, and furnaces).</p>
<b>Description</b>	The program involves a visit to the participant’s home, an assessment of the energy savings opportunities, and the installation of a host of energy efficiency measures. Education on energy conservation behaviour is also delivered during the initial visit to the customer’s home.
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Enable approximately 2,400 low income participants annually to receive comprehensive energy evaluations in their homes and have</li> </ul>

	<p>a suite of energy efficiency measures installed.</p> <ul style="list-style-type: none"> <li>• Make energy efficiency more accessible to low income customers by addressing the key barriers to energy efficiency in this sector (i.e. affordability, availability, and awareness).</li> <li>• Provide energy savings for FEI/FEVI.</li> <li>• Provide low income customers with the opportunity to reduce their energy consumption, energy bills, and GHG emissions.</li> <li>• Create a culture of conservation through increased knowledge and awareness of conservation behaviours.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	<p>The primary administrator from the utility perspective is BC Hydro; however, the Companies will qualify participants that are the Companies' customers.</p> <p>The visits to customers' homes to perform energy assessments and retrofits are performed by independent delivery agents.</p>
<b>Communications</b>	<p>Prospects for the program are identified and engaged through working collaboratively with social housing providers and program delivery agents. Recipients of the ESKs are also prospects for participation in this program if they meet the minimum energy consumption criteria.</p>
<b>Evaluation Strategy</b>	<p>The intention is to perform a billing analysis of participants in the ECAP program once there are enough participants with minimum of one year post-installation consumption.</p>

#### **6.4.3.1.2    2011 ECAP Forecasted Program Results**

The ECAP program is expected to launch by the end of Q2 2011; thus, figures shown below in Table 6-11 are estimates based on six months of the program being available in the market. The TRC score of 0.6 includes the full costs of the program including enabling costs such as carbon monoxide detectors, ventilation fans, and many costs that are unique to delivering a direct install low income program. These unique costs include such items as hiring contractors to perform the retrofitting work, costs of training the contractors on working in low income homes (sensitivity training), and ensuring contractors are well educated on the utilities' safety procedures and policies. These enabling costs and unique program costs have a detrimental effect on the programs TRC; however, they are critical to implementing this important program. This program is another example of work that needs to be performed in order to reach our province's carbon reduction goals, but is ineffectively evaluated using conventional TRC requirements.

The Ministry of Energy and Mines Low Income Partnership funding, described in the previous section, specifically directs the Companies to contribute \$1.5 million towards BC Hydro's low income programming by March 2012 and this contribution is exempt from TRC requirements as agreed by the government. Therefore, in 2011, the Companies will apply at least a portion of the Low Income Partnership funding against the ECAP program costs. The program forecast shown below is reflective of the full costs of the program as this best illustrates the actual expected costs of the program.

**Table 6-11: 2011 ECAP Program Forecast**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	960	\$1,082	\$613	5,548	53,242	4%	0.6
FEVI	240	\$270	\$153	1,387	13,089	4%	0.6
Total	1200	\$1,352	\$766	6,935	66,331	4%	0.6

#### 6.4.3.1.3 *ECAP Program Overall Summary*

A program of this magnitude and complexity takes a considerable amount of coordination and administration. With much of the ground work laid in 2010, the Companies expect to be able to launch a joint ECAP program by Q2 2011 with BC Hydro. This program will represent an excellent opportunity for the Companies to achieve deep energy savings for our low income customers.

#### 6.4.3.2 *Co-operative Housing Federation of BC – Energy Performance Housing Inventory (Study)*

Co-operative Housing Federation of BC (CHF BC) – Energy Performance Housing Inventory (Study)	
<b>Target Audience</b>	Retrofit, Co-operative Housing in BC
<b>Duration</b>	To be completed in 2011
<b>Financial Contribution</b>	\$15,000
<b>Partners</b>	BC Hydro, BC Housing
Overview	
<b>Research Goals</b>	<ul style="list-style-type: none"> <li>• Create a better understanding of current building stock conditions.</li> <li>• Provide an analysis of baseline building energy performance indicators.</li> <li>• Obtain the necessary information to develop comprehensive programs tailored specifically to the conditions of the co-operative housing sector.</li> <li>• Create a framework for determining buildings most in need of retrofit work.</li> <li>• Identify opportunities to achieve cost-effective energy savings.</li> </ul>
Implementation	
<b>Administration</b>	CHF BC with sub-contracted services to City Green and Eaga Canada.
<b>Background</b>	The CHF's BC Energy Performance Housing Inventory is a first step towards addressing the complex nature of working within the co-operative housing

	<p>sector. Co-operative housing is a challenge to engage in energy efficiency programming because of the following: 1) most co-operative housing complexes are separately governed (i.e. owned and operated independently), thereby requiring buy-in from the majority of tenants in each individual housing complex; 2) tenants in co-operative housing cannot all be assumed to have a low household income; and 3) the financial situation of each housing co-operative varies significantly. The one item that is most likely to be consistent across the co-operative housing sector is that energy efficiency is very rarely on their list of priorities.</p> <p>Since no comprehensive housing energy-use inventory exists for the co-operative housing sector in BC, the energy use characteristics of co-operative housing are largely unknown. This makes it very challenging to design programs for the sector. This inventory will allow for a strategic approach to be designed that will ultimately allow for the prioritization of energy retrofits in housing co-ops in BC.</p>
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#### **6.4.3.3 Mobile Homes (Study)**

<b>Mobile Homes (Study)</b>	
<b>Target Audience</b>	Retrofit, Mobile Homes in BC
<b>Duration</b>	To be completed in Q1 2011
<b>Financial Contribution</b>	\$20,000
<b>Partners</b>	None
<b>Overview</b>	
<b>Research Goals</b>	<ul style="list-style-type: none"> <li>• Identify the energy saving opportunities in mobile homes.</li> <li>• Create a better understanding of current building stock conditions.</li> <li>• Perform exploratory research to gauge attitudes and potential participation of mobile home owners in energy efficiency programs.</li> <li>• Determine the potential for upgrading mobile home furnaces to high efficiency furnaces, and the potential for converting oil furnaces to high efficiency natural gas furnaces.</li> <li>• Identify differences in income among those living in mobile homes.</li> <li>• Outline appropriate communication methods that will effectively reach individuals who live in mobile homes.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	The Companies
<b>Background</b>	<p>Mobile home owners are expected to be a segment of the population that are:</p> <ul style="list-style-type: none"> <li>• underserved by traditional DSM programming;</li> </ul>



	<ul style="list-style-type: none"><li>• likely have lower than average income; and</li><li>• likely to have higher than average elderly people.</li></ul> <p>For the above reasons, the Companies have commissioned a survey to further explore opportunities that may exist in the mobile home sector.</p>
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## **6.5 Conservation for Affordable Housing Summary**

The Conservation for Affordable Housing program area has been a priority for the Companies since the initial creation of our EEC Program principles. Our goal of creating programs that are accessible to all has already been achieved through the launch of our Energy Saving Kit program and the REnEW program in 2010. In the coming years, with energy prices generally increasing, the program area will become even more important. In 2011, the anticipated partnership with BC Hydro on the Energy Conservation Assistance program will see greatly expanded investment and a deeper level of savings for our low income customers. In 2011, the Companies will also be working with government to explore alternatives to TRC evaluation, and/or additional methods of measuring success of programs that serve our low income customers to ensure we can continue to create programs that achieve deep energy savings within the low income segment of BC.

## 7 JOINT INITIATIVES

### 7.1 Overview

Joint Initiatives are EEC programs that facilitate mutually beneficial partnerships between utilities and government partners or utilities and other utilities. These partnerships enhance EEC goals and provide value to customers through shared costs and efficiencies, streamlined communications, extended market reach across shared service territories, and a collaborative business model that incorporates a holistic view of the provincial energy landscape. Each utility and government partner has strong brand recognition and cost-effective marketing channels. Working together creates synergies that drive program participation and energy savings while optimizing administration and marketing resources. By sharing resources, a greater number of programs can be launched to serve the energy needs of our customers and the province as a whole.

As outlined in the 2009 EEC Annual Report, to further such Joint Initiatives programs, in July 2009 the Companies signed a Memorandum of Understanding (“MOU”) with BC Hydro to facilitate increased utility collaboration on DSM. The purpose of the MOU is to drive efficiencies in program promotion and administration, thereby bringing education and incentive programs to residents and the trades across BC. The Companies are currently looking at the alignment of the Companies’ EEC activities with sister company FortisBC Inc.’s PowerSense initiative with a view to achieving the same efficiencies and number of combined activities that the BC Hydro MOU has driven forward.

In Order No. G-36-09 on the Companies’ EEC Application, the Companies received approval for \$1 million in annual spending for Joint Initiatives as opportunities arose. Furthermore, in Commission Order No. G-141-09, as part of the FEI’s 2010-2011 Revenue Requirements Application’s Negotiated Settlement Agreement, the 2011 request for extension of 2010 residential joint initiatives program funding amounting to \$1.346 million was approved. Similarly for FEVI, in Commission Order No. G-140-09, as part of FEVI’s 2010-2011 Revenue Requirements Application’s Negotiated Settlement Agreement, the 2011 request for extension of 2010 residential program funding amounting to \$0.302 million was approved.

Program initiatives that were outlined and approved in the EEC Application included home energy assessments, home labelling, affordable housing, and Community Action on Energy Efficiency (“CAEE”). The Companies’ contributions to home energy assessments and home labelling are implemented within the LiveSmart BC partnership with the Province of British Columbia. The affordable housing initiatives are deemed high priority and as such are referenced within their own program area (Refer to Section 6). In addition to the Joint Initiatives described within this section, the Companies have also engaged in significant collaboration with the Province on PSECA (Refer to Section 4.4.2.5) and with BC Hydro on the Energy Specialist program (Refer to Section 11.2.4). Although CAEE is now complete, the Companies collaborated on a number of additional initiatives with communities. In 2010, community

programs included working with the City of Vancouver on a solar thermal water heating pilot, a weatherization pilot, and water savers in the Interior. In 2011, we are working with the City of Saanich and other municipalities on a weatherization and hot water conservation pilot. Other community outreach activities are highlighted in Table 7-1

Throughout 2010 program implementation and 2011 program planning, the integrated efforts of utilities, governments, and communities touched all EEC program areas. Table 7-1 outlines the extent of Joint Initiatives that are currently being undertaken across the program areas, with greater detail in their respective sections.

**Table 7-1: Joint Initiatives Portfolio Across Program Areas**

Program	Utility		Partners			
	FEI	FEVI	FortisBC Inc	BCHydro	Province	Others
<b>RESIDENTIAL - Section 7</b>						
LiveSmart BC Home Retrofits	X	X	X	X	X	
Weatherization Pilot - City of Vancouver	X			X		City of Vancouver
High Efficiency Appliances	X	X	X	X		
EnerGuide 80 - New Construction Program	X	X	X	X		
Water Savers - Ultra Low Flow Shower Heads	X		X			
Switch 'N Shrink - Variable Speed Motors	X	X	X	X		
<b>CONSERVATION FOR AFFORDABLE HOUSING - Section 6</b>						
Energy Savings Kits	X	X	X	X		FBC will be added in 2011
REnEW	X	X	X	X		John Howard Society, BladeRunners
Energy Conservation Assistance Program	X	X		X	X	2011 Program
Ministry of Energy Low Income Partnership - Super Efficient New Construction	X	X	X		X	Note: Non-EEC funding
<b>COMMERCIAL - Section 4</b>						
Spray Saver Program	X	X		X		Green Table Network Society
Continuous Optimization Program	X	X		X		
Custom Design Program	X	X		X		
UBCO C.Op Program	X		X			
LiveSmart BC for Small Business	X	X	X	X	X	
Farm Pilot Energy Assessment	X	X		X		ARCORP
<b>INNOVATIVE TECHNOLOGIES - Section 10</b>						
Solar Water Heating PSECA Program	X	X				PSECA, SolarBC
Solar Air Heating PSECA Program	X					PSECA, SolarBC
NGV LNG Incentive Program	X					
SolarBC Schools Incentive Program	X	X				SolarBC
.80 EF Hot Water PILOT	X	X				Canadian Gas Association (CGA)
City of Vancouver MURB PILOT	X					City of Vancouver
Solar Residential Hot Water PILOT	X					City of Vancouver
<b>INDUSTRIAL - Section 9</b>						
Rogers Sugar Energy Balance Study	X			X		
MT & R Program	X			X		
Certified EE Pilot Plant Project	X		X		X	
<b>CONSERVATION, EDUCATION AND OUTREACH - Section 8</b>						
Sears Home Efficiency Audit	X		X			Sears
Water Savers and Weatherization		X				Regional District of Saanich
<b>ENABLING ACTIVITIES - Section 11</b>						
Energy Specialist Program	X	X		X		British Columbia Institute of Technology

In the Companies' 2009 EEC Application, the Joint Initiatives program area was primarily focused on the residential market and as such only residential joint initiatives have remained distinct from their program area. Only residential joint initiatives will be described in detail in Section 7.4, while joint initiatives in other program areas are contained within their respective sections as indicated in Table 7-1. The following sections provide information about individual programs including an overview of the 2010 program results and the outlook for 2011.

## 7.2 2010 Joint Initiatives Results

Table 7-2 provides a summary of the results of 2010 residential joint initiatives programs. Since a large portion of 2010 overall spending is attributed to LiveSmart BC home energy assessments for which we have not captured direct savings, it is difficult to present the program area in terms of TRC; rather these costs are rolled up into portfolio level expenses. The true measure of success is in the collaborative approach to program deployment that results in extended reach and reduced costs through shared resources as utilities and governments offer programs to BC residents.

**Table 7-2: 2010 Residential Joint Initiatives Summary**

Program	Incentives & Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
LiveSmart BC - Home Energy Assessments (D-Visits) through LiveSmart BC - 2009-2010	349	16	365	No Direct Savings				
LiveSmart BC - 2010 -2011 Home Retrofit	No invoices were received in 2010 so energy savings not calculated							
Energy and Water Efficient Appliance Programs	7		7	2,801		2,801	0.8	
Water Savers Pilot	14		14	2,899		2,899	2.0	
City of Vancouver Weatherization Pilot	15		15	No Savings Claimed at this Time				
Non Program Specific Admin & Studies	48	8	56	N/A				
Total	433	24	456	5,700	N/A	5,700	N/A	

The highlights of 2010 residential joint initiatives programs are as follows:

The LiveSmart BC Efficiency Incentives program, a partnership with the Ministry of Energy and Mines and utility partners, is a key collaborative venture for home retrofits. The program illustrates the Companies' commitment to "whole home performance" and "house as a system" home energy management. The Companies have supported a variety of incentives upon each iteration of the program.

- From August 2009 through March 31, 2010 the Companies provided \$75 for partial funding of home energy assessments, contributing to over 10,000 assessments and a total contribution of over \$760,000.

- From April 2010 through March 31, 2011 the Companies have contributed partial funding to building envelope measures with a forecasted contribution of \$657,000 and an estimate of 246,000 GJs saved over the lifetime of these measures. Since we did not receive invoices for the 2010 iteration until January 2011 neither costs nor savings were captured in the 2010 EEC portfolio and all forecasted savings will be reported in 2011.

In 2009 and 2010, FEI collaborated with FortisBC Inc. on programs for energy and hot water efficient washing machines. In addition, the Companies collaborated on the Water Saver's pilot that distributed ultra low flow showerheads to rural customers. FEI's participation extended the program's reach to customers heating water with natural gas.

The City of Vancouver Weatherization pilot was co-funded by the City of Vancouver, BC Hydro, and FEI to take an initial look at capacity building for the weatherization industry in both creating customer demand and servicing this demand with skilled practitioners. The program was also conducted in collaboration with EMBERS, a non-profit employment and self-employment development organization in the Downtown Eastside of Vancouver. The program combines the benefits of energy savings, green jobs, and training for individuals who may face barriers to employment.

### 7.3 2011 Joint Initiatives Outlook

For the purpose of consistency, in the 2011 outlook, the Joint Initiatives program area will continue to focus on the residential market, with some limited discussion of a commercial area joint initiative that is in a preliminary design stage. Table 7-3 provides an overview of 2011 residential joint initiatives programs that include LiveSmart BC and ENERGY STAR® washer programs with utility partners.

**Table 7-3: 2011 Joint Initiatives Outlook**

Program	Incentives & Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
LiveSmart BC - 2010 -2011 Home Retrofits	616	42	657	234,273	11,731	246,004	1.1	1.0
LiveSmart BC - 2011 -2012 Home Retrofits	1,758	178	1,935	431,354	43,367	474,721	1.0	1.0
LiveSmart BC - 2011 - 2012 for Small Business	Under Development							
Home Efficiency Web Portal	50	10	60					
Energy and Water Efficient Appliance Programs - BCHydro & FortisBC Inc	359	71	430	149,200	31,613	180,813	1.0	1.0
Non Program Specific Admin & Studies	160	40	200					
<b>Total</b>	<b>2,942</b>	<b>340</b>	<b>3,282</b>	<b>814,827</b>	<b>86,711</b>	<b>901,538</b>	<b>0.9</b>	<b>0.9</b>

Joint initiatives under development in 2011 will continue to provide value to customers through shared resources and communications channels.

Activity for LiveSmart BC in 2011 includes:

- Completing the April 1, 2010 through March 31, 2011 iteration in which we forecast \$657,000 in spending and 246,000GJs in savings;
- Launching the April 1, 2011 through March 31, 2012 iteration (currently under development), which will focus on enhancing building envelope measures from the 2010 iteration;
- Developing and launching a Home Energy Efficiency online portal that will provide a One Stop Rebate shop, and information and tools that promote home energy efficiency retrofits; and
- Assessing the opportunity to participate in the LiveSmart BC small business program in the Commercial Program Area. Please see Section 1.4.2.1.4 for information on LiveSmart BC for small business.

We are launching a high efficiency washer rebate program with electric utilities in each of their service territories. Section 7.4 provides further detail about individual programs including goals, 2010 results, and the outlook for 2011.

## 7.4 Joint Initiatives Program Details

### 7.4.1 COMPLETED PROGRAMS

#### 7.4.1.1 City of Vancouver Weatherization Pilot

##### 7.4.1.1.1 City of Vancouver Weatherization Pilot Overview

City of Vancouver Weatherization Pilot	
<b>Target Audience</b>	Residential Retrofit Customers
<b>Duration</b>	Fall 2010
<b>Support</b>	\$15,000 contribution to provide training and weatherization services to about 50 homes in the City of Vancouver
<b>Partners</b>	City of Vancouver, BC Hydro, FEI, and EMBERS, a non-profit employment and self-employment development organization in the Downtown Eastside of Vancouver

<b>Background</b>	
<b>Description</b>	The City of Vancouver, BC Hydro, FEI, and EMBERS are piloting a weatherization/air-sealing business model. The program will train unemployed, bondable Vancouver residents to undertake air-sealing work in homes. The service will include a before and after blower door test to track performance improvements in each home.
<b>Goals</b>	<p>The primary objectives of the pilot program were to:</p> <ul style="list-style-type: none"> <li>• Create local capacity in energy efficiency for basic air sealing and draft proofing, also known as home weatherization. Currently there are very few trained providers of these services and an opportunity exists to develop this industry and educate consumers about the benefits of this service;</li> <li>• Prove the energy savings that result from weatherisation (or air-sealing) in homes as inputs to utilities' cost/benefit models for development of DSM programs;</li> <li>• Identify a business model for providing these services to determine the following: what tasks are involved in air sealing, amount of time it takes, the market potential, the potential cost of the services, and to what extent homeowners are willing to pay for air sealing services; and</li> <li>• Work with a social enterprise to determine if these skills can be readily taught to those facing employment barriers such as REnEW graduates.</li> </ul> <p>The longer term goal for the City of Vancouver was to prove the effectiveness (energy efficiency/savings) and the economic viability of a weatherization/air-sealing business, and to seed a stand-alone business that will offer job opportunities and career development for inner-city residents. The longer term goal of the Utilities was to determine if this training model can be used in other communities across the province.</p>
<b>Implementation</b>	
<b>Administration</b>	City of Vancouver
<b>Communications</b>	Community marketing and earned media was used to attract participants and increase program awareness.
<b>Evaluation Strategy</b>	Program results are being analyzed to understand the energy savings associated with draft proofing. The Companies will be conducting consumption data analysis in the future.

#### *7.4.1.1.2 Program results and future outlook*

The pilot was successful in defining what the weatherization process entailed, average length of the job, and energy savings potential. A core staff was trained and experience was gained through the completion of air sealing approximately 50 homes. City of Vancouver and Downtown Eastside funding has been obtained to launch a stand-alone business for weatherization that employs individuals facing barriers to employment.



The utility partners and the Ministry of Energy and Mines are discussing ways these results can be used to support training for the industry and ways the intelligence gained from the pilot can be used in other communities across the province.

## 7.4.2 ACTIVE PROGRAMS

### 7.4.2.1 LiveSmart BC Efficiency Incentives Program (Home Retrofit Program)

The LiveSmart BC Efficiency Incentives program section presents the background, the Companies contributions to date, and the 2011 outlook for LiveSmart BC yearly iterations.

#### 7.4.2.1.1 LiveSmart BC Background

LiveSmart BC Efficiency Incentives – Home Renovation Program	
<b>Target Audience</b>	Residential Retrofit Customers
<b>Incentive</b>	<p>September 2008 through December 2009 - \$250 incentive for ENERGY STAR® heating system upgrade – Please refer to Section 3.4.1.1 for details</p> <p>August 16, 2009 through March 31, 2010: Home Energy Assessments (D-visits) \$75 subsidy from utility partner (based on fuel source) and \$75 subsidy from Ministry of Energy and Mines</p> <p>April 1, 2010 through March 31, 2011: Utility partner contributions for air sealing, insulation, and windows (supplemented by the Ministry of Energy and Mines) April 1, 2011 through March 31 2012 – under development</p>
<b>Partners</b>	FEI, FEVI, BC Hydro, FortisBC Inc., and Ministry of Energy and Mines
Background	
<b>Background</b>	The utility partners, FEI, FEVI, BC Hydro, and FortisBC, are collaborating on a BC Home Retrofit project through the Ministry of Energy and Mines' LiveSmart BC Efficiency Incentive program. The primary objective of the collaboration is to develop a platform that is sustainable and can remain in the market for many years without relying on the contribution of any one partner, including the provincial or federal government. In addition to consumer incentives, the utility partners are developing a longer term vision to jointly fund education and outreach, working to engage consumers and the trades in energy efficient retrofits.
<b>Goals</b>	<ul style="list-style-type: none"> <li>To develop a platform that is sustainable and will remain in the market for many years without being reliant on the contribution of any one partner. A key component of the sustainable platform is to develop a common back-end for program administration and customer support.</li> <li>To utilize the cost-effective marketing channels of individual utilities and the government while developing an integrated marketing plan that optimizes outreach and drives program participation. Consumer education and outreach will be a key component in addition to the incentive offering.</li> <li>Through education, create consumer demand for energy efficient retrofits, thereby driving the industry in the process.</li> </ul>

	<ul style="list-style-type: none"> <li>A longer term strategy is to engage the trades in education and outreach that will support the promotion of energy efficiency.</li> <li>To create a Home Energy Efficiency online web portal and One Stop Rebate shop that will centralize offers from utilities, provincial, municipal and federal governments, and associations.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	Ministry of Energy and Mines – LiveSmart BC
<b>Communications</b>	Through individual partners' communications channels – FEI, FEVI, Ministry of Energy and Mines, BC Hydro and FortisBC Inc.

#### 7.4.2.1.2 The Companies' Contribution for EcoEnergy Home Energy Assessments Through LiveSmart BC

As a result of the success of the original LiveSmart BC offer in 2008, the program was oversubscribed as of August 2009. At that time, the Companies joined the electric utilities, BC Hydro and FortisBC, in providing a \$75 subsidy for EcoEnergy Home Energy Assessments. The Companies subsidized a total of 10,236 assessments for a contribution of \$768,000 from August 16, 2009 through March 31, 2010, which is the provincial fiscal year end. Table 7-4 provides an overview of participation for FEI and FEVI. Due to the nature of this project, in that the assessment is an evaluation step only, the Companies recognize that no energy savings can be claimed directly as a result of this program. Rather, the home energy assessment is an avenue into other retrofit incentives that result in energy savings.

The following Table 7-4 shows the Companies subsidized over 10,000 home energy assessments for a \$768,000 contribution to customers participating in the LiveSmart BC program.

**Table 7-4: 2009-2010 Overview of Home Energy Assessment Contributions for LiveSmart BC**

	Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)
2009 Invoices - *	FEI	5,182	389	-
	FEVI	263	20	-
2010 Invoices - *	FEI	4,596	345	4
	FEVI	195	15	1
<b>Total</b>	FEI	9,778	733	
	FEVI	458	34	
<b>Program Total</b>		10,236	768	5
* Participant counts from Ministry of Energy and Mines' invoices based on NRCan D- visit data				

#### 7.4.2.1.3 LiveSmart BC 2010 Results for Building Envelope Incentives

In the LiveSmart BC program iteration that launched April 2010, the Companies, in collaboration with BC Hydro and FortisBC, provided partial payment of the building envelope rebates including air sealing, insulation, and windows. There were no invoices in 2010 and therefore no energy savings or costs were claimed. Based on information available at the time of writing this report, a \$657,000 contribution is forecasted, which should result in approximately 246,000 GJs of savings over the lifetime of these measures as outlined in Table 7-5.

**Table 7-5: LiveSmart BC 2010 Forecasted Program Results**

Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	2,156	531	85	21,463	234,273	12%	1.1
FEVI	108	27	15	1,075	11,731	12%	1.0
<b>TOTAL</b>	<b>2,264</b>	<b>557</b>	<b>100</b>	<b>25,609</b>	<b>246,004</b>	<b>12%</b>	<b>1.1</b>
Note: The forecasted participant counts and savings are an estimate since there is a time lag between data transfer from service organizations, NRCan and the Ministry invoicing utilities. Only one invoice has been received to date for an estimated 25% of the activity. This invoice amount was multiplied by 4 to provide the above forecast.							

#### 7.4.2.1.4 2011 Outlook

The LiveSmart BC iteration launching April 2011 is under development, with the prospect of remaining in market for two years depending on BCUC funding approval for the 2012 Joint Initiatives program area. Based on information available at the time of writing this Report, we forecast a \$1.8 million incentive expenditure which would result in approximately 475,000 GJs of savings over the lifetime of these measures as outlined in Table 7-6. Please note these are very preliminary forecasts and the final offer is still under discussion with the Ministry of Energy and Mines, BC Hydro and FortisBC Inc.

**Table 7-6: LiveSmart BC 2011 Outlook**

Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	5,097	1,596	162	40,503	431,354	12%	1.0
FEVI	510	160	18	4,070	43,367	12%	1.0
<b>TOTAL</b>	<b>5,607</b>	<b>1,755</b>	<b>180</b>	<b>44,573</b>	<b>474,721</b>	<b>12%</b>	<b>1.0</b>
Note: The forecasted participant counts and savings are an estimate at the time of writing.							

To complement the LiveSmart BC partnership, the Companies are also working with BC Hydro and FortisBC Inc. to develop a Home Energy Efficiency online portal that will provide a One Stop Rebate shop, information, and online tools that promote home energy efficiency retrofits.

LiveSmart BC partners are also jointly funding energy modeling studies to support the residential retrofit market. These studies include energy modeling to ensure common archetypes were used in LiveSmart BC cost benefit tests, a survey of existing residential housing stock to determine energy usage for various segments of electric and gas heated homes, research into Hot 2000 modeling to provide NRCAN with verified energy savings based on regional consumption data, and initiatives to define Hot 2000 standard operating conditions for the province. LiveSmart BC partners are also working collaboratively to develop programs to train and engage contractors in promoting energy efficiency (Please refer to Section 11.2.2).

In February 2011, the LiveSmart BC program also began encouraging reduced energy consumption among small commercial customers. The Companies are working with the Ministry of Energy and Mines to elaborate a framework for collaboration on the delivery of incentives to reduce natural gas consumption. Program design is in the initial stages and has not yet been completed, nor have specific objectives been established. The initial proposal is centred on the Ministry providing “Top-up” incentives to the Companies’ current product rebate offerings. The Companies will continue to work with the Ministry of Energy and Mines to finalize a detailed strategy to encourage reduced natural gas consumption among small businesses.

The LiveSmart BC program, which is a collaboration between the Ministry of Energy and Mines, FEI, FEVI, FortisBC, and BC Hydro, provides significant customer value in engaging BC households and small businesses in energy efficient retrofits. Through shared resources and administrative support by the Ministry of Energy and Mines, British Columbians can participate in a cost-effective program that serve the greater good of the energy needs of the province by supporting retrofits and their associated GHG emissions reductions.

#### **7.4.2.2 Water and Energy Efficient Appliance Programs**

##### **7.4.2.2.1 ENERGYSTAR® Elite Tier 4 Washer Program Overview**

<b>Water and Energy Efficient Appliance Programs</b>	
<b>Target Audience</b>	Residential Retrofit Customers
<b>Duration</b>	2010 - FortisBC Inc.: June 15 - Aug 15, 2010 2011 - FortisBC Inc.: Apr 1 - Dec 31, 2011 2011 - BC Hydro: Apr 1 - Dec 31, 2011
<b>Incentive</b>	2010 - FortisBC Inc.: \$50 rebate per Tier 3 ENERGY STAR® clothes washer 2011 - BC Hydro and FortisBC Inc.: \$75 rebate per Tier 4 ENERGY STAR® clothes washer

<b>Partners</b>	FortisBC Inc. and BC Hydro
<b>Background</b>	
<b>Background</b>	<p>Promoting the most energy and water efficient appliances is an important part of the EEC domestic hot water strategy. To do so most effectively, we are partnering with electric utilities, BC Hydro and FortisBC Inc., to extend the reach of the 2011 ENERGY STAR® appliance program to homes with natural gas water heaters. Clothes washers consume as much as 5-7 GJs/yr, representing 22% of residential DHW use (CPR, 2010).</p> <p>Qualifying ENERGY STAR® clothes washers use less energy and consume 35% to 50% less water than qualified washers made before January 1, 2007<sup>37</sup>. To encourage the most energy and water efficient models, the ENERGY STAR® brand has continuously improved their guidelines.</p> <p>The Modified Energy Factor (“MEF”) is the current energy efficiency measure for all clothes washers, while the Water Factor (“WF”) measures the water efficiency in gallons. The most energy and water efficient models will have the highest MEF value and the lowest WF rating. As a result of the 2011 ENERGY STAR® requirements, the majority of qualifying models will be front loading, which use less hot water, less mechanical energy, and result in dryer energy savings due to faster spin cycle speeds (CPR, 2010). Tier 4 is the Consortium of Energy Efficiency’s highest energy efficiency designation for the most energy and water efficient models available in the marketplace. Qualifying Tier 4 clothes washers must have a minimum MEF <math>\geq 2.4</math> and a maximum WF <math>&lt; 4.0</math>. Tier 4 models far exceed the 2011 ENERGY STAR® guidelines. Federal regulations do not require maximum WF ratings for appliances. By effectively educating consumers about the advantages of ENERGY STAR® appliances, the program will provide an opportunity to transform the market and encourage manufacturers to produce energy and water efficient clothes washers that meet or exceed the 2011 ENERGY STAR® requirements. In partnership with the electric utilities, the Companies are able to provide an increased incentive for Tier 4 ENERGY STAR® clothes washers while sharing marketing and administration costs to provide a cost effective program.</p>
<b>Description</b>	<p>In 2009 and 2010 FEI partnered with FortisBC Inc. to provide incentives for Tier 3 ENERGY STAR® clothes washers to extend the reach of their program to homes with natural gas water heaters. As the washing machine market is transforming and ENERGY STAR® base levels are increasing, the 2011 program provides rebates for an elite selection of Tier 4 models with a MEF <math>\geq 2.4</math> and a maximum WF <math>&lt; 4.0</math>, to continue to positively impact efficiency standards with manufacturers. In 2011, FEI will partner with FortisBC Inc. and BC Hydro in their respective territories to provide a \$75 consumer rebate. FEI and FEVI will provide \$50 of this rebate for all residents with natural gas water heating.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Capture the energy savings associated with promoting the most energy and water efficient ENERGY STAR® clothes washers.</li> <li>• Through utility collaboration, provide a province-wide program for 2011.</li> </ul>

<sup>37</sup> 2010 EnerGuide Appliance Directory, NRCAN Office of Energy Efficiency as part of ecoENERGY, an ecoACTION initiative.

	<ul style="list-style-type: none"> <li>• Increase residential customers' knowledge and awareness about energy efficiency and conservation regarding laundry such as: <ul style="list-style-type: none"> <li>○ ENERGY STAR® washers are energy and water efficient;</li> <li>○ Cold water wash decreases DHW energy use; and</li> <li>○ Hanging clothes to dry decreases electrical energy use.</li> </ul> </li> </ul>
<b>Implementation</b>	
<b>Administration</b>	Electric utilities - FortisBC Inc. / BC Hydro
<b>Communications</b>	Program promotion through appliance retailers, community events, an online contest, and the Companies' marketing channels.
<b>Evaluation Strategy</b>	Research will be conducted to confirm energy savings claims for natural gas water heating.

#### 7.4.2.2.2 2010 Program Results

As outlined in Table 7-7, based on 130 participants, the program achieved annual gas savings of 210 GJs and a projected 2801 GJs of savings over the lifetime of the measure. The TRC is marginal based on the estimated natural gas savings associated with the Tier 3 washers and relatively low participant numbers.

**Table 7-7: FortisBC Inc 2010 ENERGY STAR® Washers Program Summary**

Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	130	7		210	2,801	10%	0.8

#### 7.4.2.2.3 2011 Program Performance Forecast

In addition to partnering with FortisBC Inc., the Companies will collaborate with BC Hydro's province-wide 2011 ENERGY STAR® appliance program. The program will support the new 2011 ENERGY STAR® requirements through incentives for elite Tier 4 ENERGY STAR® clothes washers with MEF  $\geq$  2.4 and a maximum WF  $<$  4.0. Regardless of the fuel type for DHW, Tier 4 ENERGY STAR® clothes washers will provide both electric and gas savings. FEI and FEVI will contribute \$50 of the total \$75 incentive for those homes with gas water heaters and the electric utilities will provide the remaining incentives.

Based on the BC Hydro forecast, the Companies expect to contribute to 6,300 residential incentives. Based on the FortisBC Inc. forecast, we expect 1,000 residential incentives. As illustrated in Table 7-8, the program is expected to achieve 20,805 GJs of annual energy

savings given a 5 percent free rider rate. The free rider rate is lower for this program compared to the 2010 FortisBC Inc. laundry campaign since the 2011 appliance program supports a higher tier of ENERGY STAR® clothes washers with a lower market penetration.

**Table 7-8: 2011 Tier 4 ENERGY STAR® Clothes Washer Program Forecast**

Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
BC Hydro Partnership							
FEI	5,040	\$252,000	\$42,000	14,364	124,498	5%	1.0
FEVI	1,260	\$63,000	\$8,000	3,591	31,124	5%	1.0
FortisBC Inc. Partnership							
FEI	1,000	\$50,000	\$15,000	2,850	24,702	5%	0.9
Total	7,300	\$365,000	\$65,000	20,805	180,324	5%	1.0

#### 7.4.2.2.4 Overall Summary

Energy efficient appliances will result in both electric and gas savings regardless of the fuel type of a domestic hot water heater. These front load washers also result in 35-50 percent water savings as a non-energy benefit to the program. Therefore, partnering with FortisBC Inc. and BC Hydro enables the Companies to provide a province-wide program that will effectively educate consumers about the importance of water and energy efficient appliances, while sharing marketing and administration costs for a cost-effective program. With the overall TRC of 1.0, the Companies believe washer efficiency is an important component to the EEC domestic hot water strategy. In addition to natural gas savings, the opportunity to educate customers about hot water conservation and efficient laundry practices provides many benefits to our customers.

### 7.4.2.3 **FortisBC. Water Saver Pilot Program**

#### 7.4.2.3.1 Water Saver Pilot Program Overview

FortisBC Water Saver Pilot	
<b>Target Audience</b>	Residential Retrofit Customers
<b>Duration</b>	FEI: Sept 15 – Oct 31, 2010
<b>Incentive</b>	The distribution of free low flow showerheads
<b>Partners</b>	FortisBC Inc, FEI and ClimateSense



<b>Background</b>	
<b>Background</b>	<p>As part of the EEC domestic hot water strategy, FEI collaborated with FortisBC Inc. to distribute free water saving kits within the communities of Castlegar and Kaleden to extend the reach of the Water Saver campaign to those homes with gas water heaters.</p> <p>According to the 2009 FortisBC Inc REUS Study, 37% of FortisBC Inc.'s customers do not have a low flow showerhead and would like to upgrade. The 2010 Conservation Potential Review ("CPR") has identified ultra low flow showerheads as being an important measure for our DSM programs. The showerheads within the water saving kits are not ultra low flow; however, their 1.5 GPM flow rate is comparable to the 1.25 GPM flow rate of an ultra low flow showerhead<sup>38</sup>. We will claim 1.0 GJ of gas savings per installation, a conservative estimate compared to the 2.0 GJ savings of an ultra low flow showerhead as outlined in the 2010 CPR. Both Castlegar and Kaleden were chosen based on their current vulnerability to water shortages due to low snow packs.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Distribute 500 low flow showerheads to capture the associated energy savings for homes with gas hot water heaters.</li> <li>• Determine program participation rates and logistics for a 2011 province-wide program.</li> <li>• Increase the presence of EEC programs within rural service territories.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	FortisBC Inc. and ClimateSense
<b>Communications</b>	Promotions included radio advertisements, print ads in community newspapers, the use of social networking sites, and online. Marketing collateral directed applicants to an online survey that captured the participant's space and hot water heating fuel type, number of CFL bulbs within the home, and the current number of low flow showerheads and ENERGY STAR® appliances.
<b>Evaluation Strategy</b>	Energy savings estimates to be confirmed through sub-metering projects.

#### 7.4.2.3.2 2010 Results

Based on post survey results, the Water Saver program was well received within the small communities of Castlegar and Kaleden, and achieved a TRC ratio of 2.0. In total, both utilities distributed 1,000 low flow showerheads to promote hot water conservation while capturing significant energy savings.

<sup>38</sup> 2010 FEI/ FEVI Conservation Potential Review.

**Table 7-9: 2010 Water Saver Program Results**

Utility	Participants	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/Yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	500	7	7	420	2,899	16%	2.0

The program was successful in achieving its main objectives to distribute free low flow showerheads and to capture the associated energy savings. As outlined in Table 7-9 above, the program is expected to capture 420 GJs of annual energy savings and 2,899 GJs of savings over the lifetime of the measure. Based on post program survey results, 20 percent of participants had at least one low flow showerhead; however, these may be traditional low flow showerheads, which are less efficient fixtures than provided within the water saver kit<sup>39</sup>. As a result, a free rider rate of 16 percent was used for economic analysis. In 2011, the low flow showerhead measure will be incorporated into the Simple Home Efficiency Measures program for easy to install energy efficient upgrades within the home (Please refer to Section 3.4.3.1).

#### 7.4.2.3.3 Overall Summary

The Water Saver campaign achieved its objectives in offering EEC activities within rural service territories while capturing the energy savings associated with low flow showerheads. In total, 1,000 water saver kits were distributed to residents within two communities that are particularly vulnerable to water shortages. The program was well received by the public since the showerheads were easy to install and the online application procedure was simple. In 2011, ultra low flow showerheads will be one of the measures in the Simple Home Efficiency Measures program since there are significant energy and water conservation benefits associated with this measure.

## 7.5 Summary

Joint Initiative programs provide numerous mutually beneficial advantages to all partners in the collaboration, and their customers. In working together, utilities and government partners can engage in more programs, extend the reach of incentives, provide cost-effective education and outreach, and generate even greater energy savings and GHG emissions reductions. Based on 2010 successes, the Companies are expanding their Joint Initiative projects in 2011 across all program areas, and in so doing, will provide a more robust energy efficiency program offering to the residents of British Columbia.

<sup>39</sup> 2010 FEI / FEVI Conservation Potential Review.

## 8 CONSERVATION, EDUCATION & OUTREACH (“CEO”) PROGRAMS

### 8.1 Overview

The Conservation Education and Outreach (“CEO”) program was designed to include general conservation and non-program specific communications. CEO initiatives support the EEC’s portfolio goals of energy conservation and GHG emissions reduction established by the Government of BC. This program area is also intended to foster and develop a culture of conservation within the province by educating customers about changing their mindset and behaviours in regards to conserving energy. The goal of these initiatives is to ensure customers learn about taking small steps towards energy conservation and that customers will be receptive to incentive programs when they are proposed. This section describes the principles behind the CEO initiatives, evaluation methods, 2010 initiatives by customer group, and programs in development for 2011.

#### 8.1.1 DEVELOPING ENGAGING CEO INITIATIVES

In designing the CEO program area, the Companies were, according to the EEC Decision and Order G-36-09 (see page 21) in Appendix C, directed to review the CEO program area with a view to “altering the program to allocate funds away from the mass media campaign and to include other initiatives, with particular attention paid to conservation education within the school system and affordable housing initiatives.” In addition, as per section 44.1 (8) (c) of the *Utilities Commission Act*, R.S.B.C 1996, c.473, s.125.1 (4) (e), a public utility’s plan portfolio is adequate only if it includes an education program for students enrolled in the public utility’s service area. Furthermore, CEO initiatives follow many of the same program principles that were put forth in the EEC application, in particular:

- Programs will have a goal of universality; offering access to energy efficiency and conservation for all residential and commercial customers, including low income customers through the Conservation for Affordable Housing initiative;
- Where possible, programs will be uniform across the service territories of the Companies, so customers will have equal participation opportunity; and
- Programs will be multi-year to create a sense of funding certainty necessary to effectively implement them in the marketplace.

Lastly, CEO activities include a diverse range of initiatives targeting various customer groups. The Companies consider many factors before settling on the right initiatives to pursue. These include, but are not limited to:

- Potential participant reach;
- Geographic spread across FEI and FEVI service territories;
- Demographics of event attendees;

- Media involvement such as print, online, radio, in-person, cooperative advertising, social media, or a combination thereof;
- Engagement level with customers that is activity-based vs. partnerships with third parties; and
- Reaching various customer groups such as children/students, residential customers, small businesses, large commercial/institutional customers, property managers for multifamily homes, low income customers, municipalities, and the general public.

The CEO initiatives undertaken in 2010 include very little mass media; instead, they target individual customer groups in consideration of that group's specific needs and include direct engagement and interaction with residential and commercial customers and students. Many of the initiatives are a continuation from 2009 since the development of several initiatives began that year. Table 8-1 provides a summary of the 2010 CEO initiatives that are active and in development in FEI and FEVI by customer groups. Table 8-2 summarizes the 2010 costs for the CEO program area. Much of the CEO funds in 2010 were spent on developing programs and messages to engage with residential customers and the general public. Conservation education programs are still in development stages for commercial and low income customers, and additional CEO programs are being developed for students and schools.

**Table 8-1: Summary of 2010 CEO Initiatives**

Program	Utility		Description	TRC	
	FEI	FEVI		FEI	FEVI
Active Programs					
Residential and General Public	X	X	Energy conservation education promoted through bill inserts, newspaper and magazine advertising, trade show guides, newsletters, directories, home shows, regional Canadian Home Builders' Association programs, ethnic material development, sports energy savings promotions, EEC Community Outreach, and employee outreach.	N/A	N/A
Commercial Customers	X	X	Energy conservation education promoted through newspaper and magazine advertising, trade show guides, newsletters, directories, trade shows, and seminars.	N/A	N/A
Conservation for Affordable Housing	X	X	Energy conservation education promoted through partnership with CHBA BC for Housing Affordability Symposium.	N/A	N/A
School Outreach	X	X	Various K-12 programs, competitions, and curriculum development educating students on energy conservation and providing resource materials to teachers.	N/A	N/A
Programs in Development					
Residential and Conservation for Affordable Housing Customers: Ethnic Outreach	X	X	Development of print and online materials for ethnic markets and develop partnerships with third party service providers for distribution and promotional channels.	N/A	N/A
Residential and General Public: Home Efficiency Measures Partnerships (Pilot Programs)	X	X	Efficient low-cost fixtures for programs for residential and multifamily customers leveraging on channels such as school programs, property management associations, and partnerships with municipalities, regional districts, and big box retailers.	N/A	N/A
Residential and General Public: New Construction Industry	X	X	Education, training sessions, and collateral development for builders/developers, showroom staff and salespeople, real estate, and home appraisal industries on high efficient gas appliances and home efficiency measures.	N/A	N/A
Commercial: Small Commercial Businesses Education Sessions	X	X	Education sessions with small businesses on energy conservation measures and related available resources.	N/A	N/A
Commercial: Health Authority Staff Engagement Pilot Program	X	X	Development of an online community site for health authority staff to learn about energy conservation actions they can take at work and home.	N/A	N/A
Conservation for Affordable Housing: BC Housing Tenant Engagement Pilot Program	X		Engage with BC Housing tenants in two Metro Vancouver sites through education on conservation behaviour relating to heat and hot water reductions.	N/A	N/A
School Outreach: BC Sustainable Energy Association	X	X	Educational workshops for elementary students on reducing C02 emissions and saving energy in the home and at school around the province.	N/A	N/A
School Outreach: Environmental Mind Grind	X	X	Student trivia competition on energy and environmental conservation for K-12 students around the province.	N/A	N/A
School Outreach: Post Secondary Program	X	X	Reviewing proposals from vendors such as GoBeyond, and looking into hiring an external consultant to develop and implement a CEO program.	N/A	N/A

**Table 8-2: Summary of 2010 CEO Costs**

	Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
CEO Portfolio Administration	\$28	\$4	\$32	N/A	N/A	N/A	N/A	N/A
Residential and General Public Education and Outreach	\$975	\$143	\$1,118	N/A	N/A	N/A	N/A	N/A
Commercial Customers Education and Outreach	\$285	\$28	\$313	N/A	N/A	N/A	N/A	N/A
Conservation for Affordable Housing Education and Outreach	\$8	\$2	\$10	N/A	N/A	N/A	N/A	N/A
School Outreach	\$119	\$24	\$143	N/A	N/A	N/A	N/A	N/A
Total	\$1,415	\$201	\$1,616	N/A	N/A	N/A	N/A	N/A

### 8.1.2 EVALUATION OF CEO INITIATIVES

CEO initiatives are not individually run through the California Standards Tests at a program level and do not have any energy savings directly associated with them; however, costs are included at the portfolio level in the overall EEC portfolio TRC. As several new CEO initiatives have been introduced into the portfolio, it has become increasingly important to evaluate the cost effectiveness of CEO initiatives in order to justify the expenditures associated with these activities. Possible methods to evaluate the effectiveness of CEO initiatives include advertising tracking, process evaluation, and web analytics; however, the specific method will be dependent on the type of CEO initiative implemented.

Advertising tracking can investigate the effectiveness of particular commercials or campaigns in terms of the recall of specific messages, changes in people's perceptions, and behavioural changes in the target audience.

Process evaluations measure the effectiveness of the program by assessing how well the program met a set of goals or metrics defined by the program administrators. This method has been used by other utilities and American state agencies such as Southern California Edison and Pacific Gas & Electric.

Examples of goals/metrics for educational and communication programs include:

- Increase student awareness of the relationship between energy and the environment; and
- Deliver at least two special events annually, during which the public is exposed to specific key messages and provided with information and materials.

Example of techniques used to assess whether goals/metrics are met include:

- Interviews with program staff;
- Survey of program participants and qualitative analysis of responses; and
- Focus groups of program participants.

Web analytics is the quantitative measurement of the relationship between visitors and a website. Simply put, web analytics is the process of understanding the Companies' online presence so that it can be optimized. The Companies work with Adobe Online Marketing Suite

Sitecatalyst, a remotely hosted, subscription-based solution for real-time website reporting and analysis. Codes are placed on web pages that execute when the page loads. As the page loads and the code on the page executes, a request is sent to the Sitecatalyst server for a web beacon, which is a two-by-two transparent pixel image. Along with this image request, the code collects and sends additional information to Adobe Online Marketing data centres. The data centres then populate a report with the collected data, which can be accessed by the Companies' web team, to allow them to analyze the web activity related to a specific CEO initiative.

For certain initiatives, such as event surveying, the Companies will hire an external research firm, relying on their particular methodology to complete the analysis. The Companies will also rely on the method recommended by an independent research firm depending on the CEO initiative. Modifications to improve the initiatives can take place after one or more of these forms of evaluation have been completed.

## **8.2 2010 CEO Initiatives by Customer Group**

The activities that make up the CEO initiatives are designed to create and promote awareness, and educate the public on energy conservation. By encouraging customers to take small steps towards energy conservation with simple and low-cost behaviours, the Companies hope customers will later adopt or adjust their own conservation beliefs and install high efficient equipment through participation in our other EEC incentive programs. The CEO activities for 2010 are described in further detail below and grouped according to the following customer groups: residential customers, commercial customers, conservation for affordable housing customers, and schools.

### **8.2.1 RESIDENTIAL CUSTOMERS**

With over 850,000 residential customers, it is vital for the Companies to provide them with energy saving information. This section outlines how CEO initiatives educate residential customers on conservation behaviours. It is the Companies' view that by providing education on behavioural changes, including low cost and no cost actions, this knowledge will assist customers to reduce their consumption and encourage them to pursue further efficiencies by participating in EEC incentive programs. According to the 2010 Customer Satisfaction Study conducted by TNS, three attributes were found to be key drivers of customer satisfaction with the conservation education provided by the Companies. These key drivers received an average or below average rating from participants.

- Provides information that helps customers use natural gas efficiently;
- Offers rebates for energy efficiency upgrades; and
- Is environmentally responsible.

Through the various EEC initiatives, the Companies will be able to meet customers' expectations about keeping energy costs within their budget through energy conservation



education. It is important for the Companies to consider several diverse media channels in an attempt to reach the majority of residential customers. Energy conservation education is promoted through a variety of means, which have been grouped into five methods: print and online channels, home shows and events, the Energy Champion program, community outreach at community events, and via the Companies' employees. Below is a detailed description of each method.

#### **8.2.1.1     *Print and Online***

Print and online publications are a cost-effective communications channel for delivery of information when compared to other communication channels such as television and mass media. The goal of the CEO program's print and online publications is to continually inform customers about various low-cost and no-cost behaviour changes they can adopt at home to reduce their energy consumption. In 2010, the Companies continued to provide information through customer bill inserts, print and online advertising in The Vancouver Sun's At Home section and community newspapers, and the Canadian Home Builders' Association's ("CHBA") publications, brochures, and ethnic material. The CEO program is also funding half the cost of a bill insert and bill message research study conducted by TNS Canadian Facts, with other departments in the Companies funding the other half. The purpose of this study is to determine readership levels, understand if certain messages garner more attention from readers than other messages, and the type of information desired by our customers. The primary targets for the study are residential and small commercial (i.e. Rates 2 and 3) customers, which are key audiences for EEC programs. The research firm, TNS, will test three waves of bill inserts through phone surveys. The study began in Q4 2010 and will be completed by Q2 2011.

#### **8.2.1.2     *Home Shows***

Home shows remain an effective way to reach customers by creating opportunities for dialogue with customers on energy conservation. Based on the increasing number of customer inquiries regarding conservation, efficient technologies, and retrofit incentive programs from these events, the Companies strongly believe participation in home shows is an essential channel for educating customers about CEO initiatives and EEC programs.

The Companies have exhibited in home shows since 2006 and continued home show activity in 2010 by participating in home shows and CHBA events. The CHBA's regional branches represent the BC residential construction industry, and they liaise with local governments, promote the interests of housing and renovation consumers, and work to ensure a fair marketplace. In 2010, the Companies attended generally the same shows as the previous year and were in direct contact with over 35,000 residential attendees. The majority of the attendees at these home shows are homeowners specifically looking for home renovation and equipment upgrade information. Depending on the size, each show's total attendance can range from 5,000 to 45,000. For a complete list of 2010 home shows, please refer to Appendix E.

### 8.2.1.3 Energy Champion Program

The Energy Champion Program is a new initiative launched in Q4 2009 that continued into 2010, and is executed through partnerships with local sports teams such as the BC Lions, Vancouver Giants, BC Hockey League, and the Vancouver Canucks. The goal of this program is to educate children, youth, and the general public on energy conservation behaviour in a fun and rewarding manner, through a variety of methods including online competitions, face-to-face interactions, and pre and in-game activities. The activities with each sports team will differ slightly due to their own regulations and game formats. These activities are summarized in Table 8-3.

**Table 8-3: Summary of CEO Energy Champion Promotions**

Partnership	Description	Channel
BC Lions	Kids answer an energy conservation related question on bclions.com to enter to win tickets to a home game. One prize per BC Lions home game.	Online promotion on bclions.com
	Participants complete a race; they put on a sweater and run through a challenge course.	In game promotion
Vancouver Canucks	Individuals enter pictures of their ugliest sweater to win a pair of tickets to a Canucks game.	Online promotion on canucks.com
	Kids answer an energy conservation related question on canucks.com to enter to win a prize pack, including four tickets to Canucks Superskills.	Online promotion on canucks.com
	Sponsored in-game activation skill challenge - "Breakaway Relay."	In game promotion
Vancouver Giants	Kids answer an energy conservation related question on vancouvergiants.com to enter to win tickets to a Vancouver Giants home game.	Online promotion on vancouvergiants.com
BC Hockey League	In game and on-ice intermission activities and giveaways to promote energy conservation.	In game promotion

Partnering with regional sports clubs is an excellent way to reach out to families and the general public by raising the profile of our EEC programs and building up the Companies' conservation messaging. Sports fans are generally loyal and highly engaged with teams they identify with and support. These partnerships enable the Companies to leverage traditional media channels, such

as television and radio, as well as the sports teams' online and social media channels. Because these channels are well developed in the market and have the ability to reach out to a large number of the teams' fans, they provide the Companies with easy and immediate access to an already engaged public audience. For instance, the Vancouver Canucks website obtained an average of 935,454 unique visitors per month over the course of 12 months; furthermore, they have over 154,016 Facebook fans and 26,365 Twitter followers.

As the Energy Champion program is still in progress, the Companies are in various stages of evaluating the program with the various sports teams. As summarized in Table 8-3, the Energy Champion program generally includes both in game and online web promotions. Web promotions can be easily tracked through web analytics on page views and contest signups via the sport team's website and the Companies' website. For a list of web analytics from the first year promotions with the sports teams, refer to Table 8-4. Since this was the first year for the Energy Champion program, there are opportunities to improve promotions in 2011.

**Table 8-4: Web Analytics Comparing Various 2010 Energy Champion Promotions**

<b>BC Lions 2010 Season</b>	<b>Month</b>	<b># Entries/Month</b>	<b>Lions Contest Page Views</b>	<b>Companies' Energy Champion # Page Views</b>
Energy Champion Kids Promotion	Jun	15	282	38
	Jul	40	238	72
	Aug	35	141	56
	Sept	35	154	54
	Oct	40	142	119
<b>Vancouver Canucks 2009-2010 Season</b>	<b>Month</b>	<b># Entries/Votes</b>	<b>Canucks Contest Page Views</b>	<b>Companies' Energy Champion # Page Views</b>
Ugly Sweater Promotion	Dec	39	50, 869	unrelated
	Jan	23, 098	(Facebook)	unrelated
Super Coaches Superskills Kids Promotion	Jan	1,270	3,329	62
Energy All Star Promotion online	Mar	1,443	3,710	unrelated
<b>Vancouver Giants 2009-2010 and 2010-2011 Seasons</b>	<b>Month</b>	<b># Entries for Contest</b>	<b>Giants Contest Page Views</b>	<b>Companies' Energy Champion # Page Views</b>
Energy Champion Kids Promotion '09-'10 Season	Oct	23	243	n/a
	Nov	44	200	4
	Dec	29	146	55
	Jan	15	115	62
	Feb	8	52	19
	Mar	24	113	34
	Apr	18	115	48
Energy Champion Kids Promotion '10-'11 Season	Sept	n/a	58	54
	Oct	35	125	119
	Nov	20	110	305
	Dec	14	10	262

In 2010, the Companies also conducted a field intercept survey on our partnership with the BC Lions. Although the study had a small sample size, it provided insight into improvements that can be made to the program for delivery in 2011. The survey recommends employing a multi-channel approach to reinforce the Companies' messaging that includes the use of a media relations campaign, pre-game radio spots, video screen airtime, and a physical takeaway linked back to a website with contests that can be promoted through social media. Also, the results

suggest the activities should engage in the crowd mentality and that taking advantage of the family section of the stadium would be beneficial. These insights are useful for the Energy Champion program as a whole, as many of the elements can be applied to activities with the other sports teams.

#### **8.2.1.4 EEC Community Outreach**

The EEC Community Outreach group was first launched in 2007, and similar to BC Hydro's PowerSmart Outreach Team, it is a grassroots channel for delivering the Companies' EEC messages. It connects with the Companies' customers through educational and interactive activities based at local community events. In 2010, the Companies attended additional events when compared to 2009 such as the Lonsdale Party on the Pier in North Vancouver, Sapperton Day in New Westminster, and several sporting events through the Vancouver Canucks and various BCHL games, and were in direct contact with at least 36,000 residential customers and the general public.

These community events generally attract a large audience as most of the events are free for the public to attend and take place in urban centres, with close proximity to residential neighbourhoods. These outreach activities have proven to be a cost-effective method of engaging a large group of the Companies' customers through a simple trivia activity and by distributing information and tools to further educate them about conservation in the home. Also, these attendees would not normally attend home shows and sporting events, so these community events allow more customers to put a "face" to the Companies and learn about energy conservation. Additional opportunities existed for the Community Outreach group to bring energy education right into several large organizations, in particular those with a staff of over 200 during lunchtime "energy fairs", as many of the employees are also residential customers. Some of the organizations visited include the City of Coquitlam, SAP Canada, and WorkSafe BC. Both the community events and the energy fairs contribute to the Companies' goal of building a culture of conservation. Refer to Appendix E for a complete list of events and organizations attended in 2010.

#### **8.2.1.5 Employee Education**

The Companies employ approximately 1,500 individuals, many of whom are themselves customers and many of whom regularly interact with customers. The goal of the Employee Education program is to create a large group of "EEC ambassadors" within the Companies who promote EEC programs and initiatives by discussing them during their dealings with the public and when interacting with their personal network.

The EEC department has traditionally communicated EEC initiatives and incentive programs to employees via the Companies' intranet and newsletters, and specific training for the call centre and field staff. In 2010, an outreach team also visited 12 office and muster locations to introduce the new EEC initiatives and programs, identify key communication channels, and identify "green ambassadors". With the rapid expansion of the EEC initiatives, it is necessary to provide the Companies' employees with continual education on all EEC programs, incentives, and local

CEO activities being implemented. In 2011, the EEC team will continue to liaise with the “green ambassadors” to inform them of new programs and initiatives.

In summary, educating residential customers and the general public on energy conservation is strongly aligned with the CEO program area’s goal of building a culture of conservation in BC and it is vital to promote the related programs and initiatives through a variety of communication methods including print, interactive, and face-to-face.

## **8.2.2 COMMERCIAL CUSTOMERS**

It is imperative that the Companies provide energy saving information to commercial customers, as they have a great potential to reduce their energy consumption. This section outlines how CEO programs educate commercial customers on conservation behaviours. It is the Companies’ view that providing education on behavioural changes helps commercial customers reduce their organization’s energy consumption and encourages them to pursue additional efficiencies by participating in EEC incentive programs. The commercial sector is made up of small and large businesses in a variety of industries, such as retail, offices, multifamily residences, schools, hospitals, and shopping malls, to name a few.

According to the 2010 Customer Satisfaction Study conducted by TNS, the corporate image attribute of being “committed to helping customers” is an important driver of satisfaction for small and large commercial customers. Through the various EEC initiatives, the Companies will be able to meet customers’ expectations by providing increased EEC education and program information to help them reduce their organization’s energy costs. This may have the potential to indirectly impact future customer satisfaction studies.

It is important for the Companies to consider a variety of media communication tools and distribution channels, and it is a goal of the CEO program to reach the diverse group of businesses in the Companies’ commercial sector. In this section, energy conservation education is grouped and described according to three communication channels: print and online publications, industry trade shows and association events, and corporate behaviour change pilot programs.

### **8.2.2.1 *Print and Online***

Print and online publications are a cost-effective communications channel for delivery of industry targeted information when compared to other communication channels such as television and mass media. The goal of the CEO print and online publications is to provide ongoing communication to commercial customers about the Companies’ energy conservation initiatives. In 2010, the Companies continued to provide information through energy saving handouts and bill inserts for small commercial customers and various print and directory advertising such as show guides and property management directories. In addition, the CEO program area is co-funding, along with other departments in the Companies, a bill insert and bill messaging research study conducted by TNS. The purpose of this study is to determine readership levels, understand if certain messages garner more attention from readers than

other messages, and the type of information desired by our customers. The primary targets for the study are residential and small commercial (i.e. Rates 2 and 3) customers who are also the key audiences for EEC programs. The research firm, TNS, are testing three waves of bill inserts through phone surveys. The study began in Q4 2010 and will be completed by Q2 2011.

#### **8.2.2.2 Trade Shows and Association Events**

Industry trade shows and association events remain an effective way to reach commercial customers by targeting key decision makers and identifying energy savings opportunities they can consider for the businesses they represent. Based on the increasing number of customer inquiries and requests for funding, the Companies strongly believe that participation in trade shows is an essential channel for educating key decision makers about available CEO educational, behavioural, and incentive programs. Participation in association events, such as the Business Improvement Association of BC's regional meetings, Rental Owners and Managers Society of BC tradeshow, and BC Hydro PowerSmart Forum, provides the Companies with an opportunity to promote CEO education and EEC incentive programs to both small businesses and large commercial customers. In 2010, the Companies attended generally the same shows as the previous year and were in direct contact with over 1,500 key decision makers. For a complete list of 2010 trade shows, please refer to Appendix E.

#### **8.2.2.3 Behaviour Change Programs**

Under the BC Climate Action Charter, several municipalities (i.e. the Companies' commercial customers) have committed to becoming carbon neutral by 2012. In their dealings with some commercial, institutional, and municipal customers, the Companies have received anecdotal indications that since these customers are strapped for financial resources, they have to focus on low cost behaviour adjustments in their efforts to reduce energy costs within their facilities. As a result, the Companies are currently piloting behaviour change programs for commercial and municipal customers, due in large part to customer demand. The goal of the behaviour change pilot programs is to develop a successful program design and then expand to other large commercial and public organizations. Behavioural changes are currently not incorporated into the Companies' savings portfolio because of the difficulty tracking results from individual actions; however, in the two pilot programs described below, they have both included a benchmark in an attempt to measure any changes in behaviour.

Behaviour change programs, also known as community based social marketing, look to identify the barriers to behaviour change, design a strategy utilizing behaviour change tools, and then implement that strategy. The benefits of implementing a behaviour change program include understanding the psychological and motivational aspects of human behaviour in decision-making, and the power of community and peer influence to develop an engagement strategy that may have a longer-lasting impact than traditional mass media campaigns. Another foundational element of behaviour change is that people tend to adjust their behaviours so as to create consistency through all aspects of their lifestyle. For instance, an individual who learns through CEO programs to conserve energy at work is plausibly more likely to transfer those



energy saving behaviours to the home (or vice versa). Below is a description of two behaviour pilot programs that began in 2010: Destination Conservation for Public Buildings and Health Authority Staff Engagement.

#### *8.2.2.3.1 Destination Conservation for Public Buildings Pilot Program*

In 2010, a behaviour change pilot program was launched to a group of five South Okanagan organizations: the Regional District Okanagan Similkameen, City of Penticton, District of Summerland, Town of Oliver, and Okanagan College Penticton Campus. The goal of the one year pilot program is to test the program with public buildings. If energy savings reductions are achieved through benchmarking and tracking surveys, the Companies will provide this program as an additional EEC service offering to other municipalities and public organizations. MVS Consulting will first work with various municipal staff, such as senior administration, facilities, community outreach coordinators, and other peer leaders, to perform energy audits of the facilities for benchmarking purposes. Second, MVS Consulting will develop an employee engagement strategy to determine if both low cost/no cost efficiency improvements and behavioural changes from staff will bring about energy reductions in municipal office facilities. The Companies co-funded the program with FortisBC Inc.

#### *8.2.2.3.2 Health Authority Staff Engagement Pilot Program*

The development of an online community site for health authority employees that promotes energy conservation actions for work and home began in 2010. The goal of this initiative is to pilot an online community site and develop an extensive employee engagement strategy that can eventually be implemented by other health authorities and/or large institutional customers. With this tool, the Companies hope to investigate the attribution of energy savings to this behavioural program thus potentially providing a benchmark for capturing energy savings from other education and outreach activities.

The target audience for this program began with the Vancouver Coastal Health Authority and Providence Health Care with a combined total of approximately 28,000 employees; however, it has now been extended to include Fraser Health Authority, Providence Health Care, and Provincial Health Services Authority, which could bring on an additional audience of 32,000 full time employees, part-time employees, volunteers, and contracted employees. The program for the four health authorities is set to launch in March 2011. As the Companies have minimal experience in developing a large scale employee engagement program, an external consultant, Resilient Group, has been hired to build capacity and knowledge within the EEC group about social marketing and its role in large-scale employee engagement initiatives. Much of the costs of the program, in particular the site development and engagement plan are one-time costs. The ongoing marketing campaigns will encourage participants to learn about energy conservation, make social commitments towards behavioural changes, and take action to reduce GHG emissions at work and in the home.

By providing education to commercial customers, these pilot programs are aligned with the CEO program area's goal of building a culture of conservation in BC. Behaviour change programs are difficult to measure through traditional economic tests; however, it is vital to include them and devise a benchmarking method in the CEO program area as a result of customer demand.

### 8.2.3 CONSERVATION FOR AFFORDABLE HOUSING

As indicated in the EEC Decision, the Companies were directed to review the CEO program area with a view to "altering the program to allocate funds away from the mass media campaign, and to include other initiatives, with particular attention paid to... affordable housing initiatives." With approximately 20 percent of the Companies' customers coming from the low income sector, support within the CEO program area for the Conservation for Affordable Housing program started developing in late 2010. The Companies supported the first BC Housing Affordability Symposium with funding. Education, including print and online advertising, ethnic material development, and outreach and engagement efforts, will be further developed in 2011 to complement the initiatives in the Conservation for Affordable Housing program area.

### 8.2.4 SCHOOL OUTREACH

The EEC portfolio is aligned with section 44.1 (8) (c) of the Utilities Commission Act, R.S.B.C 1996, c.473, s.125.1 (4) (e), a public utility's plan portfolio is adequate only if it includes an education program for students enrolled in schools in the Companies' service area. This section outlines how the CEO program area supported various school programs in 2010. It is the Companies' view that funding multi-year school programs will build a strong foundation for a culture of conservation in BC through consistent curricula. The goal of the Companies' school outreach activities is to educate K-12 students on natural gas and how gas fits into the province's energy picture as a first step in informing students about energy conservation. By reaching out to students, the Companies are instilling conservation knowledge early in the life of our future customers. As school programs generally run over the September to June time period, some programs in 2010 started the year previous, while others are continuing into 2011.

Table 8-5 summarizes the school programs that the Companies are currently supporting:

**Table 8-5: Summary of School Programs, 2009-2010 and 2010-2011 School Years**

School Program	School Year
BC Green Games	2009-2010 and 2010-2011
BC Lions Energy Champion School Assembly Presentations	2009-2010 and 2010-2011
Beyond Recycling	2009-2010 and 2010-2011
Destination Conservation	2009-2010 and 2010-2011

Below describes in detail the four school programs that address the regulation and were directed to elementary and secondary students: BC Green Games, BC Lions Energy Champion School Assembly Presentations, Beyond Recycling, and Destination Conservation.

#### **8.2.4.1 BC Green Games**

BC Green Games is a province-wide competition hosted by Science World. The Companies have been co-sponsoring this initiative with BC Hydro since the 2009-2010 school year. By co-sponsoring this initiative, the Companies are able to introduce the concept of natural gas as a resource and the need for energy conservation into the environmental projects developed by students. The Green Games competition requires student teams to submit digital entries of their environmental projects for prizes.

BC Green Games ties into other initiatives such as Destination Conservation and Beyond Recycling by providing a means to showcase team projects that were developed in those programs. Where Destination Conservation and Beyond Recycling successes have been limited to the school or community, BC Green Games provides the social network channel to allow students to learn about initiatives in other schools, learn from their peers, and build on their existing, or new, projects for the next school year.

The 2009-2010 school year saw 94 submissions to the BC Green Games competition from 32 school districts across the province; furthermore, 3,981 votes were cast and over 24,400 website visitors were reached between August 31, 2009 and April 15, 2010. For the 2010-2011 school year, new goals have been set to increase the profile of the BC Green Games across the province, as well as increase the number of energy related projects (20 percent of the total amount) that are submitted. These goals will be achieved through a communication strategy that emphasizes the simplicity of the contest and focuses on strengthening the relationship with local school district champions and mentors. BC Green Games will provide the Companies with a full report at the completion of the competition, including, but not limited to: number of submissions, number and location of schools involved, types of projects, and web analytics.

#### **8.2.4.2 BC Lions Energy Champion School Assembly Presentations**

Since the 2008-2009 school year, the Companies have partnered with the BC Lions school program division to deliver interactive and informative presentations on energy and water conservation to elementary schools throughout BC. The goal of this initiative is to develop a program that interacts with students and brings conservation education directly into the schools.

In the 2009-2010 school year, presentations were delivered to 75 elementary schools, successfully reaching over 21,000 students, which is an increase from 50 schools and approximately 14,000 students reached the previous year. Partnering with the BC Lions has been beneficial as the players act as role models in promoting energy conservation and teamwork. Post-presentation surveys with the principals have all shown fairly strong satisfaction with the presentation, players, and props.

The Companies are a title sponsor of the program, with minimal funding provided from Plutonic Power for the 2009-2010 school year. The Companies and BC Lions will continue to partner and deliver this program in the 2010-2011 school year. Refer to Appendix E for a list of the schools that received the presentations.

To summarize the Companies' school outreach initiatives, multi-year school programs have proven beneficial for both teachers and program planners to plan consistent curricula, as well as for students who can work with peers to build on previous project successes; therefore, the CEO program area will continue to fund and expand on the number of initiatives for schools in 2011.

#### **8.2.4.3    *Beyond Recycling***

The Beyond Recycling program is delivered by Wildsight, a non-profit organization that focuses on biodiversity and healthy human communities in the Columbia region. Beyond Recycling provides students with an understanding of the connection between consumption patterns and environmental impacts. The goal of the Companies' funding of this program is to ensure conservation outreach to schools that may not have otherwise been able to participate in the program.

The program contains lessons in reducing waste and GHG emissions, and the role of natural gas in BC. The lessons also include actions such as students performing home energy audits and conservation pledges. The Companies co-fund the program with Environment Canada's EcoAction Community Funding Program and FortisBC Inc. Feedback on the program has been collected from teachers, students, and program educators and has been incorporated into the 2010-2011 curricula to improve the program. Refer to Appendix E for a list of participating schools in the 2009-2010 and 2010-2011 school years.

#### **8.2.4.4    *Destination Conservation***

The Pacific Resource Conservation Society's Destination Conservation ("DC") program is a three-year K-12 school program involving students, teachers, and school facilities management staff. The main purpose of the program is to educate schools on ways to reduce the consumption of energy and water and the creation of waste, and motivate schools to participate in energy conservation projects. The Companies' support of a multi-year school program provides stability in planning for teachers and students, allowing them to build upon previous lessons and projects. Feedback has been collected on the program from teachers, students, and program educators and has been incorporated into the 2010-2011 curricula to improve the program. Refer to Appendix E for a list of participating schools in the 2009-2010 and 2010-2011 school years.

### **8.2.5    SUMMARY OF 2010 CEO INITIATIVES**

The CEO initiatives follow many of the same program principles that were put forth in the EEC application. These initiatives are designed to be accessible to all customers, uniformly across FEI and FEVI territories, and are multi-year programs to ensure effective implementation and stability in the marketplace. The objective of CEO initiatives is to support the development of a culture of conservation within British Columbia.

All of the initiatives described throughout this section are continuing into 2011, and are vital in promoting and educating the public on energy conservation behaviours and keeping the Companies' conservation message "top of mind" among customers. The result will be fostering a culture of conservation, which will benefit communities, increase participation in EEC incentive programs, and ultimately support shared goals of the Companies and province.

### **8.3 2011 CEO Programs and Initiatives**

All of the initiatives described in the previous section are continuing into 2011 in the proposed budget shown in Table 8-6, as they have proven to be vital in promoting and educating the public on energy conservation behaviours and in fostering a culture of conservation.

**Table 8-6: Summary of CEO 2011 Proposed Budget**

	Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
CEO Portfolio Administration	\$100	\$38	\$138	N/A	N/A	N/A	N/A	N/A
Residential and General Public Education and Outreach	\$1,500	\$275	\$1,775	N/A	N/A	N/A	N/A	N/A
Commercial Customers Education and Outreach	\$700	\$200	\$900	N/A	N/A	N/A	N/A	N/A
Conservation for Affordable Housing Education and Outreach	\$200	\$55	\$255	N/A	N/A	N/A	N/A	N/A
School Outreach	\$390	\$80	\$470	N/A	N/A	N/A	N/A	N/A
Total	\$2,890	\$648	\$3,538	N/A	N/A	N/A	N/A	N/A

However, as the CEO program area is still developing, there are several new projects to develop and launch among the different customer groups. This section describes the new, or expanded, opportunities in 2011 such as ethnic outreach, community outreach expansion, home efficiency measures partnerships, Pacific National Exhibition prize home showcase, construction and real estate industry education, education seminars for small businesses, conservation for affordable housing outreach, and post secondary programs.

#### **8.3.1 RESIDENTIAL AND GENERAL PUBLIC EDUCATION**

##### **8.3.1.1 Long Term and Event Tracking Research Studies**

As indicated in Section 8.2.1, the various EEC initiatives have the potential to raise the Companies' level of customer satisfaction by meeting customers' expectations of keeping energy costs within their budget. In 2011, the CEO program area is developing two research studies for long term tracking and event tracking. The purpose of the Long Term Tracking Study is to track awareness levels for EEC messaging and programs over time among the general public and ethnic audiences, as well as to measure message retention and determine which campaigns/initiatives are most effective at reaching broad audiences. The study will also provide recommendations on opportunities to increase awareness of EEC initiatives. The purpose of the Event Tracking Study is to determine the success of the overall approach (event attendance and/or sports team partnerships along with an online contest) for raising awareness

about energy conservation. This study will help the CEO program area ensure effective event and sponsorship selection, as well as indicate how the Companies can increase participation, awareness, and conservation while building positive brand recognition when developing future programs and initiatives. The studies will begin in Q2 2011.

#### **8.3.1.2 Ethnic Outreach**

British Columbia is a culturally diverse province, and a successful EEC portfolio will be aware of the unique needs of ethnic groups. The ethnic marketing and communications outreach campaign that began development in 2010 will grow further in 2011. To ensure conservation education is accessible to all customers, the Companies will create print and online materials for ethnic markets and develop partnerships with third party service providers for distribution and promotional channels. New Canadians – primarily coming from China (23 percent), India, the Philippines and South Korea<sup>40</sup> – are a main source of population growth and housing demand in British Columbia. Within six months of arrival, 17 percent of new immigrants in the Metro Vancouver region are homeowners, while more than half are homeowners after four years. Statistics show that 17 percent of British Columbians do not speak English in their homes as a primary language and approximately 27 percent have knowledge of a mother tongue other than English<sup>41</sup>. Thus, it is important to communicate conservation information that is relevant and easily understood by these ethnic audiences.

#### **8.3.1.3 Community Outreach Expansion**

As described in Section 8.2.1.4, most community events are free to the public and are a cost effective method for the Companies to reach out to a large number of customers. In 2011, the goal for the Outreach Team is to increase the number of events attended in the service territories of FEI and FEVI and expand the geographic scope of events attended beyond the Lower Mainland.

#### **8.3.1.4 Home Efficiency Measures Partnerships**

As discussed in Section 3 Residential Energy Efficiency Programs, the CPR has identified some efficient, low-cost fixtures that homeowners can easily take advantage of in order to achieve energy savings. One of the 2011 goals for the CEO program area is to identify outreach opportunities for delivering a program to residential and multifamily customers that allows them to learn about and take advantage of these energy savings measures. There may be the potential to leverage opportunities for program dissemination through property management associations and students in secondary and post secondary schools, and partnerships with municipalities (i.e. the District of Saanich pilot program) and big box retailers (i.e. the Sears audit program).

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<sup>40</sup> <http://www.cmhc-schl.gc.ca/odpub/pdf/65319.pdf?fr=1296674608594>

<sup>41</sup> <http://www.bcstats.gov.bc.ca/data/cen06/facts/cff0604.pdf>



#### 8.3.1.4.1 District of Saanich Low Flow Water and Weatherization Pilot Program

This program is an opportunity to partner with the District of Saanich and the Capital Regional District in delivering a low flow water and weatherization pilot program for residential customers that are hooked up to natural gas. The goal of this program is to pilot direct installations of low flow showerheads, kitchen faucet aerators, and bathroom faucet aerators in partnership with a municipality and/or the regional district to promote both hot and municipal water savings and energy savings. If successful, the program will be extended to other municipalities. City Green is the service provider and will be administering, marketing, and delivering the program to the residents of Saanich, as well as reporting on the resulting energy savings. City Green will also be liaising with other municipalities to gauge interest in the program and has already been in discussions with Abbotsford, Qualicum Beach, Chilliwack, and Coquitlam.

#### 8.3.1.4.2 Sears Home Energy Tune-up Pilot Program

An opportunity exists with Sears Canada and BC Hydro to pilot a program on a modified home energy audit, product change-out, and consumer education for approximately 500 homes in the Lower Mainland. The goal of this program will be to determine if a simplified home energy evaluation can be used as an effective starting point to encourage the adoption of further and more advanced energy efficiency upgrades and participation in other energy efficiency programs. Partnering with a province-wide big box retailer is also a great opportunity to utilize their communication and distribution channels to reach out to the Companies' customers. Sears will be the service provider for signing up customers, administering, delivering, and reporting on the program. The in-home tune-up will document the statistics of the home, including the approximate efficiency of the appliances, and will include the installation of basic energy saving products such as: low flow faucet aerators, low flow showerheads, pipe insulation, compact fluorescent light bulbs, and electrical power bars. If this program is successful, it can be delivered to other communities within the Companies' service territories.

#### **8.3.1.5 Pacific National Exhibition Prize Home Showcase**

An opportunity exists with the Pacific National Exhibition Prize Home at the 17 day summer fair in Vancouver to showcase and provide education regarding high efficient equipment and conservation to the 100,000+ attendees from the Lower Mainland that walk through the prize home annually. The opportunity includes on and off-site presence such as; website promotion, print advertising in newspapers and show guides, signage with efficiency ratings within the prize home, and an onsite presence with the Outreach Team interacting with the attendees.

#### **8.3.1.6 New Construction and Real Estate Industry**

As discussed in Section 3 Residential Energy Efficiency Programs, the residential new construction industry is a key influencer group to educate on EEC messages since the installation and end-use of efficient technologies go hand-in-hand. This includes education and training sessions for not only new development showroom staff and salespeople, but also the



real estate and home appraisal industries on appliance efficiency ratings, the benefits of efficient natural gas appliances, and other home conservation measures such as low flow showerheads. Marketing materials such as appliance stickers with efficiency ratings, sticker reminders and homeowner packages will also be developed to educate the end user.

The Companies will also continue to support the regional CHBA branches. In 2011, the Companies entered into an agreement with CHBA BC to fund the BC Housing Affordability Symposium as a keynote presentation partner and the Second Annual Built Green™ BC Awards as co-presenter. The main goals of supporting these events are to enhance the Companies' profile in the residential construction industry and increase knowledge of the energy efficiency and conservation rebates and programs available to builders/developers and homeowners.

### **8.3.2 COMMERCIAL**

#### **8.3.2.1 *Small Commercial Businesses Education Sessions***

Small business customers represent approximately 80,000 customers in the Companies' service territories. As small businesses, they generally have limited financial resources to invest in efficient technologies; however, they are still keen on implementing energy saving measures and behaviours in their businesses. A program is in development to hold education sessions with small businesses that is expected to launch in Q3 and Q4 2011.

### **8.3.3 CONSERVATION FOR AFFORDABLE HOUSING**

#### **8.3.3.1 *BC Housing Tenant Engagement Pilot Program***

This BC Housing Tenant Engagement pilot program provides the Companies with an education and outreach opportunity to engage with BC Housing tenants in two sites in the Metro Vancouver region. The pilot program design is based on the recognition that significant energy savings can be realised through behaviour-based energy education programs aimed at reducing heat and hot water usage. BC Healthy Communities will be preparing the educational material and implementing the pilot with four main objectives: savings (energy, money, and GHG emissions), community economic development, tenant satisfaction improvement, and development of best practices.

### **8.3.4 SCHOOL OUTREACH**

#### **8.3.4.1 *BC Sustainable Energy Association Climate Change Showdown***

For the 2010-2011 school year, the Companies' entered into an agreement to support the BC Sustainable Energy Association's ("BCSEA") Climate Change Showdown program with funding. The goal of the program is to educate elementary school students and their parents about how

to reducing CO<sub>2</sub> emissions and save energy in the home and at school. These free workshops will be offered to 29 schools across British Columbia starting in spring 2011. The workshops are interactive and include videos, board games, contests, and group discussions. The Companies are co-funding this program along with a number of partners including FortisBC Inc., LiveSmart BC, and BC Hydro.

#### **8.3.4.2     *Environmental Mind Grind Challenge***

For the 2010-2011 school year, the Companies are supporting two Environmental Mind Grind Challenges taking place in four communities in BC, including: Kelowna (in partnership with FortisBC Inc. and the City of Kelowna), Kamloops, Penticton, and Nanaimo. The Environmental Mind Grind Challenge is a student trivia competition on energy and environmental conservation. The goal of supporting this initiative is to encourage conservation education through a fun and competitive game that allows students to interact with their peers from neighbouring schools. The Companies have supported this initiative previously and found it to be a valuable event for the students and communities involved. The competition will take place in spring 2011.

#### **8.3.4.3     *Post Secondary Program***

The Companies are currently evaluating how we will move forward and expand our education and outreach activities to include greater involvement in post secondary institutions. We are in the process of reviewing proposals from vendors such as GoBeyond and looking into the possibility of hiring an external consultant to develop and implement a program on our behalf.

### **8.3.5     SUMMARY OF 2011 CEO INITIATIVES**

Several of the CEO initiatives from 2010 will continue into 2011 because multi-year programs ensure effective implementation and stability in the marketplace. In addition, many of the programs and pilots will expand. Continuing conservation education is key to keeping the Companies' conservation message "top of mind" among customers. The result will be fostering a culture of conservation, which will benefit communities, increase participation in EEC incentive programs, and ultimately support shared goals of the Companies and the province.

## 9 INDUSTRIAL SECTOR PROGRAMS

### 9.1 Overview

Starting in late 2007 and continuing throughout 2009, BC's economy was impacted by the global financial crisis. "British Columbia's economy shrank by 2.3 percent in 2009, as the province, together with most other regions of Canada and around the world, felt the effects of the global recession"<sup>42</sup>. The economic recession had a negative effect on most industries, including the construction, forestry, manufacturing, pulp and paper, oil and gas, and mining sectors, resulting in an overall reduction in natural gas load from the Companies' industrial natural gas customers.

The province's large manufacturing sector includes a significant number of very large energy-intensive industrial operations such as mines, refineries, smelters, oil and gas operations, and pulp and paper mills. The industrial sector in BC is a large consumer of energy and accounts for approximately 35 to 40 percent of the total energy used in the province and roughly 38 percent of the GHG emissions generated<sup>43</sup>. As well, emissions reported under the industrial process category increased by 2.8 percent between 2007 and 2008<sup>44</sup>, thus offering significant opportunities for continuous improvement to reduce and eliminate waste of all forms and especially for energy savings and GHG emissions reductions through improved energy efficiency.

#### 9.1.1 INDUSTRIAL CUSTOMERS DEFINITION

The Companies' industrial natural gas customers have delivery service contracts with FEI that are interruptible, interruptible/firm, or firm. In a broad sense, the interruptible and interruptible/firm industrial sector are typically the largest natural gas users by volume due to large process heat applications in their facilities. These customers, which have an interruptible component to their delivery contract with FEI, have the flexibility to switch to an alternative fuel for short durations to free up pipeline capacity for firm gas customers as conditions approach design day conditions. The interruptible industry customers are offered lower delivery rates in comparison to non-interruptible, or what has been referred to as "firm" industry customers. The firm (non-interruptible) customers pay slightly higher fees for their delivery rates and the Companies do not have the flexibility to switch off their gas during peak times. In addition, some customers fall under both rate schedules. For example, some customers may prefer to be under the interruptible contract only for a certain portion of their gas consumption. Usually, they are

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<sup>42</sup> BC Ministry of Finance. "2010 British Columbia Financial and Economic Review 70<sup>th</sup> Edition". July 2010. Retrieved from <http://www.fin.gov.bc.ca/tbs/F&Ereview10.pdf>.

<sup>43</sup> BC Ministry of Environment. "British Columbia Greenhouse Gas Inventory Report, 2008". September 2010. Retrieved from [http://www.env.gov.bc.ca/cas/mitigation/ghg\\_inventory/pdf/pir-2008-full-report.pdf](http://www.env.gov.bc.ca/cas/mitigation/ghg_inventory/pdf/pir-2008-full-report.pdf) and <http://www.livesmartbc.ca/learn/emissions.html#Sector> (emissions include oil & gas, pulp & paper and chemical manufacturing industries).

<sup>44</sup> BC Ministry of Environment. "British Columbia Greenhouse Gas Inventory Report 2008". September 2010. Retrieved from [http://www.env.gov.bc.ca/cas/mitigation/ghg\\_inventory/pdf/pir-2008-full-report.pdf](http://www.env.gov.bc.ca/cas/mitigation/ghg_inventory/pdf/pir-2008-full-report.pdf).

under firm contracts and treated as firm customers until their consumption amount goes beyond the limits provided to them. In the event these customers exceed their limits they are then considered as interruptible customers and are treated accordingly.

FEI's interruptible industry customers are usually categorized in groups of different rate schedules such as Rate Schedules 7, 22, and 27, whereas firm or non-interruptible customers are under Rate Schedules 2, 3, 5, 23, and 25. As discussed in the 2009 EEC Annual Report, FEI sought funding approval for EEC programs for interruptible industrial customers in the 2010-2011 RRA and it was approved as per Order No. G-141-09. With respect to the development of EEC programs for the manufacturing sector, the Companies had already received approval through BCUC Order No. G-36-09 for the firm industrial customers. Thus, this section of the Report will discuss both firm and interruptible industrial customers.

### **9.1.2 INDUSTRIAL SECTOR END USES**

The major end use technologies in this sector are for steam/hot water generation for process use and direct fired drying processes. For instance, the largest energy consumption for the softwood lumber industry would result from the wood drying process in our customers' kilns. The drying kiln dries the cut lumber to selected moisture content (eight -18 percent dependent on the product and service conditions) before it is shipped offsite and sold to customers. The process is quite slow, requiring over 28 to 40 hours for spruce/pine/fir commodity products and weeks for thick and high value coastal products. Coastal products describe wood products manufactured in the coastal region of British Columbia. Areas of activity would include production of a wide range of solid wood products including high quality appearance/decorative products, structural lumber for housing and general construction, special sizes and grades for remanufacturing, as well as utility and lower grade products suitable for pallets, packaging, and other industrial uses. These products are produced in the five softwood species that grow in the coastal region: Western hemlock - Western red cedar, Yellow cedar, and Sitka spruce. The drying schedule employs temperatures in the range of 80 -105° C. Other high energy use systems for the industrial sector would include hot water and steam boilers, ovens, lime and ceramic kilns, direct fired material heaters, veneer dryers, and dryers of other products such as minerals, pulp, and paper.

### **9.1.3 BACKGROUND**

The 2009 EEC Annual Report stated that there were three additional program areas to be introduced to market in 2010, one of these being the Interruptible Industrial program area. The intention behind interruptible industrial sector programs was to engage FEI with its interruptible industrial customers, as well as firm customers operating in British Columbia, to create energy efficiency programs, integrate energy efficiency into their ongoing business practices, and instill a conservation ethic. FEI believes there is significant potential for a reduction in industrial consumption including both firm and interruptible customers. For example, in the 2006 Conservation Potential Review, filed as Appendix 1 of the Companies' Energy Efficiency and Conservation Programs Application in 2008, it was stated that the majority of lumber dry kilns in

BC use natural gas and there are a number of upgrades possible to convert an average kiln into an energy efficient kiln. These upgrades include automatic venting, improved insulation, and heat recovery. Opportunities for improvement also exist in the chemicals, non-metallic minerals, paper, and other manufacturing sectors where boilers are used. Energy efficiency opportunities for boilers include near condensing and condensing boilers, boiler economizers, boiler combustion air-preheating, boiler condensation heat recovery, and advance boiler controls such as boiler reset controls. Thus, the Companies' Industrial Sector program area offers opportunities for energy efficiency and conservation activities for these customers, while at the same time managing the risk associated with large financial investments in energy efficiency for industrial customers and the resulting magnitude of the anticipated energy savings.

#### **9.1.4 PROGRAM OBJECTIVES**

The Companies' approved budget for 2010 and 2011 is only for FEI customers. Thus, discussion is limited to FEI. FEI's EEC programs in the industrial area are intended to provide financial incentives and tools to qualified projects to: (a) create energy-efficient plant(s) by utilizing energy efficient machinery and equipment, and (b) if the energy saving measures in the customers' new plant (facility) design involves added costs, use financial incentives to help qualified projects implement these upgrades. The industrial portfolio will help large customers to reduce their gas load and become more efficient, productive, and competitive, while also managing the risk to the Companies and ratepayers associated with large financial investments on infrastructure. In general, the EEC Industrial Sector program area is aiming to introduce initiatives and programs that seek to engage industrial customers to become more efficient in their process heating applications. Section 9.1.5 details FEI's strategy for the industrial sector.

#### **9.1.5 INDUSTRIAL SECTOR PROGRAM AREA STRATEGY**

The first step in developing the program framework for industrial programs was to create a specific strategy for the Company's firm and interruptible industrial customers. The following are determined to be the goals of the strategy:

- Identify energy management measures and develop an action plan in order to implement these measures specific to each customer. It has been observed that due to the diversity of the industrial sector in BC, no single program will meet the total needs of industry;
- Identify potential program partners (i.e. BC Hydro, Pacific Carbon Trust, Ministry of Energy and Mines and Natural Resources Canada);
- Reduce energy consumption in terms of GJs;
- Reduce environmental impacts, including GHG emissions reduction;
- Improve operational optimization and financial performance; and
- Create reliability and reduce maintenance.

After conducting research based upon other utilities' accomplishments in energy savings and GHG emissions reduction initiatives to date, as well as the use of articles published by organizations such as Natural Resources Canada ("NR Can"), Canadian Industry Program for Energy Conservation ("CIPEC"), e-Source, International Energy Agency ("IEA"), U.S. Department of Energy, internet and media news, webinars and conferences, and through meetings with counterparts from the provincial government and other utilities, significant input was garnered on the creation and development of the strategy.

As noted above, the primary objective of the Companies' industrial strategy is to identify energy management measures and to develop energy efficiency programs to optimize energy use and reduce consumption. The implementation of the strategy would include the following steps:

- Identify eligible projects through customers, engineering consultants, equipment vendor references, or through the Conservation Potential Review;
- Customer submits feasibility study, if available, or conducts an initial assessment;
- If historical natural gas consumption data is not available, the facility's manager will perform a historical analysis to determine natural gas usage patterns and performance of major natural gas equipment. In case of a situation where the customer is unable to provide data for the facility's natural gas consumption, FEI will provide this data;
- A site walk-through with the facility's energy coordinator along with FEI's industrial program manager will be completed in order to discuss natural gas savings opportunities at the site;
- If the customer does not already have one, a detailed study will be completed by an independent third party engineering firm selected/provided by the customer to determine possible opportunities for natural gas savings at the site (i.e. 'pinch technology studies' for refineries or large pulp and paper mills). The cost of the study may be partly/wholly subsidized by FEI. The basic process for obtaining the study would be as follows:
  - Applicant hires qualified engineering consultant to complete the study;
  - Engineering consultant completes the study within a reasonable time frame (i.e. 45 - 60 days);
  - The study will reflect the findings and verify their impact (i.e. verification of operational optimization such as reduced maintenance and cost/benefit analysis);
  - Applicant pays engineering consultant and obtains proof of payment;
  - Applicant submits the study and proof of payment to FEI;
  - FEI reviews and makes a decision either to approve or reject the study. In case the study is rejected, FEI will provide the reasons and at this point it is entirely up to the customer to have the study re-done if they wish to proceed; and
  - Upon approval, FEI will reimburse a certain portion of the cost of the study if:



- The project is agreed to be implemented by the customer as a whole (i.e. partially completed projects are not eligible for any incentives); and
  - The study must promise long term savings. The amount of savings that will be revealed by the study should be greater than what is required to cover the incremental cost.
- A business case analysis for the project will be created by the Companies. The main business items that will be covered in the business case are as follows: objective and description of the project including benefits of doing the project, project outline, cost/benefit analysis, project risks, and risk mitigation strategies, along with a project budget;
  - Potential program partners may be identified (i.e. BC Hydro, FortisBC Inc. Ministry of Energy and Mines and NR Can). If there is any existing potential partner, an incentive based on a cost sharing program or solution will be developed with the potential program partner;
  - Senior FEI management signs off on the FEI business case;
  - A preliminary legal agreement will be developed to cover off business items between the customer and FEI;
  - Project roll out; and
  - Ongoing project tracking and evaluation.

## **9.2 2010 Industrial Program Area Results**

2010 was spent developing the industrial program area strategy described in Section 9.1.5 above and with site visits to customers' facilities. No industrial programs were launched in 2010; therefore, no results are presented here.

## **9.3 2011 Industrial Program Area Outlook**

In 2011, the Companies intend to initiate a pilot program called the Pulp and Paper Industry Heat Exchanger program, as well as broaden their commitment to the energy audit funding program. Table 9-1 represents FEI's initial, high level estimate of the expenditures that will be required to support these activities for the industrial sector. It includes funding for:

- Heat exchanger pilot program and forecasted funding for other pulp mills;
- Burner management control;
- Stakeholder activity related to workshops and customer meetings; and
- A series of in-depth energy savings potential studies, or mini-CPRs, with individual customers in the food processing, manufacturing, and forest products sectors.



FEI expects the learning from programs in 2010 and 2011 will help form the basis for expanded programs in 2012 and beyond.

**Table 9-1: 2011 Industrial Program Area Outlook**

Program	Incentives & Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
Energy Audit Funding Program	\$200	N/A	\$200	N/A	N/A	N/A	N/A	N/A
Heat Exchanger - Pilot*	\$550	N/A	\$550	483,130	N/A	483,130	2.4	N/A
Heat Exchanger Pulp and Paper Mills*	\$1,000	N/A	\$1,000	TBD	N/A	TBD	TBD	N/A
Burner Management Control*	\$13	N/A	\$13	6,902	N/A	6,902	4.0	N/A
<i>Non-Program Specific Expenditures</i>	\$3	N/A	\$3	TBD	N/A	TBD	TBD	N/A
<b>Total</b>	<b>\$1,766</b>	<b>N/A</b>	<b>\$1,766</b>	<b>490,032</b>	<b>N/A</b>	<b>490,032</b>	<b>N/A</b>	<b>N/A</b>

\* Note: Preliminary TRC calculation. Measure life and alternative energy impact have not been verified.

## 9.4 Industrial Program Details

### 9.4.1 ACTIVE PROGRAMS

#### 9.4.1.1 Energy Audit Funding Agreement

##### 9.4.1.1.1 Program Overview

Energy Audit Funding Agreement	
<b>Market</b>	Retrofit
<b>Audience</b>	Industrial customers
<b>Duration</b>	Undefined
<b>Incentive</b>	Up to \$20,000 per audit  The program will fund up to 50% of the cost of the audits for eligible customers up to a maximum of \$20,000
<b>Partner</b>	None
Overview	
<b>Description</b>	The purpose of this program is to determine if there are any opportunities in customers' industrial manufacturing processes that could help reduce the amount of natural gas used at their facilities, as well as to look for opportunities for customer projects to be pilot projects for each industrial sector. The Companies' financial support will help customers hire an engineering firm/contractor to conduct an energy efficiency audit at their facilities/plants, which will investigate specific natural gas savings opportunities. Audits will include an inventory of the equipment and related infrastructure including steam distribution networks. The current operating efficiencies, and the age and condition of the equipment will be determined. Energy audits will also include drawings, process diagrams, current energy use, and operating and

	<p>maintenance costs, and will make recommendations on possible efficiency upgrades and/or technology replacements with a deep focus on natural gas savings opportunities. They will also contain incremental costs for implementation of the natural gas savings measures. The reports will clearly indicate the net savings amounts in terms of gigajoules per each measure identified in the audits.</p> <p>Should the energy saving measures uncovered in the audits involve additional costs, the eventual intention is for the Companies to provide additional financial incentives to help qualified projects implement these upgrades. Although the incentive amount is still under development, it will heavily link to the amount of savings and will vary on each project. The greater the amount of savings, the greater the incentives will be.</p> <p>The Companies believe the industrial energy audit funding program will deliver value by encouraging industrial customers to implement the measures that will be disclosed as a result of these audits. There has been strong customer interest in our industrial program energy audits that are used to determine the potential energy savings opportunities in the industrial sector.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Support customers with financial incentives to hire an engineering firm/contractor to conduct an energy efficiency audit at their facilities/plants.</li> <li>• Uncover any existing natural gas savings opportunities within these facilities.</li> <li>• Identify energy efficiency pilot project opportunities for further advancement that may be applicable to BC's industrial sector as a whole. Determine the current operating efficiencies, age, and condition of the equipment/machinery at different facilities in terms of energy efficiency and upgrade this machinery.</li> </ul>
<b>Status</b>	Active
<b>Implementation</b>	
<b>Administration</b>	The Companies' EEC industrial programs staff
<b>Communications</b>	One-on-one by the EEC industrial program manager and the Companies' industrial account management staff
<b>Evaluation Strategy</b>	The evaluation of the program will be based on the customers' implementation of the savings measures uncovered through the audits, and the amount of energy savings that result from the implementation of those measures.

#### **9.4.1.1.2     2011 Program Performance Forecast**

In 2011, the industrial program area has committed to providing incentives for an energy audit funding program. As discussed above in the strategy section, a detailed study will be completed by an independent third party engineering firm/contractor selected/provided by the customer to determine possible opportunities for natural gas savings at their site. The key objective for this initiative is to support industrial customers in conducting energy studies. The incentives are geared to uncover energy savings opportunities within industrial processes to reduce natural gas usage and lower GHG emissions. The Companies believe the industrial energy audit

funding program will deliver value by encouraging industrial customers to implement the measures that will be transparent as a result of these audits.

**Table 9-2: 2011 Energy Audit Funding Performance Forecast**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	10	\$200	\$3	N/A	N/A	N/A	N/A
FEVI	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	10	\$200	\$3	N/A	N/A	N/A	N/A

## 9.4.2 PROGRAMS IN DEVELOPMENT

### 9.4.2.1 Heat Exchanger Program - PILOT

The Industrial Sector program area is currently working on potential funding opportunities for a pilot referred to as the Pulp and Paper Industry Heat Exchanger (“HEX”) pilot program. The key objective for this pilot is to replace pulp and paper industry customers’ outdated heat exchangers with new energy efficient ones. In the pulp and paper industry, natural gas is extensively used for pulp drying and there are about 32 pulp and paper mills in BC. Gas savings will come from the heat exchanger process running hotter water, which means the final pulp stock in a liquid form will enter the mechanical dewatering process at a higher temperature. This makes the presses perform better so the pulp will contain less water when it enters the flash drying stage after the dewatering presses. Initial estimates of natural gas savings for this specific upgrade are estimated to be around 70,000 GJ/yr. If the pilot is successful, one of the other key objectives for this program will be to support the pulp and paper industry with new efficient heat exchangers. The potential uptake for all the pulp mills in BC, just for the heat exchangers, could yield savings of 1,500,000 GJ/yr. The scope and measurement and evaluation strategy for this pilot are currently being established. The following table provides the performance forecast for this pilot.

**Table 9-3: HEX Program (Pilot) Performance Forecast**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI*	1	\$500	\$50	70,000	483,130	N/A	2.4
FEVI	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	1	\$500	\$50	N/A	N/A	N/A	2.4

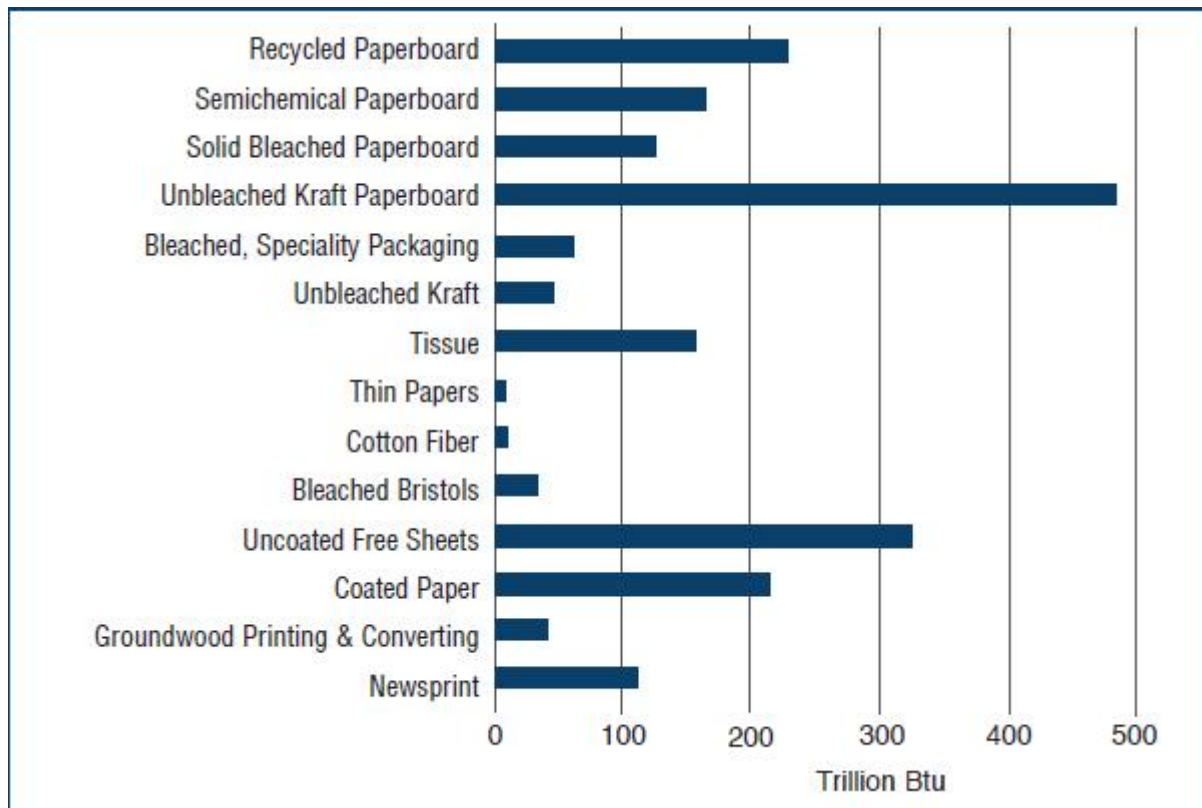
\* Note: Preliminary TRC calculation. Measure life and alternative energy impact have not been verified.

### **9.4.3 FUTURE INDUSTRIAL PROGRAM OPPORTUNITIES**

It should be noted that key industrial EEC opportunities exist in the area of waste heat. Waste heat, in the form of hot gases or fluids, is the primary source of losses from fluid heating and boiling. Fluid heating and boiling is a critical component of many of the most energy intensive processes used in the manufacture of chemicals, refined petroleum products, food and beverage, and mining and forest products including the pulp and paper industry. The energy systems utilized for fluid heating and boiling include fired systems such as furnaces, evaporators, dryers, condensers, and other direct-fuelled systems and steam generators, mostly boilers. The auxiliary equipment used to transfer and deliver steam and heat, such as heat exchangers and steam injectors, is also an integral component of industrial energy systems; therefore, the projected industry energy efficiency programs will focus both on these energy systems and on the auxiliary equipment utilized in the industry. The intelligence acquired from the pilot heat exchanger program described in Section 9.4.2.1 above would apply to other sectors where fluid heating and boiling is crucial in the customers' process.

In pulp and paper manufacturing, waste steam, hot water, and evaporation of spent liquors are the primary source of energy loss from fluid heating and drying. The two most energy intensive processes are paper drying and black liquor concentration (both being evaporation processes). The processes contributing the most energy loss are paper drying, evaporation, pulping, chemical recovery, and bleaching. These processes are heavily dependent upon steam as an energy source. For example, the Table 9-4 below shows the amount of steam energy used at different stages for a pulp and paper industry when producing different products.

**Table 9-4: Estimated Steam Energy Use for Major Pulp and Paper Products<sup>45</sup>**



In the food processing industry, significant energy is lost from fluid heating and boiling. Most of the waste energy is in the form of waste steam, exhaust gases, and radiative heat losses from evaporators, dryers, and other key processes.

In metal melting and heating, the primary sources of energy loss in fired systems are hot gases (both contaminated and clean), warm water, and hot products that must be cooled or quenched. In iron and steel making, for example, energy is lost when hot products such as coke, molten iron, hot slabs, and process gases are cooled. Smelting, which produces molten metal, generates energy losses in the form of furnace exit gases. Major sources of energy loss from calcining processes are exhaust gases such as evaporated water, combustion gases, and carbon dioxide from calcinations.

During process heating, the energy is mainly lost as waste gases from boilers and due to fouling that impedes heat transfer. The energy lost due to these inefficiencies must be supplied by burning additional natural gas or other types of fuels. Opportunities for improvement exist in the chemicals, non-metallic minerals, paper, and other manufacturing sectors where boilers are

<sup>45</sup> A Report prepared by Resource Dynamic Corporation for the U.S. Department of Energy. "Steam System Opportunity Assessment for the Pulp and Paper, Chemical Manufacturing, and Petroleum Refining Industries". October 2009. Retrieved from [http://www1.eere.energy.gov/industry/bestpractices/pdfs/steam\\_assess\\_mainreport.pdf](http://www1.eere.energy.gov/industry/bestpractices/pdfs/steam_assess_mainreport.pdf).

used. Energy efficiency opportunities for boilers include near condensing and condensing boilers, boiler economizers (with condensing economizers, the overall boiler efficiencies can exceed 90 percent), boiler combustion air-preheating, boiler condensation heat recovery, and advance boiler controls such as boiler reset controls. For example, the automatic control of excess air (oxygen trim) increases the boiler efficiency by one to two percent. A general rule accepted by the industry is that a one percent reduction in excess oxygen will reduce fuel usage by one percent. For very large boilers, efficiency gains of 0.1 percent mean significant annual savings and these controls usually measure carbon monoxide as well. Even with well-adjusted burners providing the minimum flue gas temperatures while achieving complete fuel combustion, there is ample room to recover some of this heat that would otherwise “go up the stack”. Heat exchangers can be used for preheating boiler feed water or combustion air. A 20° C (36° F) reduction in flue gas temperature will improve boiler efficiency by about one percent. The following cross-industry technology matrix provides a summary of savings opportunities vs. for each different industry. Blue shading indicates an opportunity available in that industry. One of the key objectives for the Industrial Sector program area is to focus on these opportunities when developing energy efficiency and conservation programs.

**Table 9-5: Matrix Diagram Showing Savings Opportunities for Each Different Industry<sup>46</sup>**

	Waste heat recovery/ gases and liquids/ chemicals, petroleum, forest products	Combined heat and power	Advanced industrial boilers	Heat recovery from drying	Steam best practices	Pumped system optimization	Energy system integration	Improved process heating/ heat transfer/ chemicals, petroleum	Efficient motors/ rewind practices	Waste heat recovery/ gases/ metals and minerals.	Energy source flexibility	Improved sensors, controls	Improved process heating/ heat transfer/ metals melting, heating	Compressed air optimization	Optimized materials processing	Energy recovery/ by product gas	Energy export and co-location	Waste heat recovery/ calcining	Heat recovery/ metal quenching/ cooling	Advanced process cooling/ refrigeration
Petroleum Refining																				
Chemicals																				
Forest Products																				
Iron and Steel																				
Food and Beverage																				
Cement																				
Heavy machinery																				
Mining																				
Textiles																				
Transportation Equipment																				
Aluminum & Alumina																				
Foundries																				
Plastic and rubbers																				
Glass and Glass products																				
Fabricated Materials																				
Computers, electronics, appliances																				

## 9.5 Summary

The Industrial Sector program area represents a crucial component of the Companies' overall commitment to EEC activities. Since being staffed with a program manager at the end of Q2 2010, the industrial program area has initiated its own strategy and established relationships with key industry stakeholders. An Energy Audit Funding Agreement program has also been initiated in order to provide customers with financial contributions for conducting energy studies intended to uncover energy saving measures customers could implement.

In 2011, the Industrial Sector program area will focus on developing programs for those customers (both firm and interruptible) where fluid heating and boiling is being used as an energy intensive process in the manufacture of pulp and paper products, chemicals, refined petroleum products, food and beverage, and forest products. The Companies believe these customers offer opportunities for energy efficiency and conservation.

<sup>46</sup> Technology Roadmap: "Energy Loss Reduction and Recovery in Industrial Energy Systems". November 2004.



## 10 INNOVATIVE TECHNOLOGIES PROGRAM AREA

The Innovative Technologies Program Area overview is divided into two parts. Part 1 reports on 2010 and 2011 programs within the Innovative Technologies Program Area as a whole, while Part 2 specifically addresses the use of EEC funds for Natural Gas Vehicle (“NGV”) reimbursements.

### 10.1 2010 and 2011 Programs

#### 10.1.1 INTRODUCTION

##### 10.1.1.1 Definition

Innovative technologies are best described as market ready technologies that have little or no market penetration in BC. They can be defined as emerging and/or enabling technologies. Some of these technologies include, but are not limited to, solar thermal domestic hot water systems, solar air systems, ground source heat pumps (“GSHPs”), hydronic systems, sterling engines, micro co-generation, NGVs, and fuel cells. Hydronic systems can be classified as enabling technologies as they have the flexibility and potential to receive future energy from District Energy Systems (“DES”). Innovative technologies are solutions the Companies can support through programs delivering energy reductions and savings to their customers for now and into the future. All programs within this program area are to “foster and further the deployment of forward-looking low carbon technologies.”<sup>47</sup> The non-NGV programs within the Innovative Technologies Program Area attempt to achieve this objective by encouraging residential, commercial, and industrial customers to reduce their overall consumption of natural gas, while the NGV programs within the Innovative Technologies Program Area encourage the adoption of NGVs. The use of NGV engines, which run on liquefied natural gas (“LNG”) or compressed natural gas (“CNG”) as a heavy duty vehicle fuel are considered part of the Innovative Technologies Program Area for two reasons. First, technologies used in NGV applications can be classified as emerging technologies in the BC context as they have minimal market penetration in BC. Second, the Commercial NGV Demonstration program (described as “NGV for Commercial Vehicles” in the 2009 EEC Annual Report) achieves GHG emissions reductions by displacing high-carbon diesel fuel.

The Companies’ target market for CNG includes operators of commercial, return-to-base heavy duty fleet vehicles such as garbage trucks, waste haulers, and buses, while the LNG focus is on long-haul, return-to-base fleet vehicles such as Class 8 tractors. In both cases, the alternative fuel source is diesel, which is a higher carbon fuel.

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<sup>47</sup> EEC Application, at page 69.

Innovative technologies programs, including the Commercial NGV Demonstration program, are to be run as pilots and/or demonstration projects that would subsequently provide data to enable the Companies to establish the appropriate timelines, key milestones, and completion dates for full-scale program activity in the innovative technologies area.

#### **10.1.1.2 Background**

On April 16, 2009, the Commission issued the EEC Decision approving funding for FEI and FEVI for 2009 and 2010 programs. While the Companies did not receive approval for expenditures for the Innovative Technologies Program Area as part of that application, the Commission directed the Companies to bring forward projects for consideration as they became more fully developed.<sup>48</sup>

FEI and FEVI submitted their respective applications for 2010 – 2011 Revenue Requirements and Delivery Rates on June 15, 2009 and June 29, 2009, respectively, which proposed innovative technologies programs and expenditures in order to meet the Commission's directives in Order No. G-36-09. On November 26, 2009, the Commission issued Order No. G-141-09, approving the Negotiated Settlement Agreement ("NSA") for FEI. This EEC budget that was approved as part of that NSA included the requested FEI innovative technologies program budget of \$2.334 million in 2010 and \$4.669 million for 2011, for a total budget of \$7.003 million.<sup>49</sup> FEVI's NSA, which was also approved, included an EEC envelope that encompassed the requested \$478,000 in 2010 and \$956,000 for 2011, for a total FEVI budget of \$1.435 million.<sup>50</sup>

As part of their respective NSAs, the parties explicitly agreed that the Innovative Technologies Program Area will be managed by FEI and FEVI as a separate segment of the overall EEC portfolio and have a weighted total resource cost ("TRC") of 1.0 or more. FEI's NSA provided as follows in this regard, with FEVI's NSA being identical but for the name of the company and dollar amounts.

Item 12.1 of the FEI's NSA states:

*"(d) EEC funding for innovative technologies will be \$4.669 million for 2011, which is the amount requested by TGI in the Application."*

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<sup>48</sup> EEC Decision, at page 41.

<sup>49</sup> The FEI NSA provides in section 11(c): "EEC funding for innovative technologies will be \$2.3 million for 2010, which is the amount requested by TGI in the Application," and in section 12.1(d): "EEC funding for innovative technologies will be \$4.669 million for 2011, which is the amount requested by TGI in the Application."

<sup>50</sup> The FEVI NSA provides in section 6(b): "EEC funding for innovative technologies will be \$0.478 million for 2010, which is the amount requested by TGI in the Application," and section 7.1(c): "EEC funding for innovative technologies will be \$0.956 million for 2011, which is the amount requested by TGI in the Application."

*(e) All agreed to EEC expenditures will be considered and evaluated within the existing EEC portfolio, and will be subject to the same financial treatment, as per the Commission's EEC Decision dated April 16, 2009 (Application, page 514, Item 6).*

*However, Innovative Technology programs will be managed by TGI as a separate segment of the overall portfolio to have a weighted average TRC of 1.0 or more. TGI will consult with stakeholders on the practical application of the weighted average TRC through the EEC Advisory Committee.*

*(f) TGI will report to the Commission on industrial interruptible and innovative technology programs as part of TGI's annual report on EEC activities required under the EEC Decision." [Emphasis added.]*

### **10.1.1.3 Innovative Technologies Program Area Incentives**

#### **10.1.1.3.1 Level of Incentives**

It is too soon for the Companies to be able to determine the appropriate level of financial incentives necessary to make innovative technologies in general attractive to customers in the long-term; thus, there is a need to conduct pilot programs and demonstration projects to test the effect differing levels of incentives have on adoption rates, such as the pilot programs currently underway for the solar thermal residential pilot. NGV programs necessitate incentive funding due to the high upfront capital cost of NGVs versus conventional fuelled vehicles. At present, original equipment manufacturer ("OEM") CNG vehicles command a price premium of 20 – 30 percent over their conventionally fueled equivalents. The price premium of LNG vehicles ranges from 50 – 65 percent. In the case of the Commercial NGV Demonstration program, which provides an incentive of up to 100 percent of the incremental capital cost for heavy duty vehicles, there have already been contractual commitments from customers. This demonstrates there is a strong correlation between the level of incentives and adoption for NGVs. The use of EEC Innovative Technologies funding for the Commercial NGV Demonstration program is discussed in Part 2 below. In general, the Companies believe the required level of incentives can be expected to decline as the innovative technologies gain a greater share of the market, but determining exact values and timing is challenging at this time because predicting market share for emerging technologies can be difficult and subjective.

#### **10.1.1.4 Funding Transfers**

As described in Section 2 of the Report, the Companies identify the transfer of funds from one program area to another. The transfer involves funding from the Conventional EEC Program Area to the Innovative Technologies Program Area in the amount of \$3.487 million. In compliance with requirements set forth in Order G-36-09, the transfer amount, the rationale supporting the transfer, and the impact of the transfer are described below.

#### 10.1.1.4.1 Funding Amount

In the 2010-2011 Revenue Requirements Application NSA, FEI received approval for EEC funding of \$2.334 million in 2010 for the Innovative Technologies Program Area. While FEI was under spent in the Conventional EEC Portfolio compared to approved levels, there was more invested in innovative technologies in FEI than was identified in the Revenue Requirements Application. For FEI, actual expenditures in 2010 were approximately \$5.821 million, and approximately \$3.487 million was transferred from the Conventional EEC Program Area to the Innovative Technologies Program Area.

#### 10.1.1.4.2 Rationale

The two rationales that support the reallocating of funding are: (1) reaching a favourable TRC score for the Innovative Technologies Program Area; and (2) obtaining GHG emissions reduction benefits associated with switching the transport industry from higher carbon fuel sources.

### **1. The TRC score for the Innovative Technologies Program Area has met the TRC threshold of 1.0 or greater.**

The Innovative Technologies Program Area has a weighted average TRC score of 1.2. Without the transfer of funds, the programs within the program area would have not been able to reach the participant levels cited in the Report.

The TRC test “is the ratio of discounted total program benefits to discounted total program costs over a specified period of time. A benefit-cost ratio greater than one indicates the program is beneficial, on the basis of the TRC test.”<sup>51</sup> The TRC test does not consider societal benefits - which can be defined as “effects of externalities, such as environmental implications” – such as GHG emissions reductions benefits or positive impacts on delivery rates for existing customers as a result of load building facilitated by the EEC funding. As the Commission stated in the EEC Decision,

*“While recognizing that societal factors have significance, the Commission Panel views many of these factors as being rather subjective and difficult to measure. ...The Commission Panel does consider the TRC test to be appropriate and adequate for the purposes of this Application and accepts it as such.”<sup>52</sup>*

Although GHG emissions reductions are not considered as part of the TRC test, one of the objectives of the Innovative Technologies Program Area is to reduce GHG emissions, making its GHG emissions reductions important in context of the overall evaluation.

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<sup>51</sup> EEC Decision, at page 34.

<sup>52</sup> EEC Decision, at page 33.

## **2. The Innovative Technologies Program Area promotes fuel switching from a higher carbon fuel (diesel) to a lower carbon fuel (natural gas).**

The Companies believe the EEC expenditures in the Commercial NGV Demonstration program, which encourages switching from using diesel trucks to the use of natural gas, conforms to the principle in the EEC Decision that promotes high to lower carbon fuel switching. While non-NGV programs in the Innovative Technologies Program Area reduce GHG emissions by encouraging residential, commercial, and industrial customers to reduce their overall consumption of natural gas, the Commercial NGV Demonstration program reduces GHG emissions by encouraging the adoption of NGVs in place of vehicles that use a higher carbon fuel. The end result is the same – GHG emissions reduction – in both types of programs.

### *10.1.1.4.3 Program Area Impacts*

Each program area is impacted by the funding transfer in the following ways:

#### 1) Conventional EEC Program Area (transferor)

- The funding transfer did not displace or discourage other potential program participants or initiatives, as the Conventional EEC expenditures did not reach the approved funding amounts available.

#### 2) Innovative Technologies Program Area (transferee)

- The funding transfer did not displace or discourage other potential program participants or initiatives but rather supported and developed more innovative technologies program areas. This transfer also created a favourable TRC score of 1.2, which met the defined threshold for the Innovative Technologies Program Area as a whole.
- The Innovative Technologies Program Area provided incentive funding to four large fleet operators (for 82 vehicles in total) under the Commercial NGV Demonstration program. In the absence of a funding transfer, approximately only 32 NGVs would have been incented.

Impacting both program areas and all natural gas customers:

- The Companies' overall EEC portfolio level TRC, which includes both the conventional and innovative technologies program areas, is above the weighted average threshold of 1.0;
- Benefits are created for existing and future natural gas customers from increased natural gas throughput, which produces lower delivery rates, all else being equal,

through the Commercial NGV Demonstration program.<sup>53</sup> While load building benefits are not considered in the TRC test, they represent a positive impact to all natural gas customers; and

- As a result of the Commercial NGV Demonstration program, customers also benefit from estimated GHG emissions reductions of 20 – 30% due to fuel switching from higher-carbon diesel to lower-carbon natural gas. While GHG emissions savings are not considered in the TRC test, they represent a positive impact to all existing and future natural gas customers and the province.

Overall, the Companies believe its funding transfer has addressed the reporting obligations set in the EEC Decision and furthers overall EEC initiatives while benefiting new and existing customers.

#### **10.1.1.5 Innovative Technologies Program Area Goals**

The innovative technology programs pursue a number of objectives in order to support, review, and validate market-ready technologies. More specifically they focus on:

- Supporting local, provincial, and federal governments with climate action goals and policies and regulations focused on market-ready technologies; and
- Evaluating market-ready technologies and conducting pilot studies to validate manufacturer's claims about equipment and system performance and energy efficiency.

In support of the objectives outlined above, the Companies also strive to seek out new market-ready technologies as well as improving the awareness of existing ones. More specifically, their focus is to:

- Establish “proof of concept” projects based on certain methods, ideas, or market-ready technologies to demonstrate energy savings. This data will be used to confirm savings claims and guide the development of future programs;
- Conduct pre-feasibility studies to gauge the energy savings potential for market-ready technologies within the residential, commercial, and industrial sector;
- Initiate market assessments for technologies, methods, or ideas to gauge their conservation potential and market barriers within BC's climate;
- Coordinate measurement solutions with internal departments and/or third party companies to monitor systems performance and prospective energy savings. This data will be used to confirm savings claims and guide the development of future programs;

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<sup>53</sup> The analysis of this benefit, for example, from the Commercial NGV Demonstration program, is discussed in Section 3 of FEI's Application for Approval of CNG and LNG Service submitted to the Commission on December 1, 2010.

- Replace existing low efficiency systems with innovative technologies to capture energy savings associated with reducing the overall consumption of natural gas and reduce GHG emissions and other air contaminants;
- Engage the trades community and manufacturers by supporting new, energy efficient technologies and installation protocols;
- Educate residential, commercial, and industrial customers about the advantages of innovative technologies and provide incentives for their adoption when necessary. The education channel may include demonstration projects as well as partner collaborations; and
- Develop cost effective programs within the Innovative Technologies Program Area to achieve a TRC ratio of greater than 1.0.

Objectives specific to the Commercial NGV Demonstration program focus on:

- Displacing diesel fuel consumption in the heavy duty transportation sector and replacing it with low carbon natural gas; and
- Reducing upfront capital cost barriers of NGVs for heavy duty trucking fleet operators to encourage the use of LNG and CNG as a transportation fuel.

#### **10.1.1.6 Innovative Technologies Program Area Summary Status**

Program descriptions for each of the Companies' Innovative Technologies Program Area offerings follow below. This table provides an overview of the innovative technology incentive programs, indicating which programs were completed in 2010, which programs remain active moving into 2011, and which programs are currently under development.

As can be seen in Table 10-1 below, the strong TRC result for the Commercial NGV demonstration program balances the lower TRC results for some of the other, pilot programs. Lower TRC results can be expected for many of the Innovative Technologies initiatives, reflecting the relatively high incremental cost for these initiatives which in turn is due to the low market penetration of the technologies at which the initiatives are aimed.



**Table 10-1: Summary Status of Innovative Technology Programs**

Program	Utility		Description	TRC	
	FEI	FEVI		FEI	FEVI
Completed Programs					
Solar Water Heating PSECA Program	X	X	Rebate program to encourage the adoption of solar water heating systems in provincial sector buildings to reduce natural gas consumption.	0.2	0.3
Active Programs					
Commercial NGV Demonstration Program	X		Rebate program to encourage the adoption of liquefied natural gas (LNG) and compressed natural gas (CNG) as a heavy duty vehicle fuel and to achieve environmental benefits to displacing diesel fuel.	1.4	N/A
Solar Air Heating PSECA Program	X		Rebate program to encourage the adoption of solar air heating systems in provincial sector buildings to reduce natural gas consumption.	0.4	N/A
SolarBC Schools Incentive Program	X	X	Rebate program to encourage the adoption of solar water heating systems in schools to reduce natural gas consumption and increase awareness.	0.2	0.2
Programs in Development					
Solar Residential Hot Water - PILOT PROGRAM	X		Rebate pilot program to assess the performance and energy savings for solar thermal hot water systems within the City of Vancouver.	0.2	N/A
City of Vancouver MURB - PILOT PROGRAM	X		Rebate pilot program to assess the viability of solar DHW, ventilation controls, and piping insulation for MURBs.	In Development	

### 10.1.2 2010 INNOVATIVE TECHNOLOGIES PROGRAM AREA RESULTS

As described in the 2009 EEC Annual Report, the Innovative Technologies Program Area includes funding categories for Solar Thermal Hot Water, NGV for Commercial Vehicles, Hydronic and Combination Space Heating Systems, Residential Ground Source Heat Pump (“GSHP”) Systems, and Commercial and Industrial GSHP Systems.

The following table shows the program results from the innovative technologies programs currently in place.

**Table 10-2: Innovative Technologies Portfolio Program Cost Breakdown - 2010 Program Area Results FEI/FEVI**

Program	Incentives & Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
Solar Water Heating PSECA Program	\$229	\$143	\$372	29,053	19,845	48,898	0.2	0.3
Commercial NGV Demonstration Program	\$5,589	N/A	\$5,589	(755,449)	N/A	(755,449)	1.4	-
<i>Non-Program Specific Expenditures</i>	\$3	-	\$3	N/A	N/A	N/A	N/A	N/A
<b>Total</b>	<b>\$5,821</b>	<b>\$143</b>	<b>\$5,964</b>	<b>(726,396)</b>	<b>19,845</b>	<b>(706,551)</b>	<b>1.2</b>	

As program design progressed in Q3 2010, the Companies focused efforts on offering incentives for solar thermal hot water through the Public Sector Energy Conservation Agreement (PSECA) Funding program. The Solar Water Heating PSECA initiative is considered

a program instead of a pilot since it was developed through the province and the Companies only served as a funding partner. Furthermore, the funds were necessary to support local, provincial, and federal governments through the PSECA Agreement in reducing greenhouse gas emissions as well as validating performance and energy efficiency claims. The data will be used to guide the development and feasibility of future Solar Thermal Hot Water programs.

The Solar Water Heating PSECA program, together with the Commercial NGV Demonstration program has a weighted TRC score of 1.0 or more on a program area level, thereby meeting the Commission's directive in Order No. G-141-09.

Within the Commercial NGV Demonstration program, two different fuel types have been pursued that reflect the two existing service offerings that FEI has for supplying natural gas for NGVs.<sup>54</sup> First, FEI has historically provided natural gas delivery service (or transportation) destined for the CNG transportation customers through Rate Schedules 6, 22, 23, 25, 26, and 27. Since FEI does not provide compression and dispensing service through these rates, customers must seek out fueling service providers to receive a complete end-to-end service offering. Commission Order No. G-65-09 issued on June 4, 2009, approved Rate Schedule 16 Interruptible Liquefied Natural Gas Sales and Dispensing Service ("Rate Schedule 16") as a five year pilot. Rate Schedule 16 gives the Company the ability to provide LNG supply in tank truck quantities from the Tilbury LNG bulk storage facility.

LNG as a transportation fuel is considered an emerging technology in BC and presently has no market penetration outside of small demonstration projects. Similarly, CNG has minimal market penetration as a heavy duty transportation fuel (except for approximately 50 transit buses), but was used in light duty vehicle applications in BC in the 1980s and 90s. Improvements in engine technology, combined with an attractive price differential between natural gas and diesel, have stimulated a new interest in CNG from heavy duty fleet operators in recent years. The Companies' CNG and LNG initiatives encourage heavy duty fleet operators of garbage trucks, waste haulers, buses, and Class 8 tractors to switch from high-carbon diesel to low carbon natural gas. Since the use of natural gas in heavy duty commercial vehicles has not been widely adopted in BC, the Companies' NGV initiatives are presently considered demonstration projects. While these technologies are well proven in other jurisdictions, it is important to assess performance under a BC context in a scalable manner. Projects using both CNG and LNG have been selected to demonstrate a complete fuelling solution for potential fleet customers (municipal and highway respectively). Limited experience with heavy duty NGVs exists in BC and the Companies believe it is appropriate to gain experience and data with its NGV initiatives through successful, demonstrable applications; therefore, NGV initiatives are deemed demonstration programs until data such as fuel consumption, fuel efficiency, and vehicle performance have been quantified in a BC context.

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<sup>54</sup> At this time, NGV transportation Rate Schedules and proposed fueling service offerings have only been developed for FEI.

On December 1, 2010, FEI submitted an Application for Approval of General Terms and Conditions for CNG and LNG Service to the Commission, which, if approved, would provide NGV customers with a complete end-to-end service offering. The NGV incentives from EEC funds are not tied to fueling infrastructure installed by the Company, and fleets that self-supply the compression service and fueling station or procure it from another supplier are still eligible for EEC incentives. Thus, from the perspective of EEC funding, the effect of the NGV Application before the Commission is really that it makes it possible for more fleets to consider using NGV, and thereby increases the number of potential applicants for EEC incentives.

Work has not yet commenced in determining the viability of pilot programs for hydronic and combination heating systems or GSHPs.

### 10.1.3 2011 INNOVATIVE TECHNOLOGIES PROGRAM AREA OUTLOOK

In 2011, the TRC ratio for the entire Innovative Technologies Program Area is estimated at 1.8, which will meet the Commission's directives in Order No 141-09 for innovative technologies to have a weighted TRC score of 1.0 or more on a portfolio level. The relatively high TRC scores for NGV serve to balance the lower scores for some of the other Innovative Technologies initiatives.

**Table 10-3: Innovative Technologies Portfolio Program Cost Breakdown – 2011 Program Area Outlook FEI/FEVI**

Program	Incentives & Non-Incentive Expenditure (\$000s)			NPV Energy Savings (GJ)			TRC	
	FEI	FEVI	Total	FEI	FEVI	Total	FEI	FEVI
Programs								
Commercial NGV Demonstration Program	\$3,780	-	\$3,780	(1,376,306)	-	(1,376,306)	1.9	-
SolarBC Schools Incentive Program	\$22	\$5	\$27	3,046	716	3,762	0.2	0.2
Solar Air Heating PSECA Program	\$73	-	\$73	17,817	-	17,817	0.4	-
Pilots								
Solar Residential Hot Water - Pilot	\$76	-	\$76	4,829	-	4,829	0.2	-
City of Vancouver MURB - Pilot	In Development							
Studies, Memberships, Demonstration Projects (Non-Incentives)								
Georexchange Energy Performance Study	\$12	-	-	-	-	-	-	-
CESIG Gas Utilization Working Group Membership	\$4	-	-	-	-	-	-	-
Westhouse Demonstration Project	\$12	-	-	-	-	-	-	-
Total	\$3,979	\$5	\$3,956	(1,350,614)	716	(1,349,898)	1.8	

### 10.1.4 2011 PROGRAMS

In 2011, the Innovative Technologies Program Area has allocated incentives for three programs including the Commercial NGV Demonstration program, SolarBC Schools Incentive program and the Solar Air Heating PSECA program. As shown in Table 10-3 above, the solar heating measures don't pass the TRC on an individual program level; but, together with other programs within the program area, the overall TRC ratio is over 1.0. The Companies feel programs and demonstration projects in the Innovative Technologies Program Area are necessary to support the climate action goals of local, provincial, and federal governments, as well as to displace

diesel fuel consumption in the heavy duty transportation sector and replace it with low carbon natural gas.

Although innovative technologies are to be run as pilots and demonstration projects, the SolarBC Schools and Solar Air Heating PSECA initiatives are considered programs since they were developed through the province and SolarBC, and the Companies only served as a funding partner. Commercial NGV initiatives are presently considered demonstration projects for the reasons previously stated.

Fuel consumption data will be tracked and reviewed annually to determine fuel switching benefits and program roll-out approaches.

#### *10.1.4.1.1 2011 Pilots*

Funding from the Innovative Technologies Program Area has been committed to support and develop two pilot programs known as the Solar Residential Hot Water pilot and the City of Vancouver MURB pilot. The key objectives for those pilots are to support local, provincial, and federal governments with climate action goals, policies, and regulations, as well as gathering data and associated program savings for solar thermal technologies. The scope, measurement, and marketing plans for those pilots are currently being established.

#### *10.1.4.1.2 2011 Studies, Memberships, and Demonstration Projects*

In order to evaluate market-ready technologies, it is important for FEI and FEVI to participate in technology performance studies and industry memberships. The main objectives of these initiatives are to help validate energy savings claims and stay abreast with additional market available technologies, while collaborating and sharing costs amongst other gas and electric utilities. In 2011, the Companies committed \$12,000 for a Geoexchange Energy Performance Evaluation Study and \$4,000 for a membership to participate in The Centre for Energy Advancement through Technological Innovation ("CEATI") Gas Utilization working group. Additionally, the demonstration projects are important to not only experiment and confirm the energy savings potential of technologies but also to increase the awareness of the benefits of some of these technologies among the Companies' customers. Thus, the Companies committed \$12,000 for the Westhouse Solar Demonstration project.

#### **10.1.4.1.2.1 Geoexchange Energy Performance Evaluation Project**

<b>Phase 1 Geoexchange Energy Performance Evaluation Project</b>	
<b>Audience</b>	Commercial, institutional, and multi unit residential buildings ("MURBs") that have an existing geoexchange system operational within BC's coastal and interior climates
<b>Duration</b>	Q2 2010 - Q2 2011
<b>Commitment</b>	\$12,000

<b>Partners</b>	GeoExchange BC, FortisBC Inc., BC Hydro
<b>Overview</b>	
<b>Description</b>	The Companies have committed EEC funds for a Geoexchange Energy Performance Evaluation project initiated through GeoExchange BC. The goal is to evaluate the energy savings attributable to installed geoexchange systems in MURBs and commercial and institutional buildings. This research project will evaluate the electrical and natural gas consumption in existing buildings that have been equipped with geoexchange systems for at least three years. The study will report on the performance of a number of buildings of various types in both coastal and interior climates. The matrix of selected buildings will be designed to determine if the effectiveness of geoexchange technology is significantly influenced by (i) building type and (ii) heating dominant versus load-balanced systems.
<b>Goals</b>	<ul style="list-style-type: none"> <li>Evaluate and monitor systems performance and prospective energy savings for geoexchange systems. This data will be used to confirm savings claims and guide the development of future programs.</li> <li>Strengthen relationships with program partners.</li> </ul>
<b>Deliverables</b>	A concise, professionally written report summarizing the results supported by building descriptions and energy consumption data in an appendix. The consultant will also prepare a PowerPoint presentation for use by GeoExchange BC and the project's funding partners.
<b>Implementation</b>	
<b>Administration</b>	GeoExchange BC

**10.1.4.1.2.2 Westhouse Solar Demonstration Project**

<b>Westhouse Solar Demonstration Project</b>	
<b>Audience</b>	FEI and FEVI customers
<b>Commitment</b>	\$12,000
<b>Partners</b>	City of Vancouver ("COV"), Simon Fraser University ("SFU")
<b>Overview</b>	
<b>Description</b>	The project is a collaboration between COV, SFU and FEI to demonstrate alternative energy in a high visibility collaboration and to gain information on the operation and energy performance of the solar thermal hot water system.
<b>Goals</b>	<ul style="list-style-type: none"> <li>Evaluate and monitor systems performance and prospective energy savings for geoexchange systems. This data will be used to confirm savings claims and guide the development of future programs.</li> <li>Strengthen relationships with program partners.</li> </ul>

	<ul style="list-style-type: none"> <li>To demonstrate alternative energy in a high visibility collaboration and to gain information on the operation and energy performance of the solar thermal hot water system.</li> </ul>
<b>Deliverables</b>	City of Vancouver along with Smallworks will provide the house and property. FEI is to provide gas service along with solar equipment; SFU is to provide monitoring for the water and energy use.
<b>Implementation</b>	
<b>Evaluation Strategy</b>	Evaluation of the commitment will be determined from the number of visitors to the site and the usefulness of data collected from the system.

#### 10.1.4.1.2.3 CEATI's Gas Utilization Working Group Membership

<b>CEATI's Gas Utilization Working Group Membership</b>	
<b>Audience</b>	Collaboration amongst gas utilities
<b>Duration</b>	Q2 2010 - Q2 2011
<b>Commitment</b>	\$4,250
<b>Members</b>	Manitoba Hydro, Enbridge, ATCO Gas, NRCan
<b>Overview</b>	
<b>Description</b>	<p>The Centre for Energy Advancement through Technological Innovation ("CEATI") is an international organization of utilities (predominantly electrical) that facilitates cooperation through focused interest groups and collaborative projects. Typically, CEATI projects and topics are forward looking at developing technologies that are not mainstream to the member utilities. The overarching principle is that through collaboration, member's dollars can be leveraged to involvement in a much greater number of projects and subject areas than would otherwise be available.</p> <p>CEATI operates on a paid fee basis for each of the interest groups (\$8,500 per interest group). Value is obtained by the members through CEATI-sponsored projects, which are funded by the member utilities on a project basis, as well as an opportunity for networking, information sharing, and unofficial collaboration on projects that members may be undertaking. In 2010, CEATI created a new working group, the Gas Utilization Working Group under the Customer Energy Solutions Interest Group.</p> <p>The group has identified possible areas for collaboration that include:</p> <ul style="list-style-type: none"> <li>Solar thermal</li> <li>Motion sensor thermostats</li> <li>Combined heat and power ("CHP")</li> <li>Gasification of biomass</li> <li>Water heater technology</li> </ul>

<b>Goals</b>	<ul style="list-style-type: none"> <li>Investigate the market potential and energy savings for different market-ready technologies.</li> <li>Collaborate with utilities and stakeholders on potential studies, pilots, and demonstration projects. This data will be used to confirm savings claims and guide the development of future programs.</li> <li>Strengthen relationships with program partners.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	The Centre for Energy Advancement through Technological Innovation

## 10.1.5 INNOVATIVE TECHNOLOGIES PROGRAM AREA DETAILS

### 10.1.5.1 Completed Programs

#### 10.1.5.1.1 Solar Water Heating PSECA Program

<b>Solar Water Heating PSECA Program</b>	
<b>Market</b>	Retrofit
<b>Audience</b>	The program applied to provincial sector buildings including schools, universities, colleges, hospitals, and crown corporations
<b>Duration</b>	Q2 2010 – Q4 2010
<b>Incentive</b>	The Companies matched the incentive offered by NRCAN, which was calculated by Performance Factor x Incentive Rate x Area of Collector x Number of Collectors. The incentives offered by SolarBC, NRCAN and the Companies are used towards reducing the total solar hot water project cost for the participants.
<b>Partners</b>	SolarBC, BC Government SolarBC worked in partnership with the province to review and recommend projects for funding qualified solar thermal systems.
<b>Background</b>	
<b>Description</b>	The BC Government and the Companies entered into a Public Sector Energy Conservation Agreement (“PSECA”) to significantly increase energy conservation and, where feasible, expand the use of alternative energy options across more than 6,500 public sector buildings in British Columbia including Crown corporations, education and health care facilities, office buildings, social housing, and other government operations. A few alternative energy options were identified as solar thermal hot water and solar air heating. The BC Government through the PSECA is working with SolarBC to fund solar thermal water and air heating systems in provincial public sector buildings including schools, universities, colleges, hospitals, and Crown corporations. To support the province with the goals listed in the PSECA, the Companies provided \$372,000 for 31 solar thermal hot water systems to be installed in those public sector buildings.



<b>Goals</b>	<ul style="list-style-type: none"> <li>• Support local, provincial, and federal governments with climate action goals, policies, and regulations.</li> <li>• Evaluate market-ready technologies and conduct pilot studies to validate manufacture's claims about systems performance and energy efficiency.</li> <li>• Monitor systems performance and prospective energy savings. This data will be used to confirm savings claims and guide the development of future programs.</li> <li>• Develop cost effective programs with the Innovative Technologies portfolio with a TRC greater than 1.0 that optimize the proportion of incentives over administration and marketing costs.</li> </ul>
<b>Controls</b>	<ul style="list-style-type: none"> <li>• Eligible solar technologies must be CSA listed.</li> <li>• Finished projects must be commissioned by a P. Eng.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	SolarBC and NRCAN managed applications
<b>Communications</b>	FEI and FEVI submitted media releases, updated web content, and program promotion through Twitter.
<b>Evaluation Strategy</b>	Solar water heating consumption data analysis on the 2010 programs will be conducted one year from when all systems have been installed. A user acceptance survey will be sent to applicants to gauge challenges and successes of the technology. Sub metering solutions are also being discussed to measure the actual energy saving numbers.

#### 10.1.5.1.1.1 2010 Actuals

**Table 10-4: Innovative Technologies Solar Water Heating PSECA Program 2010 Actuals**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	20	\$231	\$0	2,579	29,053	0%	0.2
FEVI	11	\$144	\$0	1,683	19,845	0%	0.3
Total	31	\$375	\$0	4,262	48,898	0%	0.2

#### 10.1.5.1.1.2 Discussion of Results

The Companies have committed incentive funding in 2010 to encourage the installation of 31 solar thermal hot water projects. Since the program is administered through SolarBC and there are minimal participants, both FEI and FEVI assumed a small non-incentive expenditure. As shown above, the solar heating measures do not pass the TRC on an individual program level but, together with other programs, the program area's TRC level passes the required threshold of 1.0 as shown under the 2010 Innovative Technologies Program Area results.

#### 10.1.5.1.1.3 2011 Forecast

Funding offered under PSECA and NRCan's ecoENERGY for Renewable Heat are no longer available; therefore, the program is closed to further applications.

### 10.1.5.2 Active Programs

#### 10.1.5.2.1 Commercial NGV Demonstration Program

Commercial NGV Demonstration Program	
<b>Market</b>	Original Equipment Manufacturer ("OEM") vehicles
<b>Audience</b>	Commercial, return-to-base fleet operators such as garbage trucks, waste haulers, buses, and Class 8 tractors
<b>Duration</b>	Q1 2010 - Q4 2011
<b>Incentive</b>	Incremental vehicle cost difference between an NGV vehicle compared to its diesel equivalent, up to a maximum of 100%
<b>Partners</b>	N/A
Overview	
<b>Description</b>	<p>To encourage the adoption of CNG and LNG as a transportation fuel. Incremental vehicle cost incentive funding up to 100% is provided to qualified fleet operators of commercial, return-to-base heavy duty vehicles. This reduces the upfront capital barrier and initiates market adoption of NGVs, while achieving environmental benefits for the Companies' customers.</p> <p>CNG and LNG are low carbon fuels that offer economic benefits for fleet operators when compared to high carbon diesel. Other benefits include improved air quality and reduced noise in the communities and municipalities where such fleets operate.</p> <p>Finally, existing and future customers benefit from the increased natural gas throughput, which produces lower delivery rates, all else being equal. This increased load helps to offset the reductions from programs in the Conventional EEC Program Area and non-NGV programs in the Innovative Technologies Program Area.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>Displace diesel fuel consumption in the heavy duty transportation sector and replace with low carbon natural gas.</li> <li>Reduce upfront capital cost barriers of NGVs for heavy duty trucking fleet operators to encourage the use of CNG and LNG as transportation fuels.</li> <li>Encourage market adoption of CNG and LNG as transportation fuels in BC.</li> </ul>
<b>Controls</b>	<ul style="list-style-type: none"> <li>The program must conform to the portfolio requirement of a TRC score of greater than 1.0.</li> <li>A Contribution Agreement must be executed between the participant and the Companies detailing the terms and conditions of the incentive payment.</li> <li>50% of the funds will be advanced upon evidence of execution of a purchase order for the vehicles. This evidence is defined as an executed purchase order sent from the customer (or lesser) to the dealer, and copied to</li> </ul>

	<p>FEI/FEVI. The balance of the funds will be advanced when the vehicle is placed in regular service. These funds are advanced upon the receipt of a completed document from the customer stating the vehicle has entered regular fleet service.</p> <ul style="list-style-type: none"> <li>The Companies reserve the right to demand repayment from the customer of any or all of the incentive amounts paid to the customer, if any of the natural gas fuel system components are removed from the NGV or if the NGV is removed from operation, or is relocated outside of the Companies' service territories within a negotiated period of time.</li> <li>Successful applicants must undergo a confidential credit assessment conducted by the Companies. Only applicants with an "Approved Unsecured" rating will be considered.</li> </ul>
<b>Status</b>	Round one "Calls for Expression of Interest" closed Q4 2010. Round two runs from Q1 2011 through Q4 2011.
<b>Implementation</b>	
<b>Administration</b>	The Companies' staff
<b>Communications</b>	Narrow business-to-business focus leveraged through industry associations and heavy duty truck dealers.
<b>Evaluation Strategy</b>	The Companies will monitor data provided by the participants on an ongoing basis. This includes data on kilometres driven, amount of natural gas consumed, and hours of usage (if available). This data will also be used to calculate and monitor GHG emissions reductions.

#### 10.1.5.2.1.1 2010 Actuals

**Table: 10-5: Innovative Technologies Commercial NGV Demonstration Program 2010 Actuals**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	82	\$5,587	\$2	(162,911)	(726,396)	0%	1.4
FEVI	Not Applicable						
Total	82	\$5,587	\$2	(162,911)	(726,396)	0%	1.4

#### 10.1.5.2.1.2 Discussion of Results

In 2010, the Companies provided funding from the Innovative Technologies Program Area in the amount of approximately \$5.6 million for 82 NGVs. This expenditure included approximately \$4.4 million for 50 LNG vehicles and \$1.2 million for 32 CNG vehicles. Incentive provisions have generated significant interest from the heavy duty transportation market and the Companies successfully provided funding to four fleet operators through this program. Non-incentive expenditures realized in 2010 were minimal as the means used to attract market participants did not involve incremental labour outside of the innovative technologies manager. Sales and

marketing costs associated with the development of NGV initiatives are included in existing O&M budgets as approved in the NSA resulting from the 2010 - 2011 RRA.

A free rider rate of zero percent for 2010 was used as fleet operators would not switch to NGVs without an incentive. This is primarily due to the NGV price premium of 20 to 65 percent, which creates a high upfront capital cost for the operator in comparison to diesel vehicles.

The Commercial NGV Demonstration program is different from other EEC program areas in the sense that NGVs consume incremental volumes of natural gas, rather than conserve it; however, the fuel switching from high carbon diesel to low carbon natural gas generates an overall environmental benefit through a 20 – 30 percent reduction in GHG emissions just like other innovative technology programs.<sup>55</sup> The net benefit to the overall economy is fewer diesel litres of fuel being consumed by the transportation sector. As a result, a load building estimate of 162,911 GJ per year was calculated for 2010.

The Commercial NGV Demonstration program has not yet attracted participants within FEVI for two main reasons. Firstly, most high mileage fleet operators are based in the Lower Mainland and central regions of BC. Secondly, the higher delivery rate of natural gas within FEVI reduces the price differential between diesel and natural gas, and the overall attractiveness of CNG and LNG as a transportation fuel.

#### 10.1.5.2.1.3 2011 Forecast

**Table 10-6: Innovative Technologies Commercial NGV Demonstration Program 2011 Forecast**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	54	\$3,780	\$1	(228,131)	(1,376,306)	0%	1.9
FEVI	Not Applicable						
Total	54	\$3,780	\$1	(228,131)	(1,376,306)	0%	1.9

#### 10.1.5.2.1.4 Summary

The Companies have entered into contractual commitments with three new fleet operators in 2011, for a total incentive expenditure of approximately \$3.8 million for 54 vehicles. This includes approximately \$3 million for 34 LNG vehicles and \$803,000 for 20 CNG vehicles. These operators submitted applications for EEC funding and were subsequently approved by FEI. Furthermore, these operators are reputable leaders within the transportation industry, which is an important characteristic in selecting participants who can transform the industry and promote NGV adoption. The forecast expenditures of these commitments were calculated at a level of 100 percent of the incremental vehicle cost; however, FEI expects to decrease the level

<sup>55</sup> GHGenius.

of the incentive over time. As more NGVs are introduced to the market, the cost premium for NGVs and the risk perception associated with NGVs should both decline accordingly.

Later in 2011, subject to the successful resolution of the uncertainty surrounding the use of EEC funding for NGV incentive, the Companies intend to initiate a 'call for expressions of interest', whereby qualified fleet operators may submit an application for NGV incentive funding. This process would be communicated through industry associations such as the British Columbia Truckers Association and OEM truck dealers such as Inland Kenworth and Peterbilt. Depending upon the number and quality of applicants, the number of participants and incentive expenditures in the Commercial NGV Demonstration program could increase from the figures in Table 10-6 above; however, the Companies may contemplate lowering its 100 percent incremental incentive amount to a lesser percentage depending upon the number of participants in 2011. The actual percentage of funding to be provided in subsequent rounds of incentive awards has not been finalized at this point in time and will be determined in consideration of how effective the program has been in initiating market transformation. The Companies may also contemplate increasing non-incentive expenditures in 2011 as the number of applicants and approved operators may increase as a second round of calls takes place, creating further administrative costs. Further, since NGV initiatives have been developed through narrow, business-to-business channels, the Companies have not yet made a request for communications plan expenditures. Depending on the number of interested applicants, the Companies may contemplate additional communication channels in the future depending upon participant levels.

### **10.1.5.3 Programs in Development**

#### **10.1.5.3.1 Solar Air Heating PSECA Program**

<b>Solar Air Heating PSECA Program</b>	
<b>Market</b>	Retrofit
<b>Audience</b>	The program will apply to provincial sector buildings including schools, universities, colleges, hospitals, and Crown corporations
<b>Duration</b>	Q4 2010 – Q2 2011
<b>Incentive</b>	The Companies will match the incentive offered by NRCan, which is calculated by Performance Factor x Incentive Rate x Area of Collector. The incentives offered by PSECA and the Companies are used towards reducing the total buildings' preheating cost for the participant.
<b>Partner</b>	SolarBC, BC Government SolarBC works in partnership with the province to review and recommend projects for funding qualified solar thermal systems
<b>Background</b>	
<b>Program Description</b>	The BC Government and the Companies entered into a Public Sector Energy

	<p>Conservation Agreement (“PSECA”) to significantly increase energy conservation and, where feasible, expand the use of alternative energy options across more than 6,500 public sector buildings in British Columbia including Crown corporations, education and health care facilities, office buildings, social housing, and other government operations.</p> <p>A few alternative energy options were identified as solar thermal hot water and solar air heating. The BC Government through the PSECA is working with SolarBC to fund solar thermal water and air heating systems in provincial public sector buildings including schools, universities, colleges, hospitals, and Crown corporations.</p> <p>To support the province with the goals listed in the PSECA, the Companies provided \$73,000 for six solar air heating systems to be installed in those public sector buildings.</p>
<b>Technology Description</b>	<p>The solar air heating (“SAH”) system preheats outdoor air that is required for ventilation. This reduces the heating demand for the conventional natural gas-fired heating section in the existing rooftop air-handling unit. The SAH system cladding is installed on the south facing building wall. The solar heated outdoor air rises through the collectors to a plenum at roof level. From the plenum, the air is ducted to the intake of an existing air handler where it is further conditioned (if required) and supplied to the building through the existing supply ductwork. Modulating dampers were included in the design to balance the temperature of the air during warmer weather. During summer months, when the outdoor air does not require heating, the SAH system is bypassed.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Support local, provincial, and federal governments with climate action goals, policies, and regulations.</li> <li>• Evaluate market-ready technologies and conduct pilot studies to validate manufacturer’s claims about systems performance and energy efficiency.</li> <li>• Coordinate measurement solutions with internal departments and/or third party companies to monitor systems performance and actual energy savings. This data will be used to validate energy savings claims and guide the development of future programs to a larger group of customers.</li> <li>• Strengthen relationships with program partners.</li> </ul>
<b>Controls</b>	<ul style="list-style-type: none"> <li>• Eligible solar technologies must be CSA listed.</li> <li>• Finished projects must be commissioned by a P. Eng.</li> <li>• Applicants that have the system installed after April 30, 2011 will not receive the incentive.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	<p>Program participation was facilitated through SolarBC and the BC Government. Applications were administered through NRCan and SolarBC.</p>
<b>Communications</b>	<p>Communications strategy initiated by SolarBC and the BC Government.</p>

<b>Evaluation Strategy</b>	Consumption data analysis on the 2011 programs will be conducted one year from when all systems have been installed. A user acceptance survey will be sent to applicants to gauge challenges and successes of the technology. Sub metering solutions are also being discussed to measure the actual energy saving numbers.
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As referenced in the 2009 Annual Report, the innovative technologies portfolio is not limited to developing programs for the preselected list of technologies such as solar thermal DHW systems, GSHPs, hydronic systems, sterling engines, or micro co-generation. The innovative technologies portfolio can include and evaluate additional technologies that have the potential for natural gas energy savings. One of the technologies that surfaced later in 2010 was solar air heat through the Solar Air Heating PSECA program, and was therefore not forecasted in 2010. Solar air heat can be considered an emerging technology as there has been minimal exposure within British Columbia, but it is available commercially and can offer substantial natural gas energy savings.

#### **10.1.5.3.1.1 2010 Actuals**

The Solar Air Heating PSECA program was established in Q4 2010; therefore, no incentives were issued in 2010. Program incentives for the Solar Air Heating PSECA program are committed for 2011.

#### **10.1.5.3.2 2011 Forecast**

**Table 10-7: Innovative Technologies Solar Air Heating PSECA Program 2011 Forecast**

<b>Utility</b>	<b>Participants</b>	<b>Incentive Expenditures (\$000s)</b>	<b>Non-Incentive Expenditure (\$000s)</b>	<b>Annual Energy Savings (GJ/yr)</b>	<b>NPV Energy Savings (GJ)</b>	<b>Free Rider Rate</b>	<b>TRC</b>
FEI	6	\$73	\$5	1,458	17,817	0%	0.4
FEVI	Not Applicable						
<b>Total</b>	<b>6</b>	<b>\$73</b>	<b>\$5</b>	<b>1,458</b>	<b>17,817</b>	<b>0%</b>	<b>0.4</b>

#### **10.1.5.3.2.1 Summary**

Solar air heat is included in the Innovative Technologies Program Area as there has been minimal exposure within British Columbia, but it is available commercially and may offer substantial natural gas energy savings. Since solar air technology is an emerging technology, there is a lack of information on system performance and energy savings within BC's climate. The baseline information provided through NRCans' RETScreen simulation tool supports the energy savings potential with this technology and manufacturer's claims. Further evaluation and sub-metering solutions are being discussed to measure the actual energy savings numbers and to support further program development.



The Companies have committed incentive funding in 2011 to encourage the installation of six solar air projects. Since the program is administered through SolarBC, the Companies did not assume a large non-incentive expenditure.

#### 10.1.5.3.3 SolarBC Schools Incentive Program

<b>SolarBC Schools Incentive Program</b>	
<b>Market</b>	Retrofit
<b>Audience</b>	The program will apply to selected solar thermal hot water school projects administered by SolarBC with natural gas as a backup
<b>Duration</b>	Q4 2010 – Q1 2011
<b>Incentive</b>	The Companies will match the incentive offered by NRCAN, which is calculated by Performance Factor x Incentive Rate x Area of Collector x Number of Collectors; therefore, the incentives vary per applicant. The incentives offered by SolarBC, NRCAN, and the Companies are used towards reducing the total solar hot water project cost for the participant.
<b>Partner</b>	SolarBC
<b>Overview</b>	
<b>Description</b>	<p>SolarBC, in collaboration with the Province of British Columbia, has initiated a Solar for Schools program to help reduce the carbon footprint and energy costs for schools, as well as providing a teaching opportunity about the possibilities for renewable energy usage and employment opportunities in the renewable energy sector.</p> <p>The Province of British Columbia provided \$950,000 to encourage the installation of solar projects in schools through the SolarBC Program. Funding through SolarBC can be up to 90% of a project to a maximum of \$20,000 per school across the province. The projects are approved via an application process through SolarBC.</p> <p>To support the province with those goals, the Companies committed \$27,000 for eight solar thermal hot water systems to be installed in those schools.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Increase the awareness of conservation as well as educating students and teachers on the benefits of solar hot water for domestic water heating within British Columbia's climate.</li> <li>• Support local, provincial, and federal governments with climate action goals, policies, and regulations.</li> <li>• Evaluate market-ready technologies and conduct pilot studies to validate manufacturer's claims about systems performance and energy efficiency.</li> <li>• Promote the continued growth and availability of local certified solar contractors throughout BC.</li> <li>• Encourage best installation practices to improve the quality and performance of the solar thermal hot water systems.</li> </ul>

	<ul style="list-style-type: none"> <li>Strengthen relationships with program partners.</li> </ul>
<b>Controls</b>	<ul style="list-style-type: none"> <li>Schools outside of FEI and FEVI's service territories are not eligible.</li> <li>All systems require installation completed by a certified Canadian Solar Industries Association ("CanSIA") installer.</li> <li>All collectors installed must be on the list of accepted solar collectors found at <a href="http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/heat-chauffage/v2008/collectors-capteurs-eng.cfm">http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/heat-chauffage/v2008/collectors-capteurs-eng.cfm</a>.</li> <li>100% of the approved incentive will be advanced upon the receipt of an eco energy commissioning report, which is proof the solar hot water system has been successfully installed.</li> <li>Consumption Analysis Test – the applicant's DHW assumptions need to be less than or equal to 5% of total GJ consumption to qualify for incentive. (<i>Based on Natural Resources Canada, Educational Services total natural gas [GJ] the average % DHW is 20% of the total natural gas consumption.</i>) For schools, since the average solar thermal system handles up to 20% of DHW load, the Companies felt it was conservative to add a control as a way to ratify GJ energy savings provided by the applicant. If the savings are stated to be greater than 5%, further analysis is required to determine building size and end use.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	All applicants were administered through SolarBC and incentives approved through FEI and FEVI.
<b>Communications</b>	Communications to drive participation was facilitated through SolarBC.
<b>Evaluation Strategy</b>	Consumption data analysis on the 2010 programs will be conducted one year from when all systems have been installed.

#### 10.1.5.3.3.1 2010 Actuals

The SolarBC Schools Incentive program was established in Q4 2010; therefore, no incentives were issued in 2010. Program incentives for the SolarBC Schools Incentive program are committed for 2011.

#### 10.1.5.3.3.2 2011 Forecast

**Table 10-8: Innovative Technologies SolarBC Schools Incentive Program 2011 Forecast**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	6	\$22	\$0	265	3,042	0%	0.2
FEVI	2	\$5	\$0	61	716	0%	0.2
Total	8	\$27	\$0	326	3,758	0%	0.2

#### 10.1.5.3.3 Summary

FEI and FEVI have committed incentive funding in 2011 to encourage the installation of eight solar thermal hot water projects for schools. Since the program is administered through SolarBC and there are minimal participants, neither FEI nor FEVI assumed a large non-incentive expenditure.

#### 10.1.5.3.4 Solar Residential Hot Water – PILOT PROGRAM

<b>Solar Residential Hot Water – PILOT PROGRAM</b>	
<b>Market</b>	Retrofit and new construction
<b>Audience</b>	The program will apply to residential applications within FEI's natural gas service area in Vancouver
<b>Duration</b>	Q1 2010 – Q4 2011
<b>Incentive</b>	<p>\$1,666 per approved application</p> <p>The level of incentives per participant works out to \$1,666 each. This amount, along with \$1,333 in partnership incentives, brings the total incentives for solar thermal hot water to \$3,000 per system, which offsets approximately 43% of the installation costs.</p>
<b>Partner</b>	City of Vancouver, Offsetters
<b>Background</b>	
<b>Description</b>	<p>The City of Vancouver ("COV") has set in motion a solar hot water pilot program geared to prove the viability of solar energy in our climate for 30 residential applications. Their goals are to increase the adoption of solar hot water ("SHW"), reduce the city's carbon footprint, and create new green jobs.</p> <p>FEI, SolarBC, and Offsetters have partnered with the COV on this pilot initiative to gather real data on the performance and energy savings of SHW systems within this climate. The data will be used to confirm the viability of offering an EEC SHW residential program within British Columbia.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Support local, provincial, and federal governments with climate action goals, policies, and regulations.</li> <li>• Measure and verify manufacturer's claims about systems performance and energy savings for selected residential homes within the City of Vancouver. This data will be used as the baseline to confirm savings claims and guide the development of future programs throughout BC.</li> <li>• Increase the awareness of and educate homeowners on the benefits of SHW for domestic water heating within BC's climate.</li> <li>• Promote the continued growth and availability of local certified solar contractors throughout BC.</li> <li>• Encourage best installation practices to improve the quality and performance of the solar systems.</li> <li>• Strengthen relationships with program partners.</li> </ul>

Implementation	
<b>Administration</b>	Program participation and application processing is administered through Eaga and financed through SolarBC until March 31, 2011. After March 31, 2011 continued Eaga support will be financed through the COV.
<b>Communications</b>	FEI submitted media releases, updated web content, and promoted this pilot through Twitter.
<b>Evaluation Strategy</b>	Consumption data analysis on the 2010 programs will be conducted one year from when all systems have been installed. A user acceptance survey will be sent to applicants to gauge challenges and successes of the technology. Sub metering solutions are also being discussed to measure the actual energy saving numbers.

#### 10.1.5.3.4.1 2011 Forecast

**Table 10-9: Innovative Technologies Solar Residential Hot Water Pilot Program 2011 Forecast**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	30	\$50	\$26	420	4,829	0%	0.2
FEVI	Not Applicable						
Total	30	\$50	\$26	420	4,829	0%	0.2

#### 10.1.5.3.4.2 Summary

FEI have committed \$50,000 in 2011 to encourage the installation of 30 solar thermal hot water projects for residential homes within the City of Vancouver area. FEI also committed \$26,000 for monitoring four of those solar thermal systems in order to measure and verify manufacturer's claims about systems performance and energy savings.

#### 10.1.5.3.5 City of Vancouver ("COV") Multi Unit Residential Building ("MURB") – PILOT PROGRAM

COV MURB – PILOT PROGRAM	
<b>Market</b>	Retrofit
<b>Audience</b>	FEI Multi Unit Residential Buildings
<b>Duration</b>	Q2 2011 – Q4 2012
<b>Incentive</b>	To be determined
<b>Partner</b>	City of Vancouver

<b>Background</b>	
<b>Description</b>	<p>The COV has set in motion a MURB pilot program intended to prove the viability of solar hot water ("SHW") along with ventilation controls and piping insulation in our climate for 15 MURBs. Their goals are to increase the adoption of SHW, reduce the city's carbon footprint, and create new green jobs.</p> <p>FEI has partnered with the COV on this pilot initiative to gather real data on the performance and energy savings of SHW systems for multi unit residential buildings within this climate. The data will be used to confirm the viability of offering an EEC SHW MURB program within British Columbia.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Support local, provincial, and federal governments with climate action goals, policies, and regulations.</li> <li>• Evaluate market-ready technologies and conduct pilot studies to validate manufacture's claims about systems performance and energy efficiency.</li> <li>• Coordinate measurement solutions with internal departments and/or third party companies to monitor systems performance and prospective energy savings. This data will be used to confirm savings claims and guide the development of future programs.</li> <li>• Strengthen relationships with program partners.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	City of Vancouver
<b>Communications</b>	To be determined.
<b>Evaluation Strategy</b>	Consumption data analysis on the 2010 programs will be conducted one year from when all systems have been installed. A user acceptance survey will be sent to applicants to gauge challenges and successes of the technology.

### **10.1.6 SUMMARY**

Innovative technologies represent an important component of the Companies' overall commitment to EEC activities. Since being staffed with a manager at the end of Q2 2010, the Companies have enhanced the program's framework, established relationships with key industry stakeholders, and evaluated market-ready technologies. Approximately \$5.9 million of the EEC funds were committed in 2010 to support local, provincial, and federal governments with climate action goals, policies, and regulations, as well as establishing evaluation best practices to monitor systems performance and prospective energy savings. The Companies will further evaluate program design and continue to investigate, evaluate, and pilot market-ready technologies such as solar thermal hot water, solar air heating, and others in 2011. Subject to the successful resolution of the uncertainty surrounding NGV incentive funding arising as a result of the Commission's recent commentary on this issue, the Companies also intend to initiate a 'call for expressions of interest' whereby qualified fleet operators can submit applications for 2011 CNG and LNG incentive funding. The weighted TRC ratio for the entire

Innovative Technologies Program Area for both 2010 and 2011 is positive and meets the Commission's directives in Order No. 141-09 for innovative technologies to have a weighted TRC score of 1.0 or more on a portfolio level.

## **10.2 Funding for NGV Initiatives**

### **10.2.1 DEFINITION**

NGVs represent an important element of the Innovative Technology Program Area, and the favourable TRC of NGV related incentives has contributed in a large measure to the favourable TRC of the overall Innovative Technology portfolio. This Section specifically deals with the Commission's recent comments regarding whether FEI has approval to proceed with NGV related programs. It provides additional information regarding why the Companies believe that they are compliant with past Commission orders, and also provides further information about the benefits associated with the funding which have contributed to stakeholder support for these initiatives. It is the hope of the Companies that the Commission will be able to quickly provide confirmation of the Companies' compliance with past orders without additional process. Alternatively, if the Commission is unable to provide this confirmation, the Companies respectfully request that the Commission provide its concurrence for the Companies to proceed with EEC incentive funding to customers to offset the incremental cost of buying an NGV over a standard gasoline or diesel vehicle. The Companies respectfully submit that this concurrence to proceed could also be provided without additional process since the benefits of EEC incentive funding for NGV are clear, accord with Commission-approved EEC principles, exceed the Commission-approved tests for evaluating EEC funding, and have the support of stakeholders.

This section is organized as follows:

- The Companies first set out the Commission's comments that gave rise to this issue, and provide their views as to why this matter is most appropriately resolved in the context of this Report; and
- The Companies then outline the key elements of past decisions that support the Companies' actions to date, and support the continued use of cost effective NGV incentives.

### **10.2.2 COMMISSION'S COMMENTS ON FUNDING FOR NGVs AND NEED FOR QUICK RESOLUTION**

On January 14, 2011, the Commission released its Order No. G-6-11 and decision ("Interim Decision"), which approved a CNG Fueling Station Installation and Operating Agreement between FEI and Waste Management of Canada Corporation on an interim basis, subject to certain conditions. In this Interim Decision, the Commission raised a potential issue with respect to the use of EEC incentives for NGV vehicle reimbursement. The Commission's Interim Decision, Appendix A, page 5, stated:

*“The Commission Panel is not presently persuaded that Terasen has Commission approval for the incentive grant to Waste Management that is described under Vehicle Reimbursement in the WM Agreement. Directive 2 of Order G-36-09 explicitly rejected expenditures for Natural Gas Vehicles. The Negotiated Settlement approved by Order G-141-09 approved Rate Schedule 26 – NGV Transportation Service and marketing costs in support of NGV. Terasen withdrew its other requests related to NGV. Rate Schedules 6 and 26 provide for NGV incentive grants, but it seems unlikely that Waste Management will use these Rate Schedules. Therefore, the Commission Panel believes that Terasen is at risk of not being able to recover incentive payments to Waste Management in its rates.”*

As FEI outlined in its response to BCUC CONFIDENTIAL IR 1.4.1, contained in the Application for Approval for a Service Agreement for Compressed Natural Gas Service and for Approval of General Terms and Conditions for Compressed Natural Gas Liquefied Natural Gas Service, dated December 20, 2010, that TGI intended “to continue meeting its reporting commitments by reporting in the next annual EEC report on the WM funding, and any matters relating to TGI’s use of EEC funding should be addressed at that time...”. The Commission did not have the benefit of a complete background and analysis when it made its comments regarding EEC funding for NGVs, and recognized that “the incentive payments are outside the scope of the review of the WM Agreement”<sup>56</sup> in its Interim Decision.

What follows below is our commitment to provide all information related to why we believe we have acted within the guidelines and approvals of past regulatory decisions related to EEC, specifically to the use of EEC incentives for NGVs. The information included in this Report adds to the information available on the record in the proceeding where the Commission made its comment about EEC funding. As such, there is now a complete record on which the Commission can determine this issue.

The Companies submit that this Report is the most appropriate forum to seek concurrence on this issue, rather than deferring the matter to the upcoming revenue requirements application, for four reasons:

1. The first expenditures from the EEC funding envelope for NGV occurred in 2010, to which this Report speaks. The individual spend by program areas is contained within this Report along with the individual and portfolio level TRC to which EEC incentives for NGV contribute.
2. The EEC Annual Report was established to ensure the Companies are operating within the guidelines and approvals established in Order No. G-36-09 and sequence Orders G-140-09 and 141-09.
3. The Companies have put further EEC incentive awards for NGVs on hold until the uncertainty is resolved. Prolonged delays in resolving this matter will likely delay the delivery rate benefits obtained by existing non-bypass customers associated with building cost-effective load, delay the benefits achieved by new NGV customers from reduced

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<sup>56</sup> Order No. G-6-11 Appendix A page 5.



transportation costs, and delay GHG emissions reductions in BC. These delays could potentially derail NGV initiatives (and its associated benefits) completely if fleet operators adopt conventional or viable alternative technologies.

4. The Companies' position for why we believe we have approvals to use EEC funds for NGVs is contained below and this makes for an efficient and less costly process to resolve this issue for all parties involved.

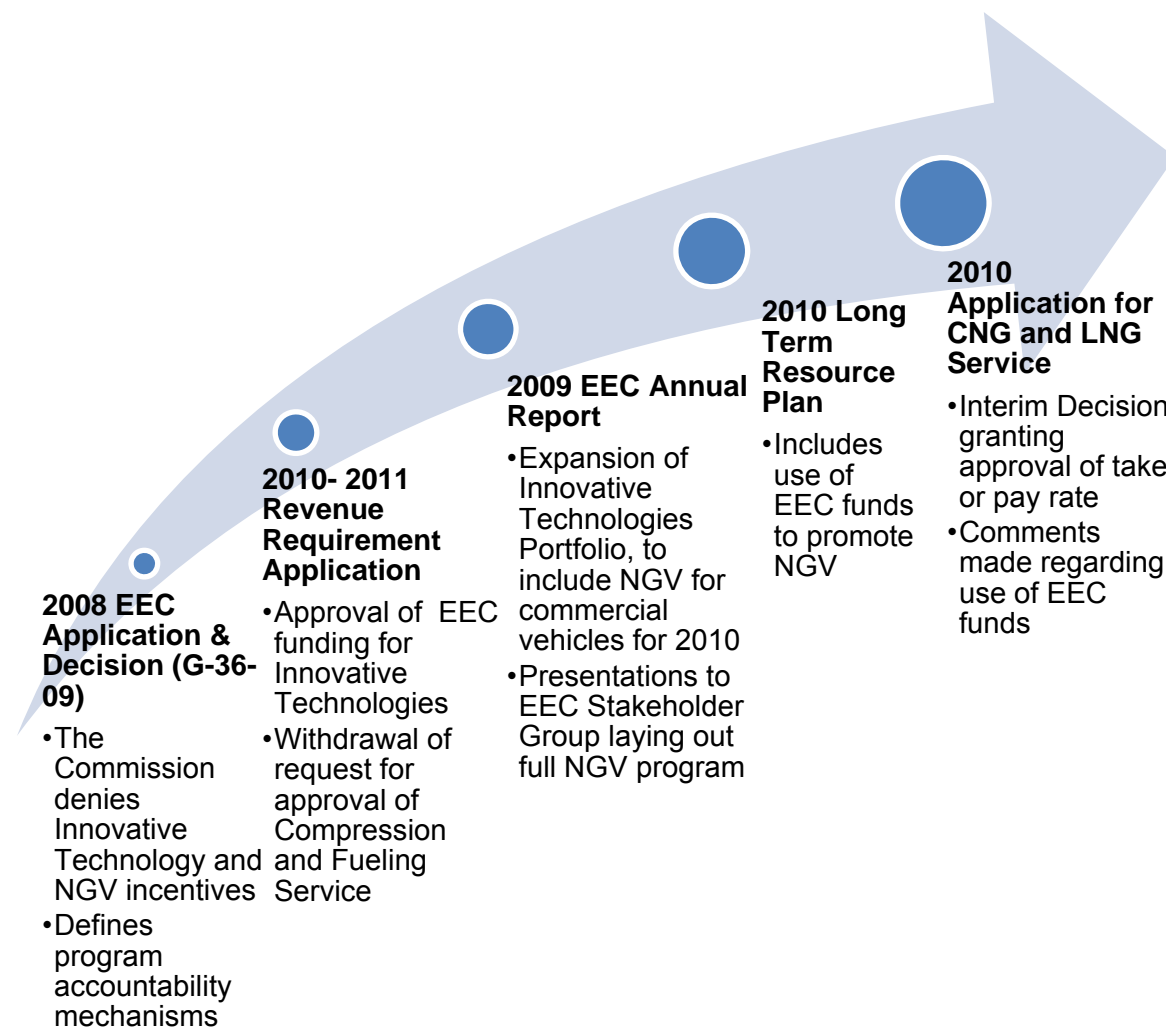
The Companies have support from key stakeholders for the quick resolution of this uncertainty resulting from the Commission's interim order on Waste Management, and the re-initiation of NGV incentive programs. As a result of a recent EEC Stakeholder Group held March 15, 2011, FEI has received letters from multiple members of the Stakeholders Group supporting FEI has followed the established process in the use of EEC funding (Please see Appendix F for copies of these letters). The Companies thus submit that the necessary information is now available to address this issue in a meaningful way.

### **10.2.3 RELEVANT COMMISSION APPROVALS**

There have been a number of regulatory events that led up to the Companies providing NGV funding. In this section the Companies outline the key aspects of past Commission orders that support NGV funding. As explained in detail below, FEI believes that the use of Innovative Technologies Program Area EEC funding for NGV initiatives is consistent with previous Commission decisions (Orders G-36-09, G-141-09, and G-140-09), and that FEI has been open and transparent with stakeholders about EEC activities and expenditures, including the use of EEC incentives for NGV.

The following diagram summarizes the sequence of regulatory proceedings and events that touch on EEC funding.

**Figure 10-1: Timeline of Regulatory Proceedings Related to EEC Funds and NGV**



Each of these regulatory events and how they impact the Companies' use of EEC funds for NGVs is discussed in detail in the remainder of this Section, which is structured as follows:

1. EEC Application and Decision (Order No. G-36-09, dated April 16, 2009)
  - a) Rejecting EEC funding for the Innovative Technology Portfolio, including Natural Gas Vehicles
  - b) Recognizing and establishing principles applicable for developing further programs within the Innovative Technologies Program Area, including that
    - i. Programs on a portfolio level must meet an established threshold

- ii. Innovative Technologies Program Area brings forward the benefit of lower GHG emissions by promoting low carbon technologies
  - c) Setting up mechanisms for introducing new programs and making refinements to existing programs through the Commission approved accountability and oversight measures, including
    - i. Stakeholder Input and Reporting
    - ii. The Company's ability to transfer funds between program areas within the EEC funding envelope.
2. The 2010/2011 Revenue Requirements Application ("RRA") and Negotiated Settlement Agreement ("NSA") (Order No. G-141-09 and G-140-09, dated November 26, 2009)
- a) Two Distinct Proposals Presented in the 2010/2011 RRAs for EEC and NGV fuelling station infrastructure, and the one that was withdrawn in the NSA did not relate to EEC
    - Items 11 and 12 of the NSA for FEI are for EEC initiatives and programs. Items 6 and 7 of the NSA for FEVI are for EEC initiatives and programs
    - Item 14 of the NSA for FEI, which the Commission has alluded to in its recent Decision accompanying Order No. G-6-11 as having been withdrawn, is NGV for fuelling and transportation service (delivery on the FEI system), not EEC funds for NGV. Also, item 9 of the NSA for FEVI is NGV for fuelling and transportation service (delivery on the FEI system), not EEC funds for NGV.
  - i. Increased EEC Funding Approvals for 2010 and 2011, including Innovative Technology and Industrial Programs and Innovative Technology programs are to be evaluated as a separate portfolio
  - ii. Withdrawal of NGV Rate Offering, not related to EEC funds
3. Adhering to the principles and framework established by Commission Decisions with regard to the use of EEC funds for NGVs
- a) Favourable TRC Ratio
  - b) GHG emissions reductions benefits
  - c) Broad support from EEC Stakeholder Group Consultation
  - d) Openness and transparency in the 2009 EEC Annual Report and 2010 Long Term Resource Plan

Each of these topic areas are discussed in detail below.

#### **10.2.3.1 EEC Application and Decision**

The Companies filed an EEC Application on May 28, 2008. On April 16, 2009, the Commission issued Commission Order No. G-36-09 (the "EEC Decision"). While the specific request for

Innovative Technology funding was denied, the Decision established important principles and framework as to how FEI should evaluate EEC programs (primarily the TRC test, on a portfolio basis), and established a specific regulatory mechanism for overseeing the Company's use of EEC funding (the EEC stakeholder committee). These approvals become important later in the chronology, as the NGV funding meets the approved test for evaluating EEC funding, and the use of EEC funding for incentives was presented to, vetted by, and generally supported by, the stakeholder committee as confirmed by the letters of support filed with this Report.

#### **10.2.3.1.1 Rejection of the Innovative Technology Portfolio Including Natural Gas Vehicles**

In the EEC Application, funding for NGV initiatives was sought under the umbrella of "Innovative Technologies, NGV and Measurement", because all these programs aim "to foster and further the deployment of forward-looking low carbon technologies" (Page 69 of the EEC Application). In the EEC Decision, the Commission rejected funding for the Innovative Technology, NGV and Measurement Program Area based on "insufficient evidence" at that time. In particular, the EEC Decision (on Page 26) states:

*...Terasen acknowledges that further refinement of this program is required and indicates uncertainty as to whether an effective program can be developed over the funding timeframe. The Commission Panel finds that there is insufficient evidence with respect to the nature and scope of the proposed program, and accordingly rejects the Innovative Technologies, NGV and Measurement program expenditures at this time. Terasen may wish to bring forward projects in this program area for consideration as they become more fully developed.*

Thus, although the Commission rejected the funding "at this time," it did not reject the possibilities that NGV programs be developed. Additionally, there are two other relevant parts of the EEC Decision, discussed in the following paragraphs: (1) the approval of the TRC test for evaluating programs by adopting the portfolio approach, and (2) the EEC stakeholder group being established as the means of efficiently reviewing EEC program spending.

#### **10.2.3.1.2 Recognition and Establishment of Certain Principles**

The Commission granted a number of other approvals, significant among which for the current issue was the approval of a method for evaluating EEC initiatives. The EEC incentives for NGVs meet the approved tests.

##### **10.2.3.1.2.1 TRC Meets the Established Threshold**

FEI assesses all EEC funding according to the framework established in the EEC Decision, which involves, among other things, the application of TRC test, which measures the cost-effectiveness of the EEC programs.

The Commission discussed the application of a TRC at page 34 of the EEC Decision:

*The Commission Panel also takes note of the DSM Regulation which will apply to Terasen as of June 01, 2009 requiring the Commission to use, in addition to any other test it considers appropriate, the TRC test in determining whether a demand-side measure is cost-effective. While the DSM Regulation is not in effect for the purposes of this EEC Decision, the Commission Panel does consider the TRC test to be appropriate and adequate for the purposes of this Application and accepts it as such.*

Furthermore, the Commission accepted a portfolio level approach when considering the TRC ratio. That is, all EEC programs, on an overall combined level, rather than on individual initiatives or programs, should achieve a portfolio TRC level of 1.0 or greater.

Thus, the cost effectiveness of EEC expenditure is evaluated as a whole, on the portfolio level, which must have a TRC test of one or greater.

Please refer to Table 10-2 which shows the TRC for the Innovative Technologies portfolio as a whole including the Commercial NGV Demonstration program for 2010.

**10.2.3.1.2.2 GHG Emissions Reduction by Promoting Fuel Switching From Higher Carbon Fuel to a Lower Carbon Fuel**

In the EEC Application, FEI and FEVI had applied for approval of funding to encourage the adoption of natural gas as a fuel instead of both higher carbon fuels and electricity in the residential sector. The Commission accepted the former, and rejected the latter. As per page 18 of the EEC Decision:

*The Commission Panel accepts EEC expenditures directed at fuel switching from fossil fuels with a higher carbon content than that of natural gas.*

We acknowledge that fuel switching was addressed in the EEC Application in the context of the residential sector, and that this statement did not represent Commission approval to pursue fuel switching in the transportation sector. (The Companies submit that the approval to do so came later, following upon the Commission's approval of the 2010-2011 Revenue Requirements Application Negotiated Settlement Agreement.) However, this recognition of the benefits of high to low carbon fuel switching speaks to the Companies' rationale for pursuing NGV incentives. Not only does using NGV technologies in the transportation section move customers from higher carbon fuel such as diesel to low carbon natural gas, but also the principles underlying the fuel switching and underlying all the Innovative Technologies Program Area are consistent – reduction of the GHG emissions. Please refer to Section 10.2.3.3.2, which outlines the GHG emissions reduction in 2010 from providing EEC incentives to NGVs.

Since the EEC Decision was issued, Government enacted the *Clean Energy Act* ("CEA"). Reducing GHG emissions in BC is one of the main objectives of the provincial government, as outlined in the CEA. In fact, the CEA includes as one of "British Columbia's energy objectives"

GHG emissions reduction by high-to-low carbon fuel switching, which is directly applicable to NGVs.<sup>57</sup>

This, too, speaks to FEL's rationale for looking to the transportation sector as a potential target for EEC incentives.

10.2.3.1.3 Commission Approved Accountability Mechanisms for Introducing New Programs, and Refining Existing programs

The EEC Decision also included approvals of mechanisms that would ensure accountability for EEC expenditures. The approval for accountability mechanisms is more efficient than the Companies seeking Commission approvals each time funding was redirected, while, similar to the approval of inter and intra program area funding transfers, providing flexibility to the Companies in managing and developing EEC programs.

These approvals are important in the current context, not because they approved spending on NGV incentives, but because the Companies followed this framework once funding for Innovative Technologies incentives was approved in the 2010-2011 RRA NSA. By following this framework, the Companies have kept stakeholders fully apprised of our intentions regarding NGV incentives, and stakeholders have had input in to how it was done.

**10.2.3.1.3.1 Stakeholder Input and Reporting**

In the EEC Application, the Companies proposed accountability mechanisms for managing the funds approved for EEC programs. Specifically, the EEC Decision, at page 41, summarizes what was proposed:

*In this Application the Companies have recognized the need for accountability for the funds approved for EEC programs. First, any funds not spent will not be charged to the regulatory asset deferral account. Second, the Companies intend to monitor the portfolio TRC on a monthly basis, and have proposed to file an Annual EEC Report with the Commission by the end of the first quarter every year. The Report will detail program activity, expenditures, and cost-benefit results for the previous year, as well as describe program activity and provide forecasts for the upcoming year. Third, in the event that the relief sought is granted, the Companies would form and engage an EEC stakeholder group with membership representing a broad cross section of stakeholders identified in the Application. Fourth, the Companies have indicated their intention to hold annual EEC workshops with stakeholders, at which the Companies would present updates on program progress and obtain stakeholder input on new programs and refinements to existing programs. [Emphasis added]*

Intervenors supported this funding approach, as stated on page 41 of the EEC Decision:

*BCSEA-BCSC states that they: “. . . support this [funding] approach, noting that the proposed accountability mechanisms are designed to be more effective and efficient than*

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<sup>57</sup> Clean Energy Act, section 2, “British Columbia’s energy objectives”



*having on-going Commission involvement in decision-making within the portfolio during the Funding Period” and “BCSEA-SCBC acknowledge and support the additional accountability mechanisms proposed by Terasen in [Terasen Argument] paragraph 112.” (BCSEA-SCBC Argument, pp. 5, 20)*

The Commission accepted these accountability mechanisms on page 42 of the EEC Decision:

*The Commission Panel accepts Terasen’s accountability undertakings, and considers that, while the proposal to evaluate the EEC project using the TRC test at the Portfolio level has been accepted, TRC calculations for each program area, initiative and measure should also be included in the accountability reporting as a means of assessing the components of the Project and their ongoing effectiveness.*

Once the 2010-2011 RRA NSA was in place, with its recognition of funding for Innovative Technologies, the Companies employed the accountability mechanisms approved in the EEC Decision for Innovative Technologies in the same manner as with all other EEC spending. For the Commercial NGV Demonstration program, the EEC Stakeholder Group was consulted on three occasions, as outlined below in Section 10.2.3.3.2.1.

#### **10.2.3.1.3.2 Flexibility to Manage Funds for Approved Program Areas**

With accountability mechanisms in place, FEI believes that the Companies should be provided the flexibility in managing the approved funds to further achieve efficiency. In the EEC Application, the Companies state:<sup>58</sup>

*...that it is most efficient for the Commission to approve the overall expenditure level, by utility, for the Funding Period, rather than approving the funding by program area, or by individual program initiative. This approach will allow the Companies’ to respond quickly to changes within initiatives and to new opportunities that might arise. For example, if a particular initiative within the commercial energy efficiency program area has a higher than expected number of participants, and a strong cost-benefit ratio, the Companies would like to have the ability to shift funds from another, underutilized program area to that commercial energy efficiency initiative, without coming back to the Commission for approval to do so. Not only will this allow the Companies’ to respond quickly to opportunities, it will also reduce the Companies’ administrative burden related to EEC activity, and both the speed of response and reduced administrative burden will increase the value to customers of the Companies’ EEC activity.*  
[Emphasis Added]

The EEC expenditures approved in the EEC Decision are part of a funding envelope to develop and implement programs that conform to meeting the portfolio TRC of one or greater than one, and FEI has the ability to transfer funds to where it makes the most sense provided it can be

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<sup>58</sup> EEC Application, at pages 50 and 51



justified after the fact in a Report. FEI requires the flexibility to move funds to programs like the EEC expenditures for natural gas vehicles so that programs can be designed and implemented efficiently within an approved funding envelope. The measure for determining whether or not the expenditure was made appropriately is the TRC test, and FEI's reporting obligations permit the regular assessment of FEI's expenditures. The Commission addressed reporting obligations on page 42 of the EEC Decision, and expressly anticipated that shift in funding within the overall approved envelope would be allowed provided that such a transfer is transparent and supported with reasons:

*Commission Panel directs that the annual EEC Report include the following:*

- *TRC, RIM, UC, and Participant test calculations of DSM at the Program Area initiative and individual measure levels in addition to the total Portfolio level reporting. Reporting of the Residential & Commercial EE program areas should also be made at the New Construction and Retrofit levels.*
- *any inter and intra Program Area initiative funding transfers, with supporting rationale, and the impact of such transfers on the transferor and transferee Program areas, initiatives, and measures as the case may be.* [Emphasis Added]
- *data for fuel switching programs should be tracked in a manner which allows for reporting types of fuels replaced by natural gas, including estimated GHG impacts.*

While this direction does not authorize spending outside of Commission-approved Program Areas, it does speak to the use of funds within those approved areas being managed by the Companies, with accountability to the EEC Stakeholder Group regarding the funding decisions as part of the annual reporting. Once the 2010-2011 RRA NSA was in place, with its recognition of funding for Innovative Technologies, FEI proceeded to design incentive programs and used EEC incentives in line with the approved tests. The oversight of those decisions occurred in the context of the EEC Stakeholder Group, in the same manner as with all other EEC spending. For the Commercial NGV Demonstration program, the EEC Stakeholder Group was consulted on three occasions, as outlined below in Section 10.2.3.3.2.1.

As described in the Evaluation Strategy of the Commercial NGV Demonstration program (in Section 10.1.5.2), fuel consumption data will be tracked and reviewed annually to determine fuel switching benefits and program roll-out approaches. This data will be used to calculate and monitor the estimated GHG emission reduction benefits.

**10.2.3.1.4** *Summary: Providing EEC Incentives to Natural Gas Vehicles is Consistent with the Principles Contained in the EEC Decision*

While the EEC Decision rejected specific funding for the Innovative Technologies Program Area, the Decision establishes certain principles and provides framework for the Company to consider when developing and bringing forward programs in this Program Area. Specifically, the Commission:

- Recognized the benefits of high to low carbon fuel switching in the residential context;

- Adopted the use of TRC test on a portfolio level to assess the cost-effectiveness of the EEC programs;
- Approved the proposed accountability mechanisms to oversee the use of funds for approved Program Areas, including annual report to the Commission and consultation with Stakeholder groups, for development of new programs and refinement to existing programs; and
- Accorded the Companies flexibility to manage the funds subject to the accountability mechanisms.

Following the approval of the EEC funding for Innovative Technologies Program Area in the 2010-2011 Revenue Requirement Application proceeding, the Company developed the NGV programs using EEC funding consistent with these principles and the framework.

#### **10.2.3.2 2010-2011 Revenue Requirements Application and Negotiated Settlement Agreements**

Subsequent to Commission's Order No. G-36-09 in which the Commission left it open to the Companies to propose Innovative Technology programs, FEI and FEVI sought increased EEC funding approval to add specific programs under Innovative Technologies and Industrial Program Area in their respective 2010-2011 Revenue Requirements Applications. As discussed below, the settlement agreements that resolved these Revenue Requirements Applications included Innovative Technology funding envelope based on the Companies' proposal.

In several responses to Information Requests issued in the Revenue Requirements Applications regarding NGVs, the Companies expressed its intent to use different sources of incentive funding to overcome the high fleet conversion costs and limited number of OEM vehicles, including grants already available and "all available funding opportunities", a reference to using EEC funding that had been proposed. For example, in response to BCUC IR 1.34.2 in the RRA proceeding, FEI stated:

*TGI intends to meet the other potential obstacles by providing grants, and ensuring that all available funding opportunities are used.*

Both applications were subject to Negotiated Settlement Agreements. On November 26, 2009, the Commission released Order No. G-141-09 and G-140-09 approving NSAs for FEI and FEVI respectively. Thus, the total funding envelope for EEC increased with these two decisions; however, the underlying principle contained in Order No. G-36-09 must be adhered to in order to make use of these funds.

The Commission's approved the NSA's included the approval of EEC funding for Innovative Technologies for FEI and FEVI for 2010 and 2011. These approvals are explicitly described in Items 11 and 12 in the FEI's NSA and Items 6 and 7 in the FEVI's NSA.

Associated with these approvals, both NSAs state that:

*...the Innovative Technologies Programs will be managed by [the Companies] as a separate segment of the overall portfolio to have a weighted average Total Resource*

*Cost ("TRC") of 1.0 or more. [The Companies] will consult with stakeholders on the practical application of the weighted average TRC through the EEC Advisory Committee.*

The last sentence suggests that the Companies will continue to work with the EEC stakeholders to develop or refine programs/applications to achieve the established TRC threshold. This conforms to the principle and framework provided under the EEC Decision. NGV incentives, because of having a TRC well above 1.0, make a significant contribution to ensuring that the Innovative Technologies portfolio maintains a portfolio TRC greater than 1.0.

*10.2.3.2.1 Two Distinct proposals presented in the 2010-2011 RRA for EEC Funding and NGV Rate Offerings*

In its Reasons for Decision, accompanying Order No. G-6-11, the Commission commented that in the 2010-2011 RRA proceedings, the Companies "withdrew its other requests related to NGV" besides incentive grants under Rate Schedules 6 and 26.<sup>59</sup> The Companies respectfully submit that the Commission's comments reflect that it mixes two distinct issues addressed in separate sections of the NSAs: EEC funding and NGV rate offerings. The NSA granted express approval of the EEC funding requests.

In their respective Revenue Requirement Applications, the Companies made two distinct requests for approval: (1) EEC funding for Innovative Technologies Program Area, and (2) NGV Rate Offerings. For instance, in FEI's RRA (dated June 15, 2009 at page 227), FEI submitted six separate proposals in the context of its EEC and Alternative Energy Solutions initiatives. Two of these distinct proposals are:

*" 1. Increase EEC funding for 2010 over the currently-approved EEC funding to add interruptible Industrial customer programs and Innovative Technologies programs to the EEC portfolio, with all funding subject to the same financial treatment as approved in the EEC Decision;*

*5. Approval of Tariffs for Rate Schedule 6C – Natural Gas Compression and Refuelling Service and Rate Schedule 26 – Natural Gas Vehicle Transportation Service, and subsequently the cancellation of Rate Schedule 6A – General Service – Vehicle Refuelling Service."*

Item 5 listed above pertains to "Natural Gas Vehicle Rate Offerings", which FEI further described in its 2010-2011 RRA.<sup>60</sup> Specifically, FEI sought approval of Rate Schedule 6C – Compression and Refuelling Service, Rate Schedule 26 – NGV Transportation Service, and their supporting activities - Compression Service ("CS") test parameters and a NGV non-rate base deferral account. The requests for EEC funding and for natural gas vehicle rate offers are independent of each other in the context of the RRA.

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<sup>59</sup> Order No. G-6-11, at page 5.

<sup>60</sup> FEI 2010-2011 RRA at pages 238 to 249.

#### 10.2.3.2.1.1 EEC Funding Increase Request

The EEC funding request was approved in FEI's NSA, as Item 11 and Item 12 for FEI's NSA as Items 6 and 7. For example, Item 11 of the NSA is outlined here:

#### **11. Energy Efficiency and Conservation ("EEC") Funding for 2010**

*The Parties agree as follows in respect of the EEC funding sought by TGI for 2010:*

- (a) TGI will reallocate from residential and commercial EEC programs an additional \$1.6 million from the amount approved for 2010 in the EEC Decision<sup>61</sup> to low income and rental housing programs. This brings the total for low income and rental housing programs to \$2.4 million for 2010.*
- (b) EEC funding for industrial interruptible programs for 2010 will be \$435,000, which is the amount requested by TGI in the Application.*
- (c) EEC funding for innovative technologies will be \$2.3 million for 2010, which is the amount requested by TGI in the Application.*
- (d) All agreed to EEC expenditures will be considered and evaluated within the existing portfolio, and be subject to the same financial treatment, as per the Commission's EEC Decision dated April 16, 2009 (Application, page 514, Item 6). However, Innovative Technology programs will be managed by TGI as a separate segment of the overall portfolio to have a weighted average Total Resource Cost ("TRC") of 1.0 or more. TGI will consult with stakeholders on the practical application of the weighted average TRC through the EEC Advisory Committee. [Emphasis added.]*

Thus, the Innovative Technology funding was approved.

#### 10.2.3.2.1.2 Withdrawal of NGV Rate Offering Request

With respect to natural gas vehicle rate offerings for FEI, Rate Schedule 26 was approved as filed; however, the other items related to the NGV Rate Offerings were subsequently withdrawn. To reach a settlement on requests in the RRA as a whole, FEI withdrew its request for NGV Rate Offerings, as described in the excerpt below. However, this was treated as distinct from the approval of EEC funding.

Relating to FEI, Item 14 from Page 10 of the NSA approved in Order No. G-141-09 states:

#### **14. Natural Gas for Vehicles ("NGV")**

*The Commission Issue No. 2 in the Commission Panel's "Issues of Particular Concern to the Commission Panel" stated:*

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<sup>61</sup> Decision and Order No. G-36-09 dated April 16, 2009 in the TGI-TGVI Energy Efficiency and Conservation Application

*“Natural Gas Vehicles (“NGV”) – if NGV is to proceed why should the natural gas ratepayer fund this initiative rather than Terasen’s non-regulated businesses or the competitive market?”*

*The Parties agree:*

*(a) NGV Rate Schedule 26 - NGV Transportation Service should be approved as filed.*

*(b) The marketing costs in support of NGV that are included in the revenue requirements Application are appropriately recoverable in 2010 and 2011 rates.*

*(c) Upon acceptance of this Agreement by the Commission, TGI withdraws its request in this Application for the following:*

- i. Rate Schedule 6C NGV Compression and Refueling Service and 6A NGV Refueling Service; and*
- ii. the Compression Service (“CS”) Test; and*
- iii. NGV non-rate base deferral account.*

*The Parties acknowledge that these requests are being withdrawn by TGI to facilitate a settlement on other issues presented in this Application. The Parties agree that TGI’s withdrawal of its requests regarding NGV is without prejudice to TGI’s right to bring forward similar requests in 2010 or 2011 or otherwise in the future. The Parties acknowledge that TGI intends to develop this area of business and that TGI anticipates it will bring forward applications on NGV projects to the Commission on a case-by-case basis during the term of this Agreement and in future years. The Parties agree that TGI is at liberty to do so. [Emphasis added.]*

Thus, what was withdrawn by FEI only related to natural gas vehicle rate offerings (compression and fueling service). However, the use of EEC funds for NGVs was not withdrawn as part of the NSA; FEI was given express approval to pursue initiatives targeted at Innovative Technologies. When developing the Innovative Technologies programs, which the Companies believe that NGVs are to be part of, and have expressly stated so in 2008 EEC Application and the 2009 EEC Annual Report, the Companies would still have to adhere to the principles contained in Order No. G-36-09 as outlined above to use EEC funds for NGVs.

FEI has also received support for this interpretation of the NSA from a member of the EEC Stakeholder Group who was also a registered intervener during the RRA proceeding. In a March 22, 2011 letter<sup>62</sup> to FEI, the Commercial Energy Consumers Association of BC (“CEC”) stated the following:

*...The CEC is precluded (as a consequence of confidentiality provisions) from discussing the specific content of discussion in a Negotiated Settlement Process (“NSP”) but may disclose its own positions at any time. The CEC believes that its sign off with respect to the RRA NSA carried the weight of its support for FEI providing funding for its NGV*

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<sup>62</sup> Please see Appendix F for a copy of the letter from CEC

*initiatives. Specifically the CEC believes that item 14 of the NSA supports the fuelling and transportation services to be provided and that item 11 of the NSA supports the funding envelope for the Innovative technologies for 2010-2011.*

The Companies agree with CEC's characterization of the agreement.

### **10.2.3.3 The Companies Have Adhered to the Principles Established By Commission Decisions with regard to the use of EEC funds for Natural Gas Vehicles**

The Companies' use of the EEC funding for the Innovative Technologies Program Area to develop NGV programs, subsequent to the RRA NSAs, has met the principles and framework established in the EEC Decision and further developed in the NSAs approved by Commission Orders G-141-09 and G-140-09, as described in Section 10.2.3.1.3 in terms of evaluation, oversight and accountability. The factors relevant to the evaluation, oversight and accountability are discussed below.

#### **10.2.3.3.1 Favourable TRC Ratio**

Pursuant to the approved NSAs, the Companies must manage the Innovative Technologies Program Area as a separate segment of the overall portfolio and the TRC ratio for this segment must have a weighted average TRC of 1.0 or more.

The Innovative Technologies Program Area described in this Report has met this threshold with a weighted average TRC of 1.2. As summarized earlier, see Table 10-10 below for the Innovative Technologies Program Area TRC for 2010.

**Table 10-10: Innovative Technologies Program Area TRC for 2010**

Program	TRC	
	FEI	FEVI
Solar Water Heating PSECA Program	0.2	0.3
Commercial NGV Demonstration Program	1.4	-
Total	1.2	

The Commercial NGV Demonstration program has made a significant contribution to ensuring that the overall TRC for the Innovative Technologies portfolio has exceeded 1.0.

#### **10.2.3.3.2 GHG Emissions Reductions Benefits**

As the Commission recognized, the Innovative Technologies programs can be effective tools for achieving GHG emission reductions. Similar to the residential fuel-switching program, the Companies have tracked and demonstrated that the Commercial NGV Demonstration program creates GHG emissions reduction benefits. The NGVs incented in the 2010 Innovative



Technologies Program Area are expected to produce between 20 - 30% fewer GHG emissions than their diesel counterparts.<sup>63</sup> At this time, FEI estimates that the vehicles under the 2010 program expenditures represent annual GHG savings of approximately 4,100 tonnes of CO<sub>2</sub>e per year, which is the equivalent to taking 800 passenger vehicles off the road.<sup>64</sup> As these NGVs enter regular operations FEI will track and monitor fuel consumption and distance traveled, which is used to calculate GHG emissions.

#### **10.2.3.3.2.1 Broad Support from EEC Stakeholder Group Consultation**

As stated above, one of the key principles developed through the EEC Decisions and the subsequent approved NSAs is the accountability mechanism that allows for oversight by the stakeholder groups. In accordance with this principle, an EEC Stakeholder Group was formed in December of 2009 (Please see Section 12: EEC Stakeholder Group Activities). The members of the EEC Stakeholder Group were solicited through regulatory stakeholders (those that have historically intervened in the Companies' regulatory proceedings), from industry groups with whom the Companies interact, and from key contacts from the Companies' Energy Solution and Community Relations departments. Additionally, the Companies have also done the following:

- On March 11, 2010, the proposed Innovative Technologies portfolio was presented to the EEC Stakeholders meeting (Please see Appendix H for a copy of this presentation and a copy of the attendees list). In particular, at the meeting, the Companies provided estimates of funds to be applied to various Innovative Technologies Program Area, including NGVs (see slides 5 and 6). The meeting also achieved several important goals, such as:<sup>65</sup>
  - a) Providing an opportunity to discuss details of how the weighted average TRC is applied to the Innovative Technologies portfolio.
  - b) Allowing the EEC stakeholder group to discuss proposed Innovative Technologies program portfolio and program costs.
  - c) Introducing the group to the feedback mechanism that affords them an opportunity to voice any concerns on the approach to Innovative Technologies, and to provide ongoing dialogue.
- Following the March 11, 2010 meeting, all members of the Stakeholder Group were contacted to provide FEI and FEVI with feedback. The goal was to ensure any concerns they may have with the practical application of the weighted average TRC or with the portfolio of proposed activity for Innovative Technologies have been brought forward and noted. The Companies did not receive any opposition from the Stakeholder Group through its request for feedback.

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<sup>63</sup> Based on BC emissions factors from Natural Resources Canada's GHGenius model 3.18 available at [www.ghgenius.com](http://www.ghgenius.com)

<sup>64</sup> Calculation based on US EPA Greenhouse Gas Equivalencies Calculator

<sup>65</sup> See page 114 of the EEC 2009 Annual Report



- On November 24, 2010, the EEC Stakeholder Group was further informed of the Commercial NGV Demonstration program through a 17-page presentation that focused exclusively on this topic. (Please see Appendix H for a copy of this presentation and a copy of the meeting minutes and attendees list).
- On March 15, 2011, the EEC Stakeholder Group was informed that the Companies are seeking confirmation from the Commission regarding the use of EEC funding for NGVs. (Please see Appendix H for a copy of this presentation and a copy of the EEC Stakeholder Group membership list). The timeline of regulatory proceedings,<sup>66</sup> as outlined in this section, was presented to the Group and several participants voiced their support for the Companies, and voiced their opinion that the Companies have been transparent on this matter and that the uncertainty should be removed as soon as possible to allow further funding to proceed.

The Companies asked those parties that spoke to this issue during the stakeholder group to provide a written comment for inclusion in this Report. FEI received letters in support of our approach to the funding approvals process from the following Stakeholder Groups:

- a) BC Apartment Owners & Managers Association (“BCAOMA”)
- b) BC Sustainable Energy Association (“BCSEA”)<sup>67</sup>
- c) City of Vancouver (“COV”)
- d) Commercial Energy Consumers Association of BC (“CEC”)
- e) Fraser Basin Council (“Fraser Basin”)

FEI has included these letters in Appendix F. Although all members of the EEC stakeholder group have been invited to comment, FEI has not received any specific letter of opposition to date.

Below, FEI has provided excerpts from these letters directed to FEI from Stakeholder Groups who attended these sessions:

From the BCAOMA letter:

*The BCAOMA participated in stakeholder review sessions organized by FortisBC and had the opportunity to review and comment on the planned use of incentives to encourage the adoption of NGVs. During the November 24, 2010 session FortisBC provided a detailed presentation on the NGV program for BC, including the proposed use of EEC funding under the Innovative Technologies program. This presentation was favourably received by the stakeholder group. The BCAOMA believes that this consultation process meets the “Accountability Measures” defined in the Commission EEC Approval Decision G-36-09 and supports FortisBC’s view that it has the necessary approvals to proceed with the NGV incentive program.*

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<sup>66</sup> See Figure 10-1 in Section 10.2.3

<sup>67</sup> The BCSEA only attended the March 15, 2011 meeting. The other parties who provided letters attended both 2010 Stakeholder Group meetings.

From the BCSEA letter:

*...as an active participant in the 2009 Energy Efficiency and Conservation Application of Terasen Gas, and a current member of FortisBC's EEC Stakeholder Group, the BC Sustainable Energy Association supports the use of FortisBC's EEC program to incent the purchase of heavy duty NGVs in place of diesel powered vehicles where cost effective, primarily because of the greenhouse gas emissions reductions benefits.*

From the COV letter:

*We confirm that two stakeholder review sessions were held in 2010 (March and November) and that NGV programs were presented and discussed at these sessions. The City of Vancouver supports the continuation of the program to provide NGV incentives for heavy duty vehicle applications as adoption of NGVs in these markets provides GHG reductions and fuel cost savings to operators of NGVs.*

From the CEC letter:

*The CEC would characterize the FEI approach with respect to its NGV initiatives as having been and continuing to be nothing but open and transparent. The CEC believes that FEI has worked diligently to build understanding and support for its NGV initiatives. The CEC has directly been involved in the regulatory processes, in which the CEC believed that FEI was being provided the CEC support and consent to both pursue these NGV initiatives and to fund these initiatives from EEC funds.*

From the Fraser Basin Council letter:

*Through our involvement in the EEC Stakeholder group over the past two years, we have been informed of Fortis BC's ongoing plans to provide incentives for natural gas vehicles (NGVs) ... We are supportive of this effort by Fortis BC to provide incentives for NGV purchase... We also know that incentives are required to assist in overcoming the barrier of increased capital cost for NGVs.*

The Companies agree with the views expressed in these letters with respect to our approach to the funding approvals process.

10.2.3.3.3 Openness and Transparency of Innovative Technologies funding for NGVs in the 2009 EEC Annual Report and the 2010 Long Term Resource Plan

The Companies have been transparent about the use of Innovative Technologies Program Area funding for NGVs in two of its recent regulatory filings and proceedings.

Firstly, the 2009 EEC Annual Report, filed on March 31, 2010, states the Innovative Technologies Program Area includes NGVs. The suggested framework of the Innovative Technologies Program Area was described on Page 115:

*TGI and TGVI restructured the existing portfolio list of Innovative Technologies to include Solar Thermal Hot Water, NGV for Commercial Vehicles, Hydronic and Combination Space Heating Systems, Residential GSHP and Commercial and Industrial GSHP Systems. TGI and TGVI will treat NGV fuel switching from diesel as part of or normal course of EEC activities. [Emphasis Added]*

Secondly, the 2010 Long Term Resource Plan (“LTRP”), filed on July 15, 2010, describes the Companies’ plan to pursue NGV initiatives utilizing incentive funding from the Innovative Technologies Program Area.

The following is an excerpt from page 61 of the 2010 LTRP:

*Since the Innovative Technologies portfolio was formulated, TGI has made progress with some of the technologies, particularly to support implementation of NGV technology.*

*...TGI has initiated a pilot incentive program to encourage operators of heavy duty fleets such as garbage trucks and waste haulers to switch to natural gas from higher-carbon diesel. TGI has received expressions of interest from the City of Vancouver, City of Surrey, City of Port Coquitlam, and other third party partner to use the EEC funding to purchase new natural gas vehicles for garbage collection and transfer operations.*

*Under the provisions of the pilot program, the fleet operators would be reimbursed for the incremental cost of the NGVs over conventional vehicles.*

No issues about the proposed use of EEC incentive funding for NGVs were raised in information requests filed in the LTRP.

As a result of the transparency of the Companies’ NGV initiatives during 2009 and 2010, the support of stakeholders, and the fact that there were no issues raised during the LTRP information requests, the Companies were, with respect, surprised when the issue was raised by the Commission in the context of our Application for approval of the WM Agreement. The Companies are hopeful that the uncertainty can now be resolved.

#### **10.2.4 SUMMARY**

NGVs represent an important element of the Innovative Technologies Program Area, and the favourable TRC of NGV related incentives has contributed to a large measure to the favourable TRC of the overall Innovative Technologies Program Area portfolio. The Companies understand the Commission’s desire to ensure that EEC funding is undertaken appropriately, and we have thus endeavoured to provide a more complete picture than was available to the Commission in the context of considering the Waste Management agreement as to why the Companies’ initiatives are compliant with past Commission orders. Even if the Commission is unable to provide this confirmation, the Companies respectfully request that the Commission

acknowledge the benefits of the Commercial NGV Demonstration program and the broad stakeholder support, and provide its concurrence for the Companies to proceed.

## 11 ENABLING ACTIVITIES

### 11.1 Introduction

Enabling Activities are activities that support the Companies' EEC program development and delivery. Although these activities do not have energy savings directly associated with them, they play a very important role because they provide resources common to the support and ultimately, the delivery, of all program area activities. Expenditures in these areas are part of the overall overhead of EEC program delivery, and are included at the portfolio level in the overall EEC portfolio TRC score.

In 2010, Enabling Activities fall into four major categories, including research and evaluation, Efficiency Partners program, codes and standards, and energy management funding.

#### 11.1.1 RESEARCH AND EVALUATION

Two general areas of activity are included: market research and program evaluation. Market research provides invaluable background information used for planning and implementing effective programs, and program evaluation helps to measure the effectiveness of a particular program and/or initiative.

#### 11.1.2 EFFICIENCY PARTNERS PROGRAM

The Companies identify efficiency partners as equipment manufacturers, service contractors, distributors, and retailers, and recognize the influence these various industry groups have with the end use residential and commercial customers who make energy efficiency decisions. Providing a targeted focus through investment in these industry groups is essential in order to consolidate and enhance existing service and supplier relationships, and through these efficiency partners, provide a delivery pathway for all EEC programs to customers.

The EEC Decision (Order G-36-09) did not approve the discrete Trade Relations program area funding that supports these activities as it was identified as a duplication of commercial and residential program delivery expenditure. The expenditures in this area are part of the overall overhead of EEC program delivery and are included in the overall EEC TRC score. The EEC Stakeholder Group has not identified any objection to this approach.

#### 11.1.3 CODES AND STANDARDS

Utilities play an important role in energy efficiency market transformation through support for the development of codes and standards. Government and regulating bodies are constantly seeking the participation and input of stakeholder groups, such as utilities, which have a unique understanding of energy supply and customer demand cycles, as well as the ability to support market transformation with financial incentives for efficient equipment and systems. The province's target levels and implementation of the *Greenhouse Gas Reduction Targets Act* are

directly connected to effective market transformation in all EEC program areas. Utilities also play a role in keeping industry informed of developing codes and in alerting stakeholder groups of any unintended consequences that may arise out of proposed codes and standards.

#### **11.1.4 ENERGY MANAGEMENT FUNDING**

A key challenge to achieving customer adoption of DSM programs in the commercial sector has been a lack of resources at the customer end to source these opportunities and administer implementation of the appropriate energy efficiency measures. In response to this issue, the Companies have established human resources to assist customers with facilitating participation in their DSM programs. This includes the employment of energy solutions managers in each major service territory to focus on commercial customer outreach activities dedicated to increasing participation in the EEC programs. In addition, the Companies have developed a new major pilot initiative with the Energy Specialist program. For the Energy Specialist program, positions are created within large commercial customers that are funded by the Companies. The role of these Energy Specialist positions is to identify opportunities for DSM program participation for the customer as well as other projects that will result in more efficient use of natural gas.

### **11.2 2010 Enabling Activities**

2010 Enabling Activities expenditures totalled \$787,000 for FEI and \$124,000 for FEVI. A bulk of these costs came from the Conservation Potential Review study, energy solutions managers, and the Energy Specialist program. Table 11-1 provides an overview of the 2010 expenditures for the Enabling Activities.

**Table 11-1: 2010 Enabling Activities – Expenditures**

Program	Description	Expenditure (000s)		
		FEI	FEVI	Total
Research and Evaluation	Market research and evaluation that support the overall EEC portfolio	\$272	\$68	\$340
Efficiency Partners Program	Delivering EEC programs through B-ticket contractor companies	\$55	\$38	\$93
Codes and Standards	Codes and standards related to EEC program areas	\$15	\$3	\$18
Energy Management Funding	Providing assistance to customers for energy efficiency initiatives	\$445	\$15	\$460
Total		\$787	\$124	\$911

Further information on each of the four areas of the 2010 Enabling Activities is provided below.

#### **11.2.1 RESEARCH AND EVALUATION**

The Companies engage primarily in two activities within this category: market research and program evaluation. Both activities are important. Market research provides invaluable

information used for planning and implementing effective programs, while program evaluation helps to measure the effectiveness of a particular program and/or initiative. This section provides a description of the research and evaluation activities undertaken in 2010.

#### **11.2.1.1 Research Overview**

Market research is defined as the systematic, objective collection and analysis of data about a particular target market, competition, and/or environment. It incorporates some form of data collection, which, in some instances, means primary research (i.e. collected directly from a respondent), while in others it can mean secondary research (i.e. collected from additional sources including related literature, the Internet, and media sources). It is important to conduct both primary and secondary research because together they allow the researchers to gain valuable insight about energy efficiency and conservation. Armed with this knowledge, the Companies are better able to develop, implement, and evaluate programs and activities.

#### **11.2.1.2 Evaluation Overview**

Evaluation of EEC programs and activities allows EEC staff to measure the effectiveness of the programs. Historically, the Companies have been conducting evaluation studies for DSM programs since the late 1990s. In general, program evaluations are designed in two stages. During the program design phase, the program evaluation concept is determined. The primary purpose of this is to understand the metrics for the evaluation and the data that will be required to understand those metrics, and to determine how much of this can be collected during program operation (i.e. as part of the incentive application). By doing this development prior to program launch, better quality data can be collected, potentially at a lower cost than if evaluation design was left until the time the evaluation was taking place. Once the program has operated for a sufficient period of time, an impact evaluation can be. In the past, the evaluations conducted on behalf of the Companies have been conducted by outside consultants who have been selected based on relevant experience and cost. Once selected, the consultant then further develops a detailed evaluation plan for review and discussion with the Companies. When the plan has been approved, the consultant typically begins the field research that includes, but is not limited to, field research (i.e. with participants and the relevant trade allies), billing analysis, and sub metering. Once field research is completed, the study moves into the analysis phase, which results in a final report developed by the consultant.

#### **11.2.1.3 Research and Evaluation Studies Conducted In 2010**

The various EEC program areas administer their own research and evaluation studies and apply those costs to their respective program area TRC benefit/cost test results. Descriptions and budgets for those studies have been captured in the respective program area sections in this Report. Those research and evaluation activities that are part of enabling activities and/or the overall EEC portfolio are described in this section. These expenditures are included in the overall portfolio-level EEC TRC benefit/cost test results. Each of the research and evaluation



activities the Companies undertook in 2010 are listed in Table 11-2 below along with a reference to where their respective description and attributed costs can be found in the Report.

**Table 11-2: 2010 EEC Research and Evaluation Activities**

Study	Description	Expenditure (000s)	Reference
Tankless Water Heater Consumer Feedback	To gain insight about user experience of tankless water heaters to inform program development.	\$18	Residential - 3.4.2.1
TLC Program Participant Survey	Provide customer feedback on program satisfaction and understand prevalence of furnace upgrades through servicing.	\$15	Residential - 3.4.1.2
Condensing DHW Market Transformation	Develop market transformation strategy for the introduction of 0.80 EF DHW technologies.	\$20	Residential - 3.4.3.2
Efficient Boiler Program Evaluation	Analysis of the natural gas savings of the Efficient Boiler program.	\$43	Commercial - 4.4.2.1
On-farm Energy Assessments	Energy assessments at 25 separate sites to establish how agricultural producers use energy.	\$55	Commercial - 4.4.4
MURB Remediation Study	A comprehensive rehabilitation study of problem strata buildings including an analysis of energy use and conservation strategies.	\$10	Commercial - 4.4.3.6
EnerGuide Home Retrofit Study	Develop home performance overview of existing residential housing stock based on aggregate EnerGuide data from LiveSmart BC.	\$20	Joint Initiatives - 7.4.2.1
Energy Modeling	Develop common archetype for utilities to develop economic models for LiveSmart BC offer development.	\$3	Joint Initiatives - 7.4.2.1
Retrofit Energy Modelling in support of LiveSmart BC project	Common model for FEI and electric utilities for cost benefit analysis for LiveSmart BC offer development.	\$5	Joint Initiatives - 7.4.2.1
Bill Insert and Bill Messaging Research Study	Determine readership level and understand if certain messages garner more attention from readers than other messages by our residential customers. Will finish study in 2011.	\$10	Conservation Education and Outreach - 8.2.1.1
Contractor Qualitative Report	To gain insights around energy efficiency program awareness, preferred communication methods, and training needs.	\$14	Enabling Activities - 11.2.1.3
Conservation Potential Review	Examines available technologies and determines their conservation potential.	\$326	Enabling Activities - 11.2.1.3
Residential Retrofit Market Evaluation	Examines consumer awareness and brand awareness of retrofit rebate programs in the province of BC.	\$19	2009 EEC Report Appendix D. P 50
Total		\$558	

The costs associated with enabling activities and EEC portfolio level research studies are listed in Table 11-3 below. This is followed by a short description of each of these studies.

**Table 11-3: 2010 Research and Evaluation Expenditures**

Name of Study	Description	Expenditure (000s)		
		FEI	FEVI	Total
Contractor Qualitative Report	To gain insights around energy efficiency program awareness, preferred communication methods, and training needs.	\$11	\$3	\$14
Conservation Potential Review	Examines available technologies and determines their conservation potential.	\$261	\$65	\$326
Total		\$272	\$68	\$340

#### **11.2.1.4 Contractor Study**

The Contractor study<sup>68</sup> (see Appendix F) was undertaken to enhance both the development of the Companies' EEC Efficiency Partners program and the LiveSmart BC program. This study was conducted in partnership with BC Hydro, FortisBC Inc., and the Ministry of Energy and Mines to identify the ideal communication channels for reaching contractors in BC, and to determine preferences regarding incentives and options in the Efficiency Partners program and the LiveSmart BC program. The study as a whole was budgeted at \$40,000, with FortisBC Energy Inc. contributing \$18,000, BC Hydro contributing \$18,000, and FortisBC Inc. contributing \$4,000. The specific objectives for this study fall into three main areas:

Training:

- To measure the level of awareness and understanding of Heating, Ventilating, and Air-Conditioning ("HVAC") contractors about energy efficiency ("EE") programs;
- Identify real and perceived barriers to promotion and participation in EE programs by contractors; and
- Determine the major challenges contractors have had in using the LiveSmart BC and other utility-led incentive programs.

EEC / LiveSmart BC incentive programs:

- To identify incentives and/or educational programs that will encourage contractors and tradespeople to participate in efficiency or utility-partner programs; and
- Use views and feedback from industry professionals for program development.

Communication channels:

- Identify the preferred communication channels for receiving information concerning EE programs for contractors and the trades;
- Determine preferred communication channels that will facilitate contractors and tradespeople in passing on the information to their customers;

<sup>68</sup> Contractor Study Qualitative Report, compiled by TNS for FortisBC Inc., BC Hydro, and Ministry of Energy and Mines.

- Determine which trade association's communications (i.e. newsletters) and/or trade publications are most accessible to contractors; and
- Determine the best avenues for advertising that will reach contractors.

The study involves two components: the qualitative component, which was completed in December 2010 (see Appendix F) and the quantitative component, with findings expected to be compiled by the end of March 2011. The final report is then delivered after the quantitative component is completed. The following observations surfaced from the initial qualitative phase of research. While they are not meant to serve as conclusive findings about all contractors, these observations provide a number of insights.

### **Contractors' Involvement in EE Incentive Programs**

The qualitative work discovered that current EE incentive programs are not compelling enough for contractors to become fully engaged. Participants suggest that programs need to offer a greater value proposition for contractors to get involved. A key barrier to contractors' participation in EE incentive programs appears to be that the rewards do not compensate sufficiently for the time and energy invested – both the added un-billable time with the customer and extra time doing unpopular program application paperwork. Strategies that lower the time required to participate in a program will be very important to gaining contractors' full involvement. This could amount to simplified paperwork or simplified programs that are easier for contractors to learn and communicate.

A second key barrier to contractors' full involvement is their reluctance to promote something that is constantly changing for fear they will disclose the wrong information. Because of this, the contractors tend to avoid giving their input altogether, often advising customers to learn more from the program website directly. Given the importance of contractors' added opinions and advice, it seems creating a more stable, enduring program would have a positive impact on gaining contractors' involvement.

### **Customers' Involvement in EE Incentive Programs**

Contractors feel current programs do not offer enough value to customers for the time required. They feel EE incentive programs *can* be of significant value to the customer if the programs offer enough of a financial incentive.

Contractors suggest effective EE incentive programs should specify a deadline that motivates action. Some suggest a reward in the form of money deducted from customers' monthly utility bills would be the most sought-after reward for an EE incentive program. They also feel the number of program requirements can discourage customer involvement, as well as the hassles associated with paperwork.

## **Communications**

To learn about EE incentive programs, contractors would appreciate a forum where they could meet face-to-face with the Companies' program staff and ask questions. The easier these programs are to communicate, the more likely it is to gain contractors' involvement in promoting them. Time (in educating customers) is money to these contractors. Materials that expedite the communications process would be desired, such as brochures. Websites seem to be an expectation and serve as an important tool for contractors to redirect questions from customers. Contractors do have an advertising budget, although word of mouth is very strong in their industries.

## **Training and Upgrading**

While some contractors would like opportunities to upgrade their skills, they seem opposed to training sessions that focus on marketing and sales of products or programs. Training programs that offer genuine and relevant skills would be of interest to some of the contractors.

## **Barriers to Contractor Participation**

Many contractors feel these programs are not relevant to their businesses. For example, insulation professionals generally feel that once customers are ready for their service, they have already assessed these programs and included them in the work they request.

### **11.2.1.5 Conservation Potential Review Study**

Please see Section 13 of this Report for a description and update on the Conservation Potential Review ("CPR") study.

## **11.2.2 EFFICIENCY PARTNERS PROGRAM**

As described in Section 11.1.2, the Companies identify efficiency partners as being equipment manufacturers, service contractors, distributors, and retailers, and recognize the influence these various industry groups have with the end use residential and commercial customers who make energy efficiency decisions.

### **11.2.2.1 Background**

In 2007, FEVI's Qualified Dealer program ("QDP") was reintroduced in the FEVI service territory, with an emphasis on further upgrading the quality of the participating gas contractors to ensure customers had access to highly qualified gas contractors. Contractors were required to re-register for the QDP that had new, more stringent guidelines such as: Better Business Bureau reference, BC Safety Authority ("BCSA") registration, business supplier referrals, customer referrals, business license, WorkSafeBC coverage, \$2 million minimum liability insurance, and a business credit check.

Since the re-launch of the program in 2007, and until the increased EEC funding was approved in April 2009, limited resources were devoted to the QDP and essentially no incentive program offers for the FEVI market area were provided. There are currently only about 75 qualified dealers registered in the FEVI area out of a total market of approximately 350 gas contractors located in the FEVI service area. The marketplace has changed significantly since the QDP was first launched. Since the QDP was focused on FEVI, customers were looking primarily for a gas contractor (typically with a B-ticket) to convert them to natural gas and service their natural gas products. Today's energy consumer is looking for a wide range of services that include reliable information sources and manufacturers, installers, and service contractors that will provide energy efficiency recommendations for their entire house. The large number of gas contractors located in the Lower Mainland, the Interior, and on Vancouver Island represent an excellent opportunity for the Companies to promote a "whole-house" energy concept to customers. A whole-house system approach considers the interaction between the building site, regional climate, energy consumption habits, appliance efficiency, building envelope, and other elements or components in the home.

B-ticket gas contractors are one of the largest industry groups that influence end use customers. Domestic/commercial BCSCA licensed B-ticket gasfitters install, test, maintain, and repair propane and/or natural gas lines, appliances, equipment, and accessories in residential and commercial premises up to 750,000 BTU. Industrial A-ticket gasfitters perform the same tasks as B-ticket gasfitters, plus an unlimited BTU range in industrial settings. They may work in new construction, or install systems in existing buildings that are being upgraded. C-ticket fitters are limited to residential gas appliance servicing only.

The Companies' overall objective for this market sector is to expand and rebrand the existing FEVI Qualified Dealer program (B-ticket contractors) in breadth and scope, and to open the new contractor program to include the Lower Mainland and the Interior.

While the Companies are starting with contractors as a first step in the Efficiency Partners initiative, the Efficiency Partners program will also eventually include efficiency service groups that have been previously excluded from the QDP. The Efficiency Partners program should be structured to be able to eventually include the following efficiency partners over time:

- Appliance installation contractor (A and B ticket);
- Gas appliance service groups (C ticket);
- Manufacturers and distributors;
- Big box retailers;
- Residential and commercial energy auditors;
- Weatherization services (draft proofers);
- Support groups (i.e. regulators and colleges); and
- Associations.

The rationale behind this expansion is that the current QDP has limited capabilities since the majority of the participating FEVI contractors are small “mom and pop” type of businesses. With an expansion to the Lower Mainland and Interior service areas, there is a concentration of much larger companies that will involve working with supplier and distribution groups. This will especially be true with big box stores. With the inclusion of a comprehensive group of service providers in the expanded Efficiency Partners program, customers will have access to a reliable network of highly qualified service providers with the ability to assist them with a wider range of efficiency services.

#### **11.2.2.2 Efficiency Partners Program 2010 Activity Overview**

In 2010, the Efficiency Partners program focus remained on continued evaluation and development of a new gas contractor program, reaching out to the gas contractor community through mail-outs and advertising communications, conducting focus groups, attending events and tradeshow, and maintaining the qualified dealer co-op advertising activities in the FEVI service area. Activity highlights of the Efficiency Partners program for 2010 are provided below.

#### **11.2.2.3 Communication and Outreach Activity Milestones**

Communication and outreach activities are essential in order to gain the support of, and deliver energy efficiency and conservation activities through the Companies’ efficiency partners. These activities differ from those described in Section 8, which focus on general conservation and non-program specific communication that targets the general public. The following lists the communication and outreach activity milestones achieved in 2010:

- Contractor focus group sessions conducted in 2009 suggested the concept of establishing a quarterly newsletter containing value-added content of interest to the natural gas contractor community would be well received. With this feedback in mind, the first issue of the contractor newsletter was mailed in winter 2010 to over 2,400 contractor companies province-wide. As well, an incentive program update was mailed in fall 2010;
- Contractor focus group sessions held in FEI and FEVI service territories were completed in the first and second quarters of 2010, with insights collected used to support the development of new residential programs. Sessions were well attended, with feedback supporting the expanded program. These focus group sessions were in addition to the contractor study research discussed in Section 11.2.1.4. Below are some of the feedback highlights:
  - Contractors felt they did not have enough support and/or information about how changes to codes and standards would impact their business;
  - Concerns exist about the impact of new technologies (i.e. receiving products with no training support);

- Contractors want to be ‘in the know’ about innovative technologies and understand how they might need to prepare to embrace these technologies;
  - Courses currently offered by colleges and associations are outdated;
  - Contractors would like to work more closely with the Companies in order to expedite requests for service connections; and
  - One of the main benefits of supporting an expansion of the contractor program was noted to be the contractor company listing on the Companies’ website. Connecting customers with contractors who have been vetted through the contractor program lends credibility to these companies, and is therefore seen as a value-added benefit to the contractor.
- Three consultation workshops were conducted in partnership with the Ministry of Energy and Mines, FortisBC Inc., and BC Hydro, and included the greater contractor and energy audit communities in order gather insights and feedback to support program development for the 2011 iteration of LiveSmart BC. These sessions, held in Burnaby and Victoria, were conducted in the latter part of Q4. Below are some of the feedback highlights:
  - Need more focus on educating all stakeholders (i.e. homeowners, contractors, and suppliers) on the house-as-a-system (“HAAS”) concept;
  - Improved communication (and more lead-time) on timing of changes to, and launches and closures of programs is required;
  - Energy advisors must take the lead and identify specific needs as there is very little contact, if any, between the contractor and the energy advisor. These two groups need to establish a closer relationship;
  - Contractors have more credibility in the eyes of homeowners than any other party so the Companies need them to be onside;
  - Manufacturers and distributors are key to communications with contractors; and
  - Contractor training is needed for ventilation and HAAS.
- Established direct contact and continued to develop relationships with energy efficiency equipment manufacturers and suppliers, and enhanced the Companies’ involvement with contractor stakeholder groups such as associations and regulatory organizations. The Companies currently sit on the Thermal Environmental Comfort Association (“TECA”) Board (non-voting member); and
- In 2010, association publications, magazines, and other promotional opportunities like web linking were identified in order to create an Efficiency Partners communication strategy for 2011. Trade publications and magazines provide an excellent opportunity to relay EEC initiatives and activities, including providing updates on activities related to the contractor program.



#### 11.2.2.4 Co-op Advertising Activity

Participation in the existing Co-op Advertising program for gas contractors in FEVI remained steady throughout 2010. Development of the existing guidelines for expansion of the Co-op Advertising program to FEI continues, and will incorporate an increased focus on energy efficiency messaging. Related documents for the expanded Co-op Advertising program are in the final stages of review.

Expenditures in this area are part of the overall overhead of EEC program delivery and are funded at the portfolio level.

Table 11-4 identifies areas of operation and annual expenditures.

**Table 11-4: 2010 Efficiency Partners Expenditures**

Contractor Program	Expenditure (\$000s)				
	Q1	Q2	Q3	Q4	Total
FEI	\$12	\$16	\$10	\$17	\$55
FEVI	\$15	\$2	\$2	\$5	\$24
FEVI Co-op Advertising	\$1	\$4	\$3	\$6	\$14
Total	\$28	\$22	\$15	\$28	\$93

### 11.2.3 CODES AND STANDARDS

#### 11.2.3.1 Overview

Industry, regulating bodies, code development agencies, and user groups rely on the participation and input of stakeholder groups, such as utilities, that have a unique understanding of energy supply and customer demand cycles to assist in the development of codes and standards. The content and timing of code implementation directly affects market transformation in all program areas. Through the Efficiency Partners program, industry will be informed of developing codes and possible impacts to the marketplace.

It is important for the Companies to stay abreast of changing regulations; however, the Companies' *participation* in the development phase of regulation allows for more effective EEC program delivery and successful market transformation. This requires various levels of involvement. Codes and standards are established at a national level and adopted with or without changes at the federal and/or provincial level. The Companies' level of regulatory involvement is indicated by one of three involvement classifications:

**Monitoring:** To keep current with and informed about all existing and new codes and standards developments. These activities assist the Companies with the development of strategies to protect ratepayers and shareholders.

**Stakeholder:** For select provincial and federal code initiatives, the Companies participate at a *stakeholder* level, actively attending meetings and submitting written responses through the

consultation phase. These activities, in conjunction with those of other key stakeholders, provide guidance to the final objectives.

**Developing Regulations:** Direct involvement with strategic steering committees, technical committees, and technical subcommittees for developing regulations and standards, as well as supporting studies and projects that provide information to help develop codes and standards. These activities directly enable standards development.

Table 11-5 identifies areas of operation and expenditures for 2010.

**Table 11-5: 2010 Codes and Standards Expenditures**

Codes and Standards	Expenditure (\$000s)				
	Q1	Q2	Q3	Q4	Total
FEI	\$10	\$3	\$3	-\$1	\$15
FEVI	\$2	\$0	\$1	\$0	\$3
Total	\$12	\$3	\$4	-\$1	\$18

Note: The surplus in FEI expenditures in Q4 represents an EnerGuide participation reimbursement of costs related to the Companies' involvement on the National EnerGuide Evaluation Committee.

It should be noted that EEC funds are only utilized to support the Companies' work on codes and standards in relation to areas that directly affect EEC programs and program development. Other work performed on codes and standards is covered by the Companies' Energy Products and Services department.

The following sections highlight codes and standards as they apply to EEC program areas for 2010 and are presented in the order of the Companies' involvement levels as outlined above - monitor, influence, and participate.

### **11.2.3.2 Standards and Company Involvement: Monitoring Level**

#### **Commercial Water Heater and Boiler Regulations**

There were discussions for regulation changes to commercial water heater or commercial boiler standards to try to standardize units of energy. The United States uses American Standard units and official Canadian codes and standards use Scientific International (SI) units. Codes and standards are usually written with one set of units prescribed and the other set of units in brackets for information only. There are differences in how efficiency is calculated and there are differences in how energy input is reported. There was no resolution to this issue although there is more clarity since the discussions took place.

#### **Residential Furnace Regulations**

For new construction, gas furnaces manufactured on or after January 1 2008 must have a minimum Annual Fuel Utilization Efficiency ("AFUE") level of 90 percent. For existing dwelling retrofits, gas furnaces manufactured on or after December 31, 2009 must have a minimum

AFUE rating of 90 percent. As in-stock furnaces manufactured before the cut-off date can still be retailed, customers continue have a mid-efficiency choice.

Although these furnace regulations are in place, according to the Companies' 2008 Residential End Use Survey ("REUS"), almost 80 percent of the furnaces in the Companies' service territories were standard and mid-efficiency models. This represents a very significant area of potential for natural gas savings. Conventional DSM protocols only allow utilities to incent savings based on the regulated baseline. Also, utilities can only count savings beyond the regulated baseline that are generated as a result of the difference in efficiency between the in-situ technology and the replacement technology for those years that replacement is being moved up. For example, conventional DSM protocols would indicate that should a program incent a customer to early-replace an existing 80 percent efficient furnace five years before the end of its life with a 95 percent efficient furnace, the utility would only be able to count the energy savings from 80 percent to 95 percent efficiency for the five years of life remaining on the furnace. The rest of the savings would be calculated based on a change from 90 percent to 95 percent since 90 percent is the regulated minimum efficiency level. These conventional DSM protocols significantly limit a utility's ability to offer effective incentives on products with regulated minimum efficiency levels, as the energy savings on which incentives are based are small.

This is one of the reasons the Companies have under spent compared to approved expenditure levels: the residential furnace upgrade program had been a flagship program for FEI prior to the introduction of the 90 percent minimum efficiency standard. Yet limiting a utility's ability to offer effective incentives ignores marketplace realities. For example, data from the Companies' 2008 REUS indicates some customers are keeping their furnaces well beyond the end of equipment life – in some cases for 30 to 40 years. Not only do these older furnaces offer significant energy savings opportunities when replaced with higher efficiency models, they pose possible safety and human health hazards due to the potential for component failure that should be addressed, preferably through an incentive program to encourage customers to replace these older, inefficient units (i.e. a furnace scrap-it program). It is the Companies' intention to pursue such a program as part of the suite of EEC offerings for 2012 and 2013 that will be brought forward in the Revenue Requirements Application to be filed in May 2011.

Monitoring of trends in this area was considered a high priority as there were new technologies introduced that affected adoption, trades training, new installation requirements, and pricing. There were also unintended consequences from new venting requirements. For instance, since standard efficiency gas-fired furnaces and boilers usually share a metal vent with the gas-fired hot water tank, one unintended consequence of the new venting requirements was a trend towards electric hot water tanks in new construction. This is because new high efficiency condensing furnaces and boilers require a dedicated vent, quite often through the side wall of the building. This means the entire cost of a metal vent up through the roof is now associated with the gas-fired hot water tank only, instead of being shared by the furnace and hot water tank, which can discourage the installation of an energy efficient gas-fired hot water tank.

### **11.2.3.3 Standards and Company Involvement: Stakeholder Level**

#### **BC Building Codes for New Construction**

In 2010, the Companies were involved at a stakeholder level in the development of the new provincial building codes. This required the development and analysis of multiple modelling scenarios to determine the impact of higher efficiency target levels. Modelling variables included fuel source, location, construction techniques, and materials. The stakeholder committee agreed to take the approach of concentrating on the thermal efficiency of the building enclosure. Industry will need to recognize the diversity of design and construction techniques that will be required for gas or electric applications.

The overall impact on construction costs to achieve higher efficiency ratings are under review. Once the building code is adopted, support for implementation will need to be provided. This will primarily involve educational support with industry stakeholders on energy specific changes to appliances, materials, and construction techniques.

#### **Residential Boiler Regulations (Still in Proposal Stage)**

Canada's energy efficiency regulations for residential boilers have remained unchanged since 1998. A regulation review is underway. When the new regulations are enacted, they will apply to any boiler manufactured after September 2010 and will mandate a Minimum Efficiency Performance Standard ("MEPS") of 82 percent with no standing pilot. Comments for review were accepted up to June 1, 2010. The Companies' involvement included written responses to NRCan's Office of Energy Efficiency ("OEE") during the consultation period.

The Companies will be monitoring the impact of these new regulations. Increases to appliance costs and technical challenges to retrofitting existing systems could have market impact. Technical challenges include possible increases to venting requirements and additional drainage requirements. Existing lower efficiency inventory appliances will still be available and will slow the integration of higher efficiency options into the marketplace. The customers for these appliances are homeowners for retrofit applications and homebuilders or developers for new residential construction.

#### **Hearth Product Regulations**

The Companies were involved with industry stakeholders to develop the EnerChoice top tier labelling system to help customers identify efficiency levels. The EnerChoice labelling system was introduced a few years ago, but the work of helping customers recognize the label and associated benefits is ongoing.

There is currently no regulation for minimum efficiency of hearth products; however, NRCan requires fireplaces to have a Fireplace Efficiency ("FE") rating label. Ratings for models currently available range from 20 percent to 70 percent FE.

Integration of some of these products into the ENERGY STAR® program would be a good start to raising awareness of the benefits of energy efficiency.

## **Solar Thermal Systems**

The Companies have been involved with regulations pertaining to solar thermal installations and periphery areas like plumbing requirements, hybrid gas and solar systems, and monitoring technologies.

### **11.2.3.4 Standards and Company Involvement: Developing Regulations Level**

#### **Performance Standards**

The Companies have staff actively participating on the Canadian Standards Association's ("CSA") "Energy Efficiency and Related Performance of Fuel-burning Appliances and Equipment" technical committee. This committee oversees the following performance standards: P.2 (residential gas-fired furnaces and boilers), P.3 (gas-fired storage water heaters), P.4 (fireplaces), P.5 (gas clothes dryers), P.6 (gas-fired pool heaters), P.7 (gas-fired instantaneous water heaters), P.8 (commercial gas-fired package furnaces), P.9 (combined space and water heating systems), P.10 (integrated mechanical systems for residential heating and ventilation), P.11 (gas-fired unit heaters), P.12 (gas-fired infra-red heaters), and the Plus 1200 compliance verification and rating system.

The CSA technical committee on Energy Efficiency and Related Performance of Fuel-burning Appliances and Equipment is a newly formed committee that had its inaugural meeting January 21, 2010 in Mississauga. The committee met again in person in June 2010 and communicated by teleconference and email throughout the year. The 2010 activities included:

- Merging the CSA P.2 (gas-fired residential furnaces and boilers) standard with the B212 (oil-fired residential furnace and boiler) standard;
- Merging the CSA P.3 (gas-fired storage water heaters) standard with the B211 (oil-fired storage water heater) standard;
- Submitting a proposal to open up the existing P.3 (gas-fired storage water heaters) standard to strengthen repeatability of the testing and ensure water draw patterns are more reflective of actual usage patterns; and
- Submitting a proposal to expand the PLUS 1200 document (guide to energy efficiency compliance, verification, and ratings for water heaters) to become a consensus document and include compliance testing for other key appliance categories.

#### **Residential Domestic Hot Water Heater Regulations**

Water heating represents about 20 percent of household energy use in Canada. Water heating will account for an ever increasing share of natural gas use as envelope construction, appliances, and HVAC continue to improve in efficiency, while conventional water heating equipment has changed little. The minimum efficiency of natural gas storage-type water heaters in BC is measured by an Energy Factor ("EF"), which is a volume adjusted factor. For the most common size, a 151 litre (40 US gal) tank, the minimum EF is 0.62 for water heaters

manufactured after September 1, 2010. Customers will still have a choice until existing inventories are exhausted. This first tier of provincial change has not incurred adverse market effects. BC is moving alone without collaboration from federal agencies on this 0.62 efficiency level for residential gas-fired storage tanks.

There has been collaboration between NRCan and the BC Ministry of Energy and Mines along with the Canadian Gas Association (“CGA”) and Canadian Institute of Plumbing and Heating (“CIPH”) regarding future implementation of efficiency regulations. The different efficiency levels are often referred to as: Tier 1 0.62 EF, Tier 2 0.67 EF, and Tier 3 0.80 EF or condensing. These three tiers represent three different technologies needed to achieve the prescribed efficiency level for residential storage tanks. There are different efficiency levels and timelines for tankless units and storage units over 75,000 BTUH (British thermal units per hour) input. As described in the case of furnaces in Section 11.2.3.2 above, any changes to timelines or efficiency levels will impact the Companies’ ability to offer effective incentives. Manufacturers have indicated they have concerns with the second and third tiers of the proposed water heater regulations. Some suppliers and distributors are not complying with Tier 1 requirements, citing supply problems. This is a provincial enforcement issue and highlights the hazards of regulation being out of step with supply. The second tier specifies an EF rating of 0.67 proposed for 2016 and the third tier is 0.80 or condensing technology proposed for 2020. The second tier would require retooling of equipment by manufacturers for a short time period and then retooling again for the third tier. There is uncertainty among manufacturers with regard to market share as the new tiers will require significant new investment with associated higher costs per unit production. Due to the short transition framework outlined by regulators, it is likely manufacturers will move to completely skip Tier 2. This will create additional problems for the gas industry as Tier 3 equipment can cost three times as much as Tier 1 equipment. This will affect new construction somewhat but will result in an energy shift to electric for retrofits. Utilities continue to try to bring stakeholders together to determine the appropriate market transformation plan.

A CGA partner 0.80 EF domestic hot water pilot program is currently in the development phase. Information on this pilot can be found in Section 3.

#### **11.2.3.5 Summary**

The Companies believe their codes and standards activities are aligned with and support the federal and provincial governments’ energy and climate change objectives.

There are a number of product areas where regulations are connected to effective market development with the assistance of EEC programs including: commercial water heaters and boilers, residential furnaces, boilers, and domestic hot water heaters, hearth products, and BC building codes with particular attention to EnerGuide 80 ratings for houses and eventually net zero buildings in 2020. The Companies need to ensure codes are developed in conjunction with market dynamics and equipment manufacturers’ ability to provide specified products in order to ensure their customers have appropriate choice in the marketplace.



If regulations are used to lead market change and force behavioural changes, instead of their traditional role of following the market curve and bringing along the slow starters, the Companies will lose their opportunity to help shift the marketplace with incentives and risk significant fuel switching. Residential hot water heater regulations and the 2011 implementation of the BC building codes, in particular, will continue to require a partnership with government and manufacturers to achieve a market transformation plan.

The Companies' EEC team will remain active with codes and standards committees as they pertain to EEC program and market development, and this will continue to be an important activity area.

## **11.2.4 ENERGY MANAGEMENT FUNDING**

### **11.2.4.1 Overview**

In the past, a major barrier to program adoption has been facilitation of equipment installation and application administration on the customer side. Potential program participants are often lost because they do not have the resources available to implement the measures required for program participation, nor the time to go through the application process. In these instances, the potential participant has the desire and financial means to implement the required measure but not the human resources to make it happen.

The Companies believe there is vast opportunity available for increased DSM program participation and energy efficiency implementation by providing resources to commercial customers to assist with program facilitation and energy efficiency projects. In 2010, three separate initiatives were launched to support this approach. This included hiring three EEC energy solutions managers, implementing a pilot program to fund the placement of energy specialists at key commercial customer accounts, and co-funding a community energy manager to support the community of Prince George. Expenditures for these initiatives in 2010 are listed in Table 11-6.

**Table 11-6: 2010 Energy Management Funding – Expenditures**

Name of Program/Initiative	Description	Expenditure (000s)		
		FEI	FEVI	Total
Energy Solutions Managers	Sales activities dedicated to increasing participation in the EEC programs	\$204	\$0	\$204
Energy Specialist Program	Funding of energy management positions within select organizations	\$241	\$15	\$256
Prince George Community Energy Manager	Funding of an energy management position for the community of Prince George	\$0	\$0	\$0
Total		\$445	\$15	\$460

### **11.2.4.2 Energy Solutions Managers**

In spring 2010, the Companies recognized the need to proactively pursue energy efficiency and conservation opportunities directly with existing and potential commercial and institutional customers. In response to this need, the Companies took the initiative to develop three new



roles within the sales department in May 2010 to focus specifically on energy efficiency and conservation. Recruitment began in June and all three positions were filled by December 2010. The three positions were stationed in the Lower Mainland, the Interior and on Vancouver Island. The position on Vancouver Island was the last one filled and, therefore, no expenditures appear in 2010 for FEVI. Approximately \$200,000 was spent to fund these positions in 2010.

The EEC energy solutions managers (“ESM”) are focused on sales activities dedicated to increasing participation in the EEC programs, including multifamily residential buildings and High-carbon Fuel Switching program areas. As part of their duties, the ESMs assist commercial customers with eligibility criteria and the requirements of applicable EEC programs, as well as support customers in the coordination and implementation of the necessary changes to equipment. These positions also offer valuable input to existing and future EEC programs based on customer feedback and market intelligence.

Each ESM has specific EEC program participation targets focused on commercial and institutional customers. They identify and work one-on-one with existing small and medium sized commercial customers that could benefit from current EEC programs. The ESMs also work closely with operations and other sales team members to uncover EEC opportunities such as potential high carbon fuel switching opportunities. They also provide support to the Companies’ efficiency partners in the regions to maximize participation in the current EEC programs.

ESMs also attend and participate in trade shows and home shows, and deliver presentations to boards, municipal governments, service groups, and industry associations to promote the features and benefits of the current EEC programs. The regional energy solutions manager manages progress towards targets on a monthly basis.

### **11.2.4.3 Energy Specialist Program - PILOT**

#### **11.2.4.3.1 Energy Specialist Program Overview**

<b>Energy Specialist Program - Pilot</b>	
<b>Target Audience</b>	Retrofit – Large Commercial and Institutional Customers
<b>Duration</b>	May 2010 - Dec 2011
<b>Incentive</b>	\$60,000 per Energy Specialist
<b>Partners</b>	BC Hydro
<b>Overview</b>	
<b>Background</b>	BC Hydro and the Companies entered into a Memorandum of Understanding in July 2009 that established a set of principles for an enhanced coordinated approach to demand side management initiatives. This included plans to fund energy specialist positions with selected natural gas customers that already have an established BC Hydro-funded energy manager.  Participants in the program were selected by reviewing the list of organizations that

	currently have a BC Hydro energy manager and determining, through a consultative process with BC Hydro and the Companies' commercial account managers, which would have the best chance at bringing in new energy efficiency projects.
<b>Description</b>	<p>The energy specialist reports to and supports the energy manager on holistic energy reduction projects while also focusing on identifying opportunities to use natural gas more efficiently. Funded as an enabling program, a key priority for the energy specialist is to identify opportunities for their organization to participate in the Companies' EEC programs. Energy specialist positions are funded by the Companies up to \$60,000 for a period of one year. Energy specialists are required to submit a quarterly report outlining their projects that are completed, in progress, and planned.</p> <p>To qualify to be an energy specialist, candidates for these positions must be either a graduate from the BCIT Sustainable Energy Management Associate Certificate program or have a master's degree in Clean Energy from UBC.</p>
<b>Goals</b>	<ul style="list-style-type: none"> <li>• Increase participation in the Companies' EEC programs.</li> <li>• Develop and execute other projects that result in natural gas savings.</li> <li>• Work with the energy manager on projects that result in holistic energy savings.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	Administered internally within the Companies' EEC group.
<b>Communications</b>	As a pilot initiative, the energy specialist program is not being actively promoted at this time.
<b>Evaluation Strategy</b>	This pilot program will be evaluated in Q3 2011 to determine its overall viability, assess program delivery and reporting mechanisms, and full program roll-out options. This evaluation will be conducted through analysis of energy specialists' quarterly reports and qualitative feedback from participating organizations and the Companies' account managers.

#### 11.2.4.3.2 2010 Energy Specialist Program Results

**Table 11-7: 2010 Energy Specialist Program Expenditures**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	13	\$240	\$1	N/A	N/A	N/A	N/A
FEVI	1	\$15	\$0	N/A	N/A	N/A	N/A
Total	14	\$255	\$1	N/A	N/A	N/A	N/A

Twenty separate organizations were approved by the Companies to hire energy specialists in 2010 as part of the pilot launch of the Energy Specialist program. Of these organizations, six were still working through the hiring process at the end of 2010 to fill their respective energy specialist positions.

To date, anecdotal feedback on the program from the participating organizations has been very positive. Participating organizations have been able to make a lot of progress on their energy efficiency projects with the addition of the energy specialist position. In addition, there have been observed efficiencies in pairing the energy specialist with the BC Hydro-funded energy manager in that the energy specialist has been able to step in immediately to begin working on projects and reporting results based on the models and tools already established by the BC Hydro-funded energy manager.

#### **11.2.4.4 Prince George Community Energy Manager – PILOT**

##### **11.2.4.4.1 Prince George Community Energy Manager Overview**

<b>Prince George Community Energy Manager - Pilot</b>	
<b>Target Audience</b>	Retrofit and New Construction - Prince George Community (all types of customers)
<b>Duration</b>	Nov 2010 - Nov 2011
<b>Incentive</b>	\$25,000
<b>Partners</b>	BC Hydro, NRCan
<b>Overview</b>	
<b>Background</b>	<p>After discussions with the City of Prince George in mid-2010, the Companies agreed to co-fund a community energy manager to focus on the community of Prince George. BC Hydro has funded similar positions in the past, which helped establish the framework for this position. The City of Prince George has shown a keen commitment to promoting energy efficiency and green initiatives for its community. This also contributed to the decision to select this opportunity as a pilot program for funding a community energy manager.</p> <p>Establishing the funding agreement and identifying a suitable candidate took several months but was finalized in November 2010.</p>
<b>Description</b>	<p>Working for the City of Prince George and reporting to the environment manager, the Prince George community energy manager ("CEM") is responsible for identifying and facilitating the implementation of energy efficiency opportunities for the community of Prince George in order to reduce grid-supplied energy use and fossil fuels use, including natural gas, and to meet target GHG emissions reductions by 2012. The Companies have split the funding of this position with BC Hydro and NRCan. The Companies' contribution is in the amount of \$25,000 for one year. Funded as an enabling program, a key priority for the CEM is to identify opportunities for natural gas customers in Prince George to participate in the Companies' DSM programs.</p> <p>The CEM is required to submit a quarterly report outlining their natural gas related projects that are completed, in progress, and planned.</p>
<b>Goals</b>	<p>The following deliverables from the CEM have been requested by the Companies:</p> <ul style="list-style-type: none"> <li>Promote the Companies' energy efficiency programs, information, and incentives;</li> </ul>

	<ul style="list-style-type: none"> <li>• Work to increase the Companies' program participation by residents and businesses in Prince George; and</li> <li>• Explore and develop projects that result in more efficient use of natural gas in the Prince George area.</li> </ul>
<b>Implementation</b>	
<b>Administration</b>	Administered internally within the Companies' EEC group.
<b>Communications</b>	As a pilot initiative, the community energy manager program is not being actively promoted at this time.
<b>Evaluation Strategy</b>	At the time of writing this report, the plan for this pilot program is to fund only this one CEM position until the end of the initial one year term. Towards the end of this term, the pilot program will be evaluated to determine its overall viability, the benefits of extending this position to a second year, and the possibility of opening it up to include funding for CEMs in other communities. This evaluation will be conducted through an analysis of the CEM's quarterly reports.

#### *11.2.4.4.2 2010 Prince George Community Energy Manager Results*

The Prince George CEM was hired in November 2010. While the CEM position started in November 2010, the first funding payment is not due until February 2011; therefore, no dollars are shown to be committed to this pilot program in 2010. In November and December of 2010, the CEM established priorities for the position, worked to become familiar with the Prince George market, and began work on a strategic energy management plan.

### **11.2.5 SUMMARY**

Enabling Activities provide important support for effective EEC program development, delivery, and evaluation. Most EEC programs work on the principal of market transformation with eventual mandate by regulation as the end goal.

Research and evaluation provides the information required to create a market development plan. The Efficiency Partners program aids in efficient delivery of EEC programs and provides the vital industry feedback for program adjustments. Regulation target levels and implementation timeframes require guidance from industry stakeholders.

Given the aggressive provincial GHG emissions reduction targets, participation on the various codes and standards committees is critical. Poorly constructed or timed regulations could result in a void of products and services and disrupt market transformation processes. Unsuccessful market area transformation could result in an unbalanced shift to one energy source, creating a supply and demand problem that could in turn result in rate increases for customers.

Energy management funding enables customers, who might otherwise not enter into energy efficiency and conservation projects due to lack of resources, to get involved in initiatives that will decrease their energy consumption.

The Companies believe the results of Enabling Activities in 2010 demonstrate their value and intend to continue to refine and improve such activities in 2011.

### 11.3 2011 Planned Enabling Activities

As discussed in Section 11.1, in 2010 the Companies pursued Enabling Activities in support of broader EEC activities and programs. These activities fall into four major categories: research and evaluation, Efficiency Partners program, codes and standards, and energy management funding. In 2011 these four areas of focus will remain the same and the Companies will increase and broaden their planned activities in each.

The expenditures in this area are part of the overall overhead of EEC program delivery and are included in the overall portfolio level expenditures.

As the Companies' EEC initiative continues to expand through 2011 and beyond, the efficiency partners and codes and standards areas have the potential to consume significant resources. As these areas develop, it may be necessary to reassess the need to establish a separate program area for these activities in the future, with their own budgets.

Table 11-8 below shows the budgeted amount for 2011 Enabling Activities. Note, however, that not all research and evaluation studies have been determined for 2011 and so the total planned expenditures for this area are yet to be determined.

**Table 11-8: 2011 Enabling Activities - Forecast Expenditures**

Program	Description	Expenditure (\$000s)		
		FEI	FEVI	Total
Research and Evaluation*	Market research and evaluation that support the overall EEC portfolio	\$190	\$48	\$238
Efficiency Partners Program	Delivering EEC programs through B-ticket contractor companies	\$317	\$105	\$422
Codes and Standards	Codes and standards related to EEC program areas	\$60	\$15	\$75
Energy Management	Providing assistance to customers for energy efficiency initiatives	\$1,391	\$293	\$1,684
Total		\$1,958	\$461	\$2,419
* Only includes the CPR and Contractor studies. Does not include any additional research studies that may be undertaken in 2011.				

Further information on each of the four areas of the 2011 Enabling Activities is listed below.

### 11.3.1 RESEARCH AND EVALUATION

#### 11.3.1.1 2011 Overview

Each of the research and evaluation activities the Companies plan to undertake in 2011 are listed in Table 11-9 below, along with a reference as to where their respective description and attributed costs can be found in this report.

**Table 11-9: 2011 EEC Research and Evaluation Activities**

Study	Description	Expenditure (000s)	Reference
Getting to EnerGuide 80 and Beyond - New Home Construction	Determine energy savings, costs, and lifecycle costs for natural gas and electric heated homes for EnerGuide 80 through to EnerGuide 86 (this study is jointly funded by BC Hydro).	\$34	Residential - 3.4.3.2
EnerChoice Efficient Fireplace Brand Awareness	Determine awareness of EnerChoice efficient fireplaces in both consumers and dealers to inform program development and outreach.	\$15	Residential - 3.4.2.2
On-farm Energy Assessments	Energy assessments at an additional 25 separate sites to establish how agricultural producers use energy.	\$28	Commercial - 4.4.4
MURB Remediation Study	A comprehensive rehabilitation study of problem strata buildings including an analysis of energy use and conservation strategies.	\$10	Commercial - 4.4.3.6
Field verification of Hot 2000 base modeling and with consumption data	Compare energy savings estimates in Hot 2000 to consumption data to inform NRCan as to more accurate savings estimates for BC (gas and electric).	\$25	Joint Initiatives - 7.4.2.1
Standard Operating Conditions for Hot 2000 Modeling for BC	Review EnerGuide Standard Operating Conditions (SOC) and provide recommendations to provide consistency across utilities and governments.	\$3	Joint Initiatives - 7.4.2.1
Bill Insert and Bill Messaging Research Study	Determine readership level and understand if certain messages garner more attention from readers than other messages by our residential customers. Study began in 2010 and will be completed in 2011.	\$12	Conservation Education and Outreach - 8.2.1.1
EEC Event Tracking	To determine the success of the overall approach (event attendance and/or sports team partnerships along with an online contest) for raising awareness of energy conservation.	\$15	Conservation Education and Outreach - 8.3.1.1
EEC Long Term Tracking	To track awareness levels for EEC messaging, message retention, and programs overtime among the residential and general public audience.	\$60	Conservation Education and Outreach - 8.3.1.1
Geoexchange Energy Performance Study	The Companies have committed EEC funds for a geoexchange energy performance evaluation project initiated through Geoexchange BC. The goal is to evaluate the energy savings attributable to installed geoexchange systems in MURBs and commercial and institutional buildings.	\$12	Innovative Technologies - 10.4.1.2
CEATI Gas Utilization Working Group Membership	Participate in this working group to investigate the market potential and energy savings for different market ready technologies and collaborate with utilities and stakeholders on potential studies, pilots, and demonstration projects.	\$4	Innovative Technologies - 10.4.1.2
Westhouse Demonstration Project	The project is a collaboration between City of Vancouver, Simon Fraser University, and FEI to demonstrate alternative energy in high visibility collaboration and to gain information on operation and energy performance of the solar thermal system.	\$12	Innovative Technologies - 10.4.1.2
Contractor Qualitative Report	To gain insights around energy efficiency program awareness, preferred communication methods, and training needs.	\$4	Enabling Activities - 11.2.1.3
Conservation Potential Review	Examines available technologies and determines their conservation potential.	\$234	Enabling Activities - 11.2.1.3
Total		\$468	

Beyond completion of the Contractor study and the Conservation Potential Review study, research activities at the EEC portfolio level have not been planned out yet for the year. Therefore, the total dollar value listed in Table 11-9 only includes these two studies and does not take into account any other studies that may be required in 2011.

As discussed in Section 11.2.1.4, the Contractor study involves two components: the qualitative component completed in December 2010 (refer to Appendix F to see the report) and the quantitative component, with findings expected to be compiled by the end of March 2011 and the final report delivered thereafter. The Conservation Potential Review study is scheduled to be completed at the end of March 2011. Please refer to Section 13 for more information on this study and the expected results.

Table 11-10 outlines expected research and evaluation expenditures for 2011.

**Table 11-10: 2011 Research and Evaluation - Forecast Expenditures**

Name of Study	Description	Expenditure (000s)		
		FEI	FEVI	Total
Contractor Qualitative Report	To gain insights around energy efficiency program awareness, preferred communication methods, and training needs.	\$3	\$1	\$4
Conservation Potential Review	Examines available technologies and determines their conservation potential.	\$187	\$47	\$234
<i>Additional Studies</i>		TBD	TBD	TBD
<b>Total*</b>		<b>\$190</b>	<b>\$48</b>	<b>\$238</b>

\* Total does not include any additional research studies that may be undertaken in 2011.

## **11.3.2 EFFICIENCY PARTNERS PROGRAM**

### **11.3.2.1 Overview and Highlights**

The 2010 Efficiency Partners program development highlights noted in Section 11.2.2 form a solid foundation from which to further develop this initiative in 2011. Strong uptake of EEC programs through the course of 2011 will require strong Efficiency Partner group support. It is important for industry stakeholders with end-use customer influence to be aligned with the Companies' stance of promoting high efficiency appliances, due to their direct customer contact.

To promote this support, the Companies will broaden their Efficiency Partners program in 2011 beginning with natural gas service providers through the expanded contractor program. As suggested in Section 11.2.2, while the Companies are starting with contractors as a first step in the partner's initiative, the Efficiency Partners program will also eventually include efficiency service groups like suppliers, distributors, and so on. Highlights of the planned 2011 Efficiency Partners program activities are as follows:

- Roll out of the expanded Contractor program to all service territories;
- Province-wide registration drives to encourage participation in the Contractor program to be held during the latter part of the second quarter. The sessions will include an



educational component with guest speaker (i.e. new water heater technology, emerging technologies, and BCSA permitting requirements);

- Focus on outreach through the further development and enhancement of the Companies' website (i.e. customer and efficiency partner portals), developing promotional materials for both customers and efficiency partners, participating in third-party communications through association and stakeholder newsletters, and participating in association events and tradeshow;
- Use Contractor study research findings to guide the development of training opportunities for contractors and work with trade associations to deliver these opportunities; and
- Develop and launch the Contractor program sub-brand name and logo across all service territories.

As noted in section 11.1.2, Order No. G-36-09 did not approve the discrete trade relations budget area put forward as it was considered by the Commission to be a duplication of commercial and residential program delivery expenditure. The expenditures in this area are part of the overall overhead of EEC program delivery and are included in the costs for the overall EEC portfolio.

Table 11-11 is an estimate of the expenditures required to develop and maintain the 2011 Efficiency Partners program.

**Table 11-11: 2011 Efficiency Partners Program – Forecast Expenditures**

Efficiency Partners Program	Expenditure (\$000s)		
	FEI	FEVI	Total
Registration/application administration (Contractor program)	\$22	\$6	\$28
Promotion, brochures, and trade magazine ads	\$18	\$5	\$23
Conferences and trade shows	\$12	\$3	\$15
Quarterly newsletters	\$19	\$5	\$24
Efficiency workshops/training	\$64	\$16	\$80
Website development	\$40	\$10	\$50
Co-op advertising	\$20	\$30	\$50
Program development expenses	\$48	\$12	\$60
Program development labour	\$74	\$18	\$92
<b>Total</b>	<b>\$317</b>	<b>\$105</b>	<b>\$422</b>

### **11.3.2.2 Expanded Contractor Program Roll Out**

Focus during the first and second quarters of 2011 will be to roll out the expanded Contractor program, as described in section 11.3.2.1, to all service territories. There are over 2,400 natural

gas contractor companies registered with the BCSA. It is anticipated that registration activity will continue through 2011 and beyond. Registration drives are planned in the latter part of the second quarter to promote the Contractor program and will continue throughout the year.

#### **11.3.2.3 Focus on Outreach and Communication**

Relaying the benefits of the Contractor program to both the contractor community and customers seeking products and services from contractor companies is key to the success of the expanded program; therefore, this will be the focus for the latter part of Q2 and will continue through to the end of the year. The continued development and enhancement of the Companies' website will offer one of the major benefits to contractor companies, namely, to have their business listed on the website. For customers, the benefit is the ability to use the website to seek out a local contractor that offers the products and services they require. The contractor portal will include information related to the Companies' EEC initiatives and activities, training opportunities, emerging technical information related to codes and standards, links to the Contractor program application, co-op advertising reimbursement forms, and related terms and conditions, and links to the contractor newsletters. The customer portal will include a listing of the Companies' member contractor companies. Customers seeking a contractor company will be able to search by various fields, including geographic area and services required. Contractor listings will include affiliations, training, and Better Business Bureau accreditation, with a description of each and link back to the organization should the customer wish to learn more about these affiliations. Value-added tips like 'how to find a qualified contractor' and knowing what questions to ask when hiring a contractor will also be featured.

Additional activities to promote the Contractor program include developing promotional materials to support participation in events and tradeshow, placing ads in trade publications, magazines, and e-newsletters, participating in stakeholder events like lunch and learn sessions, and exploring speaking opportunities through associations.

The Companies recognize that direct contact with gas contractor companies, manufacturers, suppliers, and other service groups connected to the gas industry (i.e. home auditors and inspectors) is essential. These stakeholder groups must be educated about the benefits of high efficiency equipment and their concerns about availability and complexity need to be alleviated.

#### **11.3.2.4 Training Development and Promotion**

Understanding the training needs of the contractor community will be achieved through research findings that will be available in the first quarter of the year. Based on these findings, the focus for the third and fourth quarters of the year will be on development training opportunities, identifying educational partners, and determining delivery options. At this time, anecdotal evidence suggests the following are training areas to explore:

- How to perform heat-loss calculations to determine optimal sizing of boilers (in particular for commercial applications);
- Taking a whole-home or HAAS approach to identifying energy efficiency opportunities;

- Emerging EEC technologies;
- Understanding the impact of codes and regulations (i.e. release of the new provincial building code in the latter part of 2011);
- Customer service/sales 101; and
- Managing business and finance.

Consulting with experts in these areas and partnering with associations to deliver training opportunities to the contractor community will require a consolidated effort among stakeholders in order to provide the most cost efficient and equitable access to programs for all contractors.

#### **11.3.2.5 Co-op Advertising and Sub-brand**

Gas contractors currently registered in the Qualified Dealer program in FEVI will continue to use the existing logo when participating in the Co-op Advertising program through Q1 and Q2. The co-op advertising benefit of the Contractor program will be made available to all remaining service territories in Q3, when it is expected a new contractor sub-brand name and logo will be launched.

The following outlines co-op advertising parameters:

- Gas contractors may receive a reimbursement of up to 50% for an approved marketing piece with a maximum reimbursement of \$5,000 per program year, per company;
- Funding is limited and will be dispersed on a first-come, first-serve basis;
- All advertising must be pre-approved by the Companies;
- Advertising must include the program logo;
- Advertising must promote the use of natural gas equipment only; and
- The Companies may require advertising to include messaging around energy efficiency and conservation.

Co-op advertising dollars may be available for the following media:

- Print (excluding print ads in the Yellow Pages);
- Radio;
- Direct mail;
- In-store displays; and
- Other marketing pieces approved by the Companies.

Increased levels of participation in the Co-op Advertising program are expected in the FEI territory as the number of participants increase in the new Contractor program in the third and

fourth quarter of 2011 and beyond. The participation levels in FEVI are expected to increase as well, as contractor companies in this region join the new Contractor program.

Table 11-12 below identifies projected quarterly estimates for the co-op advertising reimbursement activity for 2011.

**Table 11-12: 2011 Co-op Advertising Reimbursement Estimates**

Co-op Advertising	Expenditure (\$000s)				
	Q1	Q2	Q3	Q4	Total
FEI	\$0	\$0	\$6	\$14	\$20
FEVI	\$4	\$9	\$8	\$9	\$30
Total	\$4	\$9	\$14	\$23	\$50

### 11.3.3 CODES AND STANDARDS

#### 11.3.3.1 Overview

Industry, regulating bodies, code development agencies, and user groups rely on the participation and input of stakeholder groups, such as utilities, which have a unique understanding of energy supply and customer demand cycles, to assist in the development of codes and standards. The content and timing of code implementation directly effects market transformation in all program areas. Through the EEC Contractor program, industry will be informed of developing codes and possible impacts to the marketplace.

Keeping current is important, however, the Companies' participation in the development phase of regulations allows for more effective EEC program delivery and successful DSM market transformation. This requires various levels of involvement. Codes and standards are established at a national level and adopted with or without changes at the federal and/or provincial level. The Companies' level of regulatory involvement is indicated by one of three involvement classifications: monitoring, stakeholder engagement, and developing regulations

Table 11-13 below identifies estimated expenditures by activity projected for 2011.

**Table 11-13: 2011 Codes and Standards Expenditure Estimates**

Code area	Expenditure (\$000s)		
	FEI (20%)	FEVI (80%)	Budget
Building Code New Construction	\$4.6	\$18.4	\$23.0
Performance Standards	\$2.0	\$8.0	\$10.0
Commercial Boilers and Water Heaters	\$0.8	\$3.2	\$4.0
Residential Boilers, Furnaces, and DHW	\$2.2	\$8.8	\$11.0
Hearth Products	\$0.2	\$0.8	\$1.0
Solar Thermal Systems	\$1.6	\$6.4	\$8.0
*New initiatives for 2011	\$3.6	\$14.4	\$18.0
Total	\$15.0	\$60.0	\$75.0
* Thermal Metering, NGV, Solar			

The sections that follow offer highlights for new codes and standards as they apply to EEC program areas for 2011 and are presented in order of the Companies' involvement levels, including: monitoring, influencing, and participating. The codes and standards activities that were undertaken in 2010 will continue in 2011, along with new identified subject areas.

#### ***11.3.3.2 Codes and Standards, and Company Involvement: Monitoring Level***

##### **Residential Furnace Regulations**

The Companies had stakeholder involvement in the adoption of this standard and will now monitor any changes that may come out of implementation. Change-out of existing standard and mid-efficiency furnaces would result in large efficiency gains and a Furnace Scrap-it program (see Section 3) is being evaluated to capture these potential gains.

#### ***11.3.3.3 Codes and Standards, and Company Involvement: Stakeholder Level***

##### **Towards Net Zero Buildings in BC for 2020 (Future Code)**

The BC Government has announced it is moving toward a net zero energy or net zero energy capable (the Passive House standard) construction code by 2020. The Companies participate in both the EnerGuide 80 and Net Zero committees.

At a minimum, a net zero home supplies to the power grid an amount equal to the total amount of energy consumed. It combines the amount of energy (electricity and, if applicable, natural gas) used to operate a home and the amount needed to provide an equal amount of self-generated energy back to the grid, when possible. A passive house generates and stores all the energy it requires without connecting to any utility supply. The implementation of a net zero energy capable construction code by 2020 will require the development of an implementation road map to identify the barriers and develop solutions with all stakeholder groups. At this point in the development of the code, the Companies are participating at a stakeholder level.

##### **Thermal Metering**

Thermal metering is a technique that measures changes in temperature and the flow rate of a fluid and uses a calculation to derive the amount of thermal energy delivered by that fluid. Thermal metering will be required for district energy systems and solar thermal projects. This metering will be required for accurate billing and should not be confused with metering for pilot studies. To date, Measurement Canada has not recognized any technology for this purpose. Many of these technologies exist in Europe and a task force is being assembled by the CGA to work towards a Canadian solution to this challenge. Many of the existing EEC programs and innovative technologies under assessment will require this type of metering. EEC is planning to participate in this stakeholder project.

#### **11.3.3.4 Codes and Standards, and Company Involvement: Developing Regulations Level**

##### **Building Code EnerGuide Rating (Part 9)**

The provincial government continues to work toward the implementation of a new BC Building Code to take effect in late 2011. The current rating of 77 and the new 80 rating are stepping stones toward a net zero level set for 2020, and are described above in Section 11.3.3.3. The Province of British Columbia is updating the energy efficiency requirements in the Energy and Water Efficiency section (Part 10) of the BC Building Code for residential buildings.

A study involving the Companies and a number of industry partners was started in 2009 to determine potential combinations of overall building envelope thermal requirements, air tightness, and equipment efficiency in order to meet EnerGuide 80. A number of base cases were modeled using the NRCan Hot 2000 program, using the following variations:

- Various archetypes of detached homes and row homes;
- Primary space heating system: electric, natural gas (water heating is assumed to match); and
- Climate zones in BC: Southern Coastal, Southern Interior, and Northern Interior.

The modeling study was completed in 2010. A stakeholder committee was created to develop the guidelines for changes to the BC Building Code based on the results of the study and input from the representing groups. The Provincial Government is now assessing the impact of these proposals on industry. A new construction program to move industry to an EnerGuide 80 standard is in development and details about this program can be found in Section 11.3.3.3.

##### **Ventilation**

The Company is involved with a large collaborative study looking at the effects of building remediation on energy usage and ventilation in multifamily buildings. The Companies expect to be involved with ventilation standards for multifamily residential buildings in the new BC Building Code.

#### **11.3.3.5 Summary**

There are a number of product areas where regulations are connected to EEC programs, including: BC Building Code with particular attention to EnerGuide 80 ratings for houses and eventually net zero buildings in 2020, performance standards, commercial water heaters and boilers, residential furnaces, boilers, and domestic hot water heaters, hearth products, solar thermal systems, thermal metering, liquefied natural gas, compressed natural gas, and ventilation

EEC will remain active with codes and standards committees as they pertain to EEC program and market development, and this will continue to be an important activity area. The 2011 implementation of the new BC Building Code for new home construction with EnerGuide 80 efficiency targets will be of particular interest in the near term. The planned budget for this area

of activity for 2011 is estimated at \$75,000, which is based on a time commitment equivalent to two thirds of a full time position.

### 11.3.4 ENERGY MANAGEMENT FUNDING

#### 11.3.4.1 Overview

In 2011, the Companies plan to continue with their energy management funding activities that were launched in 2010. A full year of activity in these areas will necessarily result in increased expenditures compared to 2010; however, no new energy management activities are currently planned beyond what was launched in 2010. The Energy Specialist program and the Prince George community energy manager position will be evaluated in 2011 to determine if funding in these areas should be continued and if similar funding should be extended to other customers and communities. Table 11-14 displays planned expenditures for energy management funding in 2011.

**Table 11-14: 2011 Energy Management Funding – Forecast Expenditures**

Name of Program/Initiative	Description	Expenditure (000s)		
		FEI	FEVI	Total
Energy Solutions Managers	Sales activities dedicated to increasing participation in the EEC programs.	\$225	\$113	\$338
Energy Specialist Program	Funding of energy management positions within select organizations.	\$1,141	\$180	\$1,321
Prince George Community Energy Manager	Funding of an energy management position for the community of Prince George.	\$25	\$0	\$25
Total		\$1,391	\$293	\$1,684

#### 11.3.4.2 Energy Solutions Managers

The three ESM positions will continue as is through 2011. It is estimated that \$340,000 will be spent to fund these positions in 2011.

#### 11.3.4.3 Energy Specialist Program – PILOT

By early 2011, the Companies expect all approved pilot program participants to have hired their respective energy specialists. The forecast expenditures listed in Table 11-15 assume they will all be employed for the duration of 2011. This pilot program will be evaluated in Q3 2011 to determine its overall viability and to assess program delivery and reporting mechanisms and full program roll out options. This evaluation will be conducted through analysis of energy specialists' quarterly reports and qualitative feedback from participating organizations and the Companies' account managers.



**Table 11-15: 2011 Energy Specialist Program Forecast**

Utility	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	Free Rider Rate	TRC
FEI	19	\$1,140	\$1	N/A	N/A	N/A	N/A
FEVI	3	\$180	\$0	N/A	N/A	N/A	N/A
Total	22	\$1,320	\$1	N/A	N/A	N/A	N/A

#### **11.3.4.4 Prince George Community Energy Manager – PILOT**

The full \$25,000 funding commitment to the Prince George community energy manager (“CEM”) position will be incurred in 2011. As of the writing of this report, the plan for this pilot program is to only fund this one CEM position until the end of the initial one year term. Towards the end of this term, the pilot program will be evaluated to determine its overall viability and the benefits to extending this position to a second year and opening it up to include funding for CEMs in other communities. This evaluation will be conducted through the analysis of the CEM’s quarterly reports.

### **11.3.5 ENERGY EFFICIENCY FINANCING**

#### **Background**

The Ministry of Energy and Mines has been encouraging BC Hydro and the FortisBC Utilities to jointly implement an energy efficiency financing program that would overcome the “first cost” barrier to existing energy efficiency incentive programs. The Ministry of Energy and Mines has created a working group that also includes other relevant ministries, the BCUC, and the City of Vancouver to explore different energy efficiency financing program options. There are a number of energy efficiency incentive programs currently offered to BC homeowners by the provincial government and energy utilities. Most of these programs require homeowners to pay for energy efficiency improvements up front, and then the homeowner receives a grant or rebate for a portion of the energy efficiency improvement cost. While these programs have been well subscribed, the requirement for homeowners to pay up front for energy efficiency improvements represents a significant participation barrier for many households, particularly given that energy efficiency upgrades are a lower priority investment and viewed more as a necessity in the event of an equipment breakdown or repairs than traditional cosmetic and expansion projects. Many homeowners either do not have the financial resources or access to financing to pay the upfront cost for the energy efficiency improvements or feel the hassles of working with their bank outweigh their desire to become more efficient. To overcome this barrier, the Ministry of Energy and Mines views the utilities as key partners in developing the financing program and believes energy efficiency financing will be a flagship program to meet the aggressive GHG emissions reduction targets set in legislation and promote a culture of conservation in BC.

#### **Financing Options:**

In October 2010, the Ministry of Energy and Mines requested that the utilities submit a joint proposal for a pilot energy efficiency financing program. While various financial models and

program design principles were reviewed, the Ministry of Energy and Mines has strongly favoured the “Pay As You Save”, or PAYS, model. The PAYS model is designed around the creation of a utility-owned entity that would:

- Borrow funds from market investors to create a capital pool;
- Provide energy efficiency loans to households that would be assured to result in greater utility bill savings than the loan repayment amount, sometimes requiring longer than traditional amortization periods;
- Tie loans to the meter, meaning that when the homeowner sells the house, the new owner can assume the loan;
- Insure the operation and performance of energy efficiency retrofits;
- Provide a guaranteed return to investors; and
- Offer collection of payments through the utility bill.

### **Market Research**

The FortisBC Utilities and BC Hydro (“the Utilities”) conducted focus group sessions in Nov 2010 across the Lower Mainland, Prince George, and Kamloops to test consumer interest in energy efficiency financing and preferences for loan terms and conditions, as well as the best way to engage them. The FortisBC Utilities contributed approximately \$12,000 towards conducting this research. Focus group testing found limited interest in an energy efficiency financing program operated by the Utilities. Most participants preferred to self-finance their energy efficiency upgrades and viewed the Utilities as competitors to banks for such an offering. Many participants noted that they already have a relationship with their banks and would be less inclined to take money from a utility and go through the hassle of transferring the payment to the next homeowner.

### **Program Issues**

Although the PAYS model has some merit, the Companies have significant concerns that the PAYS model is overly complex and creates significant legal responsibility around the quality of the energy efficiency retrofits and guaranteeing that energy savings will exceed monthly payments after retrofits are completed. There are also significant concerns that loan payment defaults could be larger than energy bill payment defaults and in the absence of any loan default fund, the Companies would have to recover the defaults from the entire customer base. Additionally, the administrative burden associated with the collection of payments and the transfer of the loan to the next customer through property disclosure statements is complicated and outside the scope of the Utilities’ expertise.

Further discussions revealed that there remain a number of additional challenges and complexities to developing the financing aspect of this type of program, including:

1. A number of financial institutions (i.e. VanCity, Royal Bank of Canada, and Toronto Dominion Bank) already offer financial services specifically targeting energy efficiency

upgrades. A utility-operated program could be viewed as competing with the financial services industry;

2. The Utilities do not have the expertise to implement and operate large-scale loan programs;
3. A province-wide energy efficiency financing program would expose the Utilities to additional financial risk and potentially affect their overall ability/cost to borrow; and
4. The Companies are in the process of transitioning to a new customer billing service provider and will not have the ability to administer a financing program on their billing system for two to three years.

### **2011 Action Plan**

To address some of the concerns identified above, the Companies and BC Hydro have put forward a proposal to explore energy efficiency financing further with the Ministry of Energy and Mines. This includes proposing an offer that focuses on partnering with financial institutions to introduce and expand energy efficiency financing programs. The Utilities would use their market presence to issue criteria (i.e. request of qualification) for financial institutions to become eligible providers of financing for a joint utilities renovation program. The intention would be to drive more favorable terms and conditions for participating customers with all the eligible financing providers. Financial institutions will benefit in a number of ways including enhanced marketing opportunities, lower cost customer generation, and leads into other program offers through their companies. The Companies believe some of the identified concerns about loan default and reputational risk can be partly mitigated through such a mechanism since the banks would provide the required loans and collect the payments through their existing channels, with no promise of savings exceeding monthly payments. In order to proceed with developing this proposed revised approach, the Companies are currently working with the Ministry of Energy and Mines to explore this option and assess the concerns of the Ministry before reaching out to the financial institutions. In the event this program moves forward as a pilot, the Companies would communicate with the Commission staff in the forthcoming stakeholder workshops.

### **11.4 Summary**

Enabling Activities are important initiatives that support broader EEC activities and programs. The Companies initiated these activities in 2009 and continue to expand on them to support EEC activity with the inclusion of Energy Management Funding in 2010 to further create supportive conditions for a successful 2011 EEC portfolio.

Research and evaluation activities will continue to support the overall EEC portfolio and help provide direction to future program areas and enabling activity planning. The Efficiency Partners program will expand to include the FEI service area by potentially adding another 1,000 contractors to deliver EEC programs. Given the aggressive provincial GHG emissions targets, participation in the development of the new construction building code will strengthen the Companies' communication with the building industry. Hot water tank regulations and Tier 3

pilots will be necessary for the development of an effective market transformation plan to help protect the end use customer.

Many of these enabling activities are supportive of the province's Energy Plan. The degree of the Companies' work in Enabling Activities will be evaluated over the course of the year to determine whether the Efficiency Partners program and work on codes and standards require the establishment of a discrete budget.

## 12 EEC STAKEHOLDER GROUP ACTIVITIES

As one of the accountability measures defined in the EEC Decision, the Companies held two EEC stakeholder meetings in 2010. The objective of the EEC Stakeholder Group is to guide and provide input on EEC activities and programs. The purpose of the biannual workshops is for the Companies to present updates on program progress, act as a forum for dialogue for stakeholders input in developing new programs, and refining existing programs. The members of the EEC Stakeholder Group were solicited through regulatory stakeholders (those that have historically intervened in the Companies' regulatory proceedings) from industry groups with whom the Companies interact, and from key contacts from the Companies' Energy Solution and Community Relations departments. Refer to Appendix G in the meeting minutes for a list detailing membership of the EEC Stakeholder Group.

### 12.1 Activities and Costs in 2010

Two stakeholder meetings were held in 2010 - March 11 and November 24.

On March 11, 2010 the EEC department reviewed the 2009 EEC Annual Report with program investments and results. In addition, the stakeholders provided written feedback and action items for the Companies to pursue in 2010. On November 24, 2010 the EEC department reviewed programs and initiatives that had launched in 2010, correlating the successes back to many of the priorities from the March meeting, and then held mini-workshops with the stakeholders for program ideas to pursue in 2011. Both sessions have been well attended with positive verbal feedback on much of the EEC programs and initiatives, and active discussions that aid in prioritizing future EEC projects (i.e. programs for multifamily buildings and replacing mid-efficient furnaces that are still in residential homes). The meeting agendas, meeting minutes, lists of attendees, presentations, and stakeholder priorities and action items for the two 2010 meetings can be found in Appendix G.

Table 12-1 summarizes the costs for the stakeholder sessions.

**Table 12-1: Cost for 2010 EEC Stakeholder Sessions (March and November)**

Item	Actual Costs
Venues and equipment rental	\$2,030
Meals	\$4,332
Stakeholder travel	\$4,456
Total Costs	\$10,818

### 12.2 Planned Activities in 2011

In 2011, the Companies will continue to hold biannual workshops with the EEC Stakeholder Group with the first meeting having already taken place on March 15.

Additionally, the Companies intend to expand the EEC Stakeholder Group to include additional members, in particular representatives from the industrial, innovative technologies, and non-profit sectors, in order to reflect the expanding number of EEC programs available for the marketplace. As the EEC Stakeholder Group is expected to grow, the proposed budget in Table 12-2 below will reflect this growth. Stakeholder travel is expected to increase to encourage participation from representatives outside of the Lower Mainland. For example, industrial customers from northern BC, non-profit association representatives, and other government representatives

**Table 12-2: Proposed Budget for 2011 EEC Stakeholder Sessions (Q1 and Q4)**

<b>Item</b>	<b>Budgeted Cost</b>
Venues and Equipment Rental	\$2,500
Meals	\$4,600
Stakeholder travel and administration	\$8,500
Budgeted Total	\$15,600

The March 15 meeting to the expanded EEC Stakeholder group included presentations on the 2010 program results, highlights from the Conservation Potential Review study, which is still being finalized during the submission of this report, alternatives to the Total Resource Cost test used in program design, and discussion on the upcoming 2012 EEC funding application to the Commission.

The agenda, meeting minutes, presentations, and list of stakeholder priorities for 2011 from the March 2011 EEC Stakeholder meeting can be found in Appendix G.

## 13 CONSERVATION POTENTIAL REVIEW (“CPR”)

### 13.1 Introduction

Results of a Conservation Potential Review (“CPR”) form the basis for future program development within a comprehensive EEC portfolio. The Companies drew heavily on the 2006 CPR as they moved from the small set of DSM activities to the broader portfolio of EEC initiatives. The Companies initiated a new CPR study in August 2010, hiring Marbek Resource Consultants Ltd. (“MARBEC”) to conduct the study at a cost of approximately \$560,000. This study focused on the Companies’ natural gas customers only and was segmented into the residential, commercial, and industrial sectors.

The Companies consider the CPR to be an important tool for use in developing, supporting, and assessing current and future EEC expenditure applications as well as for directional input into program development. The purpose of a CPR study is to examine available technologies and determine their conservation potential, which includes the amount of energy savings that can be achieved through energy efficiency and conservation programs over the study period. The CPR does this by comparing the economic and achievable potential of viable measures to a base case scenario.

### 13.2 Scope of Work

Overall, the 2010 CPR had the following key objectives/deliverables:

- Characterization of available natural gas and other thermal technologies inclusive of energy efficiency and fuel choice;
- Identification of the size of the potential opportunities over a set study period including opportunities related to equipment, lifestyle, and behaviour;
- Economic modeling of measures, including calculations on GJ output, GHG emissions, and cost/benefit analysis of all identified thermal technology options;
- Proportion of end use energy that could be met by energy systems based on renewable energy as the primary fuel with a natural gas and/or thermal component;
- Determination of how many jobs the Companies’ natural gas conservation and efficiency activities would create in British Columbia up to 2021;
- Provision of estimates for the potential natural gas load reduction and GHG emissions reduction volume achievable through EEC programs for input into load forecasts and future integrated resource plans; and
- Provision of a discussion paper that looks beyond the traditional economic focused California Standard Practice tests and how utility energy efficiency and conservation



efforts could support government policy as listed in the 2010 BC Clean Energy Act (Bill 17).

In addition, Marbek was directed to conduct a commercial end use study as part of the 2010 CPR. This study analyzed the energy usage behaviour exhibited by small and large commercial customers by sector, including apartment/condo strata corporations, commercial/office, education, health care, restaurants, and wholesale/retail.

### **13.3 Results Delivery**

The contract to conduct the CPR was awarded in August 2010 with work beginning in September 2010. Field work was conducted through October and November 2010. The draft Reference Case, Technology and Economic Potential chapters were produced in December 2010. Achievable potential workshops were held in January 2011. The final CPR report is expected to be completed at the end of March 2011.

When it is completed, the updated 2010 CPR will form the primary basis of the Companies' EEC funding requests for 2012 and beyond, and will be used as a reference document for program development.

Due to the finalization of the CPR study being so close to the submission date of this Report, it is not possible to include a discussion of the study's results here; however, the final CPR report will be submitted as an appendix to the Companies' upcoming Revenue Requirement Application.

## 14 DATA GATHERING REPORTING AND INTERNAL CONTROL PROCESSES

### 14.1 Introduction

In its EEC Decision, the Commission directed the Companies to include a discussion in the EEC Annual Report of the Companies' internal data gathering, monitoring, and reporting control practices. This section addresses that directive. As this section demonstrates, the Companies have business practices in place to ensure EEC activities and associated spending are in compliance with the Commission Orders and internal control processes of the Companies in general.

This section provides general information on data gathering and on the Companies' business practices related to program development and application processing. It also includes comments from the Companies' internal audit group on EEC initiative controls.

### 14.2 DSM System Project: Update

As was reported in the 2009 EEC Annual Report, the expansion of EEC programs resulting from the EEC Decision has created a need to develop a robust data capture and reporting system. With the increase in the number of programs and participants, the existing Excel-based DSM tracking and reporting methods are not capable of handling the future business needs and requirements of the EEC activities. As a result, the Companies determined that a new tracking system was needed to enable it to:

- Track EEC program participation, costs, and energy savings for incentive-based programs;
- Track information about non-incentive programs and activities;
- Track actual and forecasts vs. budgets;
- Provide reports for internal and external stakeholders including program partners and the Commission;
- Allow for scenario modeling for program planning and design; and
- Support DSM cost-benefit analysis on a program by program basis as well as at the portfolio level (or EEC plan level).

To address the requirement for more robust program data gathering, tracking, and reporting, the DSM System ("DSMS") project was launched in the fall of 2008. The Companies eventually selected a web-based program tracking and reporting system called TrakSmart, and entered into an Agreement with TrakSmart's provider Nexant, to obtain the TrakSmart system.

Project implementation commenced early in 2010 and through the process of implementing TrakSmart, it was identified that more internal resources would be required to integrate the

system. Adapting the new system to a natural gas DSM environment also proved to be more challenging than expected. Several software patches, system enhancements, and training sessions were required to configure the system to suit the Companies' needs. As a result, the launch of DSM programs into TrakSmart for production use was delayed. It is now expected the DSMS will be operational for an initial set of programs by April 2011. Assuming the system works as designed and expected, the full set of DSM programs from 2009 to present will be integrated into the TrakSmart system for reporting purposes and program administration.

The costs associated with implementing and maintaining the DSMS have been added to the portfolio level expenditures in 2010. The costs to implement DSMS in 2010 were approximately \$645,000. It is estimated that an additional \$380,000 will be required to complete the software implementation in 2011.

Once the DSMS is implemented, it will increase the ability of the Companies to capture and report on the following features:

- Program participants' information, costs, and energy savings for EEC programs and activities;
- Forecasting / extrapolation based on estimates and actuals;
- Expenses and budget tracking associated with EEC projects;
- Interface with SAP20 application;
- Costs (program, incentive, and administration) associated with EEC projects; and
- Capture of information on a per participant basis (i.e. equipment models, reasons for rejection and so on).

Once the DSMS is in place and the transition period from the current system to the new system is completed, these features will help the EEC team to make data gathering, tracking, and reporting more efficient and increase the overall efficiency of the workflow.

### **14.3 Robust Business Case Process Applied to All Programs**

Before a new EEC program can be implemented, a program plan or business case must first be developed. The Companies are committed to putting each program through a high level of internal scrutiny before moving ahead with a program, and believe doing so ensures an increased chance of program effectiveness.

The business case developed includes information about program rationale and purpose, as well as a description of the target audience, assumptions, cost-benefit tests, and proposed evaluation methods.

Cost-benefit analysis is performed using the California Standard Tests ("CST") as outlined in the California Standard Practice Manual. In partnership with Willis Energy Services Ltd., the Companies have developed an in-house cost-benefit modeling tool based on CST that provides the following areas of analysis:

- Benefits incurred over measure life of the individual programs, including energy savings over the measure life of the program;
- Total costs incurred in implementing the program, including administrative, incentive, marketing, and evaluation; and
- The four CST tests (Rate Impact Measure ["RIM"], Utility, Participant, and TRC).

The results from this modeling are used as inputs for the business cases, which are approved in accordance with the Companies' policy on financial authorization levels.

#### **14.4 Incentive Applications Vetted for Compliance with Program Requirements**

Ensuring all customer applications are compliant with program eligibility requirements as laid out in program terms and conditions is also part of the internal control process. The Companies have a number of mechanisms in place to ensure EEC incentive funding applications are in compliance with program requirements.

The verification process is specific to each program and is dependent on the type of program, its complexity, the financial value of the incentive, and other parameters. The general principles applied are as follows:

1. Each application is reviewed for completeness and accuracy;
2. Applications must meet the criteria outlined in the terms and conditions of the program put forward through the approval process. Please refer to Appendix I for a copy of Efficient Boiler program's terms and conditions as an example;
3. Once approved, incentives are distributed to participants; and
4. Copies of application and supporting documents are filed and stored for seven years in case of an audit.

#### **14.5 Internal Audit Services**

The EEC team engaged the Companies' own Internal Audit Services ("IAS") group to review the internal controls associated with the EEC initiative. Generally speaking, IAS found the internal controls established for the EEC initiative were functioning as intended.

The report from the Companies' IAS group can be found in Appendix J.

#### **14.6 Summary**

The Companies are committed to strong internal controls in all aspects of the EEC program. As demonstrated in this section, the Companies' business practices related to program development, application processing, and ongoing monitoring are all sound and subject to continuous improvement.

The Companies' EEC team is implementing a robust data gathering and program participation tracking system (the DSMS) in order to accommodate the increased level of EEC activity arising from the funding approval. Expenditures reported through the DSMS will be gathered from SAP, which tracks all of the Companies' financial activity. It is expected this system will be in full production use by mid-2011.

All business case and financial approvals are performed in accordance with the Administrative Policy on the Companies' Authorization Levels. There are solid business practices in place related to EEC activity, such as a requirement for a detailed business case for all new programs and initiatives.

The Companies' IAS group has reviewed the processes of the EEC team and generally speaking, internal controls are functioning as intended.

In 2011 and beyond, the Companies will continue to monitor their internal controls and work with IAS to implement the changes contained in their report, so that all aspects of the EEC program are carried out with appropriate diligence and scrutiny.

## 15 THE COMPANYS' EEC PRINCIPLES

In the original EEC Application, the Companies laid out a number of EEC principles that are intended to guide our EEC activity. This section revisits those principles and discusses how the Companies' EEC activity completed in 2010 and planned activity for 2011 meets these principles.

1. *Programs will have a goal of being universal, offering access to energy efficiency and conservation for all residential and commercial customers, including low income customers through the DSM for Affordable Housing initiative.*
  - As can be seen by the significant variety of programs described in this report, the Companies have implemented EEC initiatives aimed at all customers including residential, commercial, industrial, and low income.
2. *Wherever possible, programs will be uniform, so that customers in one part of the service territories of the FortisBC Energy Utilities have access to the same programs as customers throughout the service territories.*
  - Programs described in this report are available to customers in all the Companies' service territories, with the following exceptions:
    - The Companies do not currently have funding approval for EEC activity for interruptible industrial customers on Vancouver Island; and
    - The Companies do not currently have funding approval for EEC activity for customers in Whistler.
  - The vast majority of customers, however, have access to all the programs for which their rate class is eligible, and it is the intent of the Companies to include funding for interruptible industrial customers on Vancouver Island and for customers in Whistler in the next EEC funding request in the 2012 – 2013 Revenue Requirements Application.
3. *EEC expenditures will be efficient, with non-incentive costs not exceeding 50% of the expenditure in a given year.*
  - The Companies' expenditures in 2010 are aligned with this principle: incentive expenditures were approximately \$11.5 million and non-incentive expenditures were approximately \$6.2 million.
4. *Program results will be analyzed on a portfolio-wide basis.*

5. *The Total Resource Cost/Benefit of the Portfolio over the funding period will have a ratio of 1 or higher.*
  - As can be seen in Table 2-1 in Section 2, the portfolio-level TRC results for the Companies' EEC activities in 2010 was 1.1, thus Principles four and five have both been met.
6. *The FortisBC Energy Utilities will submit an Annual EEC Report to the BCUC, by the end of the first quarter of each year, that details the results of the previous year's programs and anticipates program activity and spending for the upcoming (current) year.*
  - This report is that document.
7. *To every extent practical, programs will support the objectives of established government policies.*
  - In the Clean Energy Act (attached as Appendix C), government laid out a number of energy objectives. The Companies' EEC activity supports a number of these objectives including the following:
    - *To take demand-side measures and to conserve energy:*
      - The Companies' EEC initiative in its entirety supports this objective.
    - *To use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources:*
      - This objective is supported primarily through the Innovative Technologies program area.
    - *To reduce BC greenhouse gas emissions:*
      - Again, the Companies' overall EEC initiative supports this objective.
    - *To encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emission in British Columbia:*
      - This is not only supported by high-carbon fuel switching, but also by the Innovative Technologies program area.
    - *To encourage communities to reduce greenhouse gas emissions and use energy efficiently:*
      - This is supported primarily by Conservation Education and Outreach programs.
    - *To encourage economic development and the creation and retention of jobs:*
      - This is another objective that is supported by the Companies' EEC initiative overall.



8. *The Companies will continue to seek funding for programs from additional sources, such as the provincial and federal governments, other utilities, and equipment suppliers and manufacturers, in order to minimize the cost impacts of EEC programs to ratepayers, and in recognition of the broader societal benefits resulting from successful program development and implementation.*
- The Companies have been successful in meeting this program principle, primarily through the MEMPR low income grant discussed in Section 6.
9. *Incentives may be directed to the end users of an appliance, to the customer point of contact at the time that an equipment purchase decision is made (for example, to the gas contractor in the case of a furnace), to a system designer or engineer, or to an equipment developer, supplier or manufacturer. The most effective use of incentives will be determined through the program design process.*
- Although the majority of incentives offered in 2010 were aimed at the end users of appliances, the Companies determined that in the case of the EnerChoice Fireplace program discussed in Section 3, a partial incentive should be paid to the salesperson. In the future, the Companies will explore opportunities to offer incentives to entities other than the end user, should it make sense to do so.
10. *Education and outreach regarding conservation will be part of the Companies' EEC activity.*
- As discussed in Section 8, the Companies view Conservation Education and Outreach programs to be a crucial component of a successful EEC initiative, and we look forward to expanding these efforts in the coming years.
11. *Programs will be multi-year so as to create a sense of funding certainty necessary to effective implementation in the marketplace – this Application requests funding for a three-year Portfolio of EEC programs.*
- Most of the programs offered in 2010 were multi-year programs. The Companies recognize that currently-approved EEC funding expires at the end of 2011, and are planning to request an expanded funding envelope for 2012 and 2013 in the Revenue Requirements Application to be filed in May 2011.
12. *Programs will have market transformation as their ultimate goal, and program plans will describe how a program will contribute to market transformation.*
- One key example of this principle in action is the 0.80 EF Water Heater pilot, described in Section 3, where government has announced its intention to implement a minimum efficiency standard of 0.80 for residential gas water heaters. Led by the Companies, gas utilities across the country will be exploring the installation and performance of 0.80 EF technologies in preparation for the introduction of regulation requiring 0.80 EF as the minimum efficiency.

13. *Programs will aim to develop capacity within the market through manufacturers, distributors, vendors and installers.*

- Some examples of capacity-building programs include the Energy Specialist program discussed in Section 11, the REnEW program discussed in Section 6, and the Furnace Service Campaign discussed in Section 3.

14. *To ensure value creation and alignment with the market, the Companies will establish and engage an EEC stakeholder group, comprised of governments, industry, trades, manufacturers, NGOs, advocacy groups, other utilities and customers to provide it with advice on effective program design and implementation, as well as some oversight of the Companies' EEC activity and expenditure. Consideration may be given by the Companies to consolidate the Companies' EEC Stakeholder activity with stakeholder activity currently being undertaken by other utilities in order to reduce potential "stakeholder fatigue".*

- *The Companies are pleased with the interest and input from the stakeholder group established for the EEC initiative. Stakeholder activity is discussed in Section 12.*

In conclusion, the Companies feel the EEC activity in 2010 has complied with the EEC principles laid out in the original EEC Application.

**Appendix A**

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**GLOSSARY OF TERMS**

## GLOSSARY OF TERMS

**ABSU** – Accenture Utilities Business Process Outsourcing Services

**AFUE** – Annual Fuel Utilization Efficiency

**AHRI** – Air-Conditioning, Heating, and Refrigeration Institute

**BCAOMA** – British Columbia Apartment Owners & Managers Association

**BCHL** – BC Hockey League

**BC Hydro** – British Columbia Hydro and Power Authority

**BCSEA** – British Columbia Sustainable Energy Association

**BCUC** – British Columbia Utilities Commission, the provincial body regulating utilities in British Columbia.

**BTU** - British Thermal Unit = the heat energy required to raise 1 pound of water by 1 degree Fahrenheit

**CCE** – Consortium for Energy Efficiency

**CEA** – Clean Energy Act (Bill 17 – 2010)

**CEC** – Commercial Energy Consumers Association of British Columbia

**CEO** – Conservation Education and Outreach

**CHBA** – Canadian Home Builders' Association

**CHF** – Co-operative Housing Federation

**CIPH** – Canadian Institute of Plumbing and Heating

**CNG** – Compressed Natural Gas

**Commission** – British Columbia Utilities Commission, the provincial body regulating utilities in British Columbia.

**Companies** – FortisBC Energy Utilities

**COV** – City of Vancouver

**CPR** – Conservation Potential Review, a study completed to identify opportunities for energy savings across natural gas delivery infrastructures and improvements to overall energy utilization efficiency.

**CS** – Compression Service

**CST** – California Standard Tests

**CWHI** - Condensing Water Heater Initiative

**DC** – Pacific Resource Conservation Society’s Destination Conservation program

**DES** - District Energy Systems

**DHW** – Domestic Hot Water

**DSM** – Demand-Side Management, defined as “any utility activity that modifies or influences the way in which customers utilize energy services”. From FortisBC Energy Utilities’ perspective, the primary objectives of DSM are to increase the overall economic efficiency of the energy services it provides to customers and maintain the competitive position of natural gas relative to other energy sources.

**DSMS** – Demand Side Management System

**ECAP** - Energy Conservation Assistance Program

**ECM** - Electronically Commutated Motors

**EEC** – Energy Efficiency and Conservation

**EEC Application** – 2008 Energy Efficiency and Conservation Programs Application

**EEC Decision** – BCUC Order No. G-36-09

**EF** – Efficiency Factor

**ESK** - Energy Saving Kit

**FE** – Fireplace Efficiency

**FEI** - FortisBC Energy Inc.

**FEU** - FortisBC Energy Utilities

**FEVI** - FortisBC Energy (Vancouver Island) Inc.

**FortisBC Energy Utilities** - FortisBC Energy Inc. and FortisBC Energy (Vancouver Island) Inc.

**Fraser Basin** – Fraser Basin Council

**Free Rider Rate** – percent who would have implemented an energy efficiency measure even without the program.

**GHGs** – Greenhouse Gas Emissions

**GJ** – Gigajoule – a measure of energy equivalent to one billion joules. One joule of energy is equivalent to the heat needed to raise the temperature of one gram (g) of water by one degree Celsius (°C) at standard pressure (101.325 kPa) and standard temperature (15°C).

**GSHP** – Ground Source Heat Pump

**HPBAC** – Hearth, Patio & Barbecue Association of Canada

**HEX Pilot** – Heat Exchanger Pilot Program

**IAS** – Internal Audit Services

**Interim Decision** – BCUC Order No. G-6-11

**IRs** – Information Requests

**IT** – Information Technology

**K – 12** – Kindergarten to Grade 12

**LEAP** – LiveSmart BC Energy Assistance Program

**LiveSmart BC** – LiveSmart BC Efficiency Incentive Program

**LNG** – Liquefied Natural Gas

**LTRP** – 2010 Long Term Resource Plan

**MBH** - 1 MBH = 1000 BTU/hr (BTU = British Thermal Unit = the heat energy required to raise 1 pound of water by 1 degree Fahrenheit)

**MEM** – Ministry of Energy and Mines

**MOU** – Memorandum of Understanding

**MURB** – Multi-Unit Residential Buildings

**MVHC** – Metro Vancouver Housing Corporation

**NGV** – Natural Gas Vehicle

**NPV** – Net Present Value



**NRCan** – Natural Resources Canada

**NSA** – Negotiated Settlement Agreement

**NSP** – Negotiated Settlement Process

**OEM** – Original Equipment Manufacturer

**O&M** – Operating and Maintenance Costs

**Participant Test** – is the measure of the quantifiable benefits and costs to the customer due to participation in a program.

**PCT** – Pacific Carbon Trust

**PBR** – Performance Based Rate

**PBR Settlement Agreement** – Multi-Year Performance Based Rate Plan Settlement Agreement

**QDP** – Qualified Dealers Program

**REnEW** - Residential Energy and Efficiency Works

**Report** – EEC Annual Report

**REUS** – Residential End Use Survey

**RIM – Rate Impact Measure** test measures what happens to customer bills or rates due to changes in utility revenues and operating costs caused by the program.

**RRA** – Revenue Requirements Application

**SAP** - System, Applications and Products - financial tool in which EEC expenditures are captured within

**SEMP** - Strategic Energy Management Plan

**SENC** - Super Efficient New Construction

**SHIFT** - Sustainability and Social Responsibility Attitudes Study

**SPIFF** – Sales Promotion Incentive Fund

**Task Force** – Affordable Energy Conservation Task Force

**TBD** – To be determined after filing of the EEC Annual Report

**TJ** – Terajoule – equal to 1000 gigajoules.

**TRC – Total Resource Cost** test measures the net costs of a demand-side management program as a resource option based on the total costs of the program, including both the participants' and the utility's costs.

**Utility Cost Test** – measures the net costs of demand-side management programs as a resource option based on the costs incurred by the utility (including incentive costs) and exclude the net costs incurred by the participant.

**WM** – Waste Management of Canada Corporation

**WHIMIS** - Workplace Hazardous Materials Information System

**Appendix B**

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**COST BENEFIT ANALYSIS**

2010 DSM Actuals

	PROGRAM									ALTERNATE		NET PRESENT VALUE										Benefits/cost test									
	COSTS (\$000)								SAVINGS (GJ)		Impact		Levelize d Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings					Participant							
	Utility			Participant	Total	% Utility	%	Gross	Net	Energy MWh	Capacity kW	Program (\$'000s)		Alternate (\$'000s)	Program (\$'000s)	Carbon (\$'000s)	Alternate (\$'000s)	Natural Gas (GJ)	Alternate (MWh)	Alternate (kW)	Natural Utility			Total (\$'000s)	Total (\$'000s)				Natural Rate	Total	TRC Net (\$'000s)
	Incentives	Administr	Total																												
2010 Actuals																															
Residential Energy Efficiency Programs 2010 Residential Total	2,803	440	3,242	3,302	6,544	50%	50%	108,346	62,036	2	-	5	6,141	2	6,798	890	1	606,851	13	-	1.9	3,302	7,689	2.3	0.6	0.9	(402)				
Commercial Energy Efficiency Programs 2010 Commercial Total	2,401	170	2,570	3,655	6,225	41%	59%	126,585	103,856	2,049	-	3	8,313	2,376	9,634	1,211	1,538	815,113	19,803	-	3.2	3,655	12,383	3.4	0.7	1.7	4,464				
Joint Initiatives 2010 Joint Initiatives Total	29	429	458	0	487	94%	0%	864	748	0	-	80	56	0	61	8	0	5,700	-	-	0.1	-	70	N/A	0.1	0.1	(431)				
Conservation for Affordable Housing Programs 2010 Affordable Housing Total	49	275	324	0	324	100%	0%	4,517	3,297	0	-	17	244	0	222	30	0	19,479	-	-	0.8	-	252	N/A	0.4	0.8	(80)				
Innovative Technology 2010 Innovative Technology Total	5,959	5	5,964	1,449	7,840	76%	18%	(161,228)	(161,228)	4,180	-	FS	(6,728)	17,707	(7,203)	(1,099)	17,707	(706,551)	19,675	-	FS	9,751	17,707	1.8	0.6	1.2	3,140				
High carbon fuel switching 2010 High Carbon Fuel Switching Total	178	123	301	0	301	100%	0%	(7,654)	(3,827)	8	-	FS	(398)	976	(564)	(57)	976	(38,632)	44	-	FS	621	976	1.6	0.8	1.4	277				
Portfolio Level Expenditure 2010 Portfolio Level Total	4,842												-																		
2010 TOTAL	11,419	6,283	17,702	8,406	26,562	67%	32%	71,429	4,882	6,239	0	25	7,628	21,061	8,949	983	20,222	701,959	39,535	0	0.4	8,406	30,154	3.6	0.3	1.1	2,127				

## **FORTIS BC**

	PROGRAM									ALTERNATE		NET PRESENT VALUE									Benefit/cost test						
	COSTS (\$000)							SAVINGS (GJ)		Impact		Levelized Cost  \$(/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Participant						
	Utility									Energy	Capacity		Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity	Natural Gas	Total Costs	Total Benefits	Benefit/Cost	Natural Gas		
	Incentives	Administration	Total																								
2010 FEI Programs Actuals																											
2010 Residential Energy Efficiency Programs																											
Energy Efficiency Program	2,686	254	2,940	3,199	6,139	48%	52%	104,795	59,965	0	-	5	5,929	0	6,480	859	0	586,021	-	-	2.0	3,199	7,339	2.3	0.6	1.0	(210)
Non Program Specific Admin Cost		74																	-	-							
2010 Residential Total	2,686	328	3,014	3,199	6,213	48%	52%	104,795	59,965	0	-	3	5,929	0	6,480	859	0	586,021	0	0	2.0	3,199	7,339	2.3	0.6	1.0	(284)
Commercial Energy Efficiency Programs																											
Energy Efficiency Program	1,964	81	2,045	3,032	5,078	40%	60%	102,164	82,678	1,768	-	3	6,739	2,061	6,820	976	1,321	658,188	17,177	-	3.3	3,032	9,117	3.0	0.8	1.7	3,723
Non Program Specific Admin Cost		39																									
2010 Commercial Total	1,964	120	2,084	3,032	5,116	44%	59%	102,164	82,678	1,768	-	3	6,739	2,061	6,820	976	1,321	658,188	17,177	-	3.2	3,032	9,117	3.0	0.8	1.7	3,684
Joint Initiatives																											
Energy Efficiency Program	14	371	385	0	414	93%	7%	864	748	0	0	67	56	0	61	8	0	5,700	0	0	0.1	29	70	2.4	0	0.1	(358)
Non Program Specific Admin Cost		48																									
2010 Joint Initiatives Total	14	419	433	0	462	93%	7%	864	748	0	-	67	56	0	61	8	0	5,700	0	0	0.1	-	70	N/A	0.1	0.1	(406)
Conservation for Affordable Housing Programs																											
Energy Efficiency Program	39	213	253	0	253	100%	0%	3,613	2,637	0	0	16	194	0	164	24	0	15,520	0	0	0.8	0.0	187	0.0	0.5	0.8	(59)
Non Program Specific Admin Cost		43																									
2010 Affordable Housing Total	39	256	296	0	296	100%	0%	3,613	2,637	0	0	16	194	0	164	24	0	15,520	0	0	0.7	-	187	N/A	0.4	0.7	(102)
Innovative Technology																											
Energy Efficiency Program	5,816	2	5,818	958	7,040	83%	14%	(162,911)	(162,911)	4,180	0	FS	(6,937)	17,707	(7,567)	(1,128)	17,707	(726,396)	19,675	0	FS	9,653	17,707	1.8	0.6	1.3	3,730
Non Program Specific Admin Cost		3																									
2010 Innovative Technology Total	5,816	5	5,821	958	7,043	83%	14%	(162,911)	(162,911)	4,180	0	FS	(6,937)	17,707	(7,567)	(1,128)	17,707	(726,396)	19,675	0	FS	9,653	17,707	1.8	0.6	1.3	3,727
High Carbon Fuel Switching																											
High Carbon Fuel Switching Program	29	46	75	0	75	100%	0%	(1,247)	(624)	1	0	FS	(61)	159	(67)	(9)	159	(6,103)	7	0	FS	76.4	159	2.1	0.5	1.2	23
Non Program Specific Admin Cost		1																									
2010 High Carbon Fuel Switching Total	29	47	76	0	76	100%	0%	(1,247)	(624)	1	0	FS	(61)	159	(67)	(9)	159	(6,103)	7	0	FS	76.4	159	2.1	0.5	1.2	23
Portfolio Level Expenditure																											
Conservation Education & Outreach	1,415																										
Enabling Activities	70																										
Non Program Specific Portfolio Level Cost	1,289																										
Industrial Program Costs	4																										
Labor Costs	1,307																										
2010 FEI Portfolio Level Total	4,085																										
2010 Total	10,548	5,261	15,809	7,189	23,292	68%	31%	47,278	(17,507)	5,949	0	29.7	5,920	19,928	5,891	730	19,187	532,929	36,859	0	0.4	7,189	25,808	3.6	0.3	1.1	2,556

FORTIS BC VANCOUVER ISLAND

2010 FEVI Programs Actuals	PROGRAM								ALTERNATE		NET PRESENT VALUE									BENEFIT/COST							
	COSTS (\$000)							SAVINGS (GJ)		Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas Utility	Participant			Natural Gas Rate Impact	Total Resource	TRC Net Benefits (\$'000s)
	Utility			Participa nt	Total	% Utility	% Participant	Gross	Net	Energy MWh	Capacity kW		Program (\$'000s)	Alternate (\$'000s)	Program (\$'000s)	Carbon Tax (\$'000s)	Alternate (\$'000s)	Natural Gas (GJ)	Alternate Energy (MWh)	Alternate Capacity (kW)		Total Costs (\$'000s)	Total Benefits (\$'000s)	Benefit/C ost			
	Incentives	Administrat ion	Total																								
2010 Residential Energy Efficiency Programs: Energy Efficiency Program Non Program Specific Admin Cost 2010 Residential Total	117	76 35	193	103	296	65%	35%	3,551	2,072	2	-	9	212	2	318	31	1	20,830	13	-	1.1	103	350	3.4	0.4	0.7	(83)
Commercial Energy Efficiency Programs: Energy Efficiency Program Non Program Specific Admin Cost 2010 Commercial Total	437	20 30	456	623	1,079	42%	58%	24,421	21,178	282	-	3	1,574	315	2,814	235	217	156,925	2,626	-	3.4	623	3,266	5.2	0.5	1.8	810
Joint Initiatives Energy Efficiency Program Non Program Specific Admin Cost 2010 Joint Initiatives Total	15	1 9	16	0	16	100%	0%	0	0	-	-	LB	-	-	-	-	-	-	-	-	LB	-	-	N/A	N/A	LB	LB
Conservation for Affordable Housing Programs Energy Efficiency Program Non Program Specific Admin Cost 2010 Affordable Housing Total	10	16 2	26	0	26	100%	0%	904	660	-	-	7	50	-	59	6	-	3,959	-	-	1.9	-	65	N/A	0.6	1.9	23
Innovative Technology Energy Efficiency Program Non Program Specific Admin Cost 2010 Innovative Technology Total	143	0 0	143	491	796	18%	62%	1,683	1,683	0	-	7	209	0	364	29	0	19,845	-	-	1.5	1	393	0.8	0.4	0.3	(587)
High Carbon Fuel Switching High Carbon Fuel Switching Program Non Program Specific Admin Cost 2010 High Carbon Fuel Switching Total	149	76 0	225	-	225	100%	0%	(6,407)	(3,204)	7	-	FS	(337)	817	(497)	(48)	817	(32,529)	37	-	FS	545	817	1.5	0.9	1.5	255
Portfolio Level Expenditure Conservation Education & Outreach Enabling Activities Non Program Specific Portfolio Level Cost Industrial Program Costs Labor Costs FEVI Portfolio level total	870	201 41 232 0 282 756	1,892	1,217	3,271	58%	37%	24,151	22,389	290	0	11	1,708	1,133	3,058	253	1,035	169,030	2,676	0	0.9	1,217	4,346	3.6	0.3	0.9	(429)

2010 DSM Actuals

	PROGRAM								ALTERNATE		NET PRESENT VALUE										Benefits/cost test							
	COSTS (\$000)							SAVINGS (GJ)		Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings					Participant					
	Utility			Participant	Total	% Utility	%	Gross	Net	Energy MWh	Capacity kW		Program (\$'000s)	Alternate (\$'000s)	Program (\$'000s)	Carbon (\$'000s)	Alternate (\$'000s)	Natural Gas (GJ)	Alternate (MWh)	Alternate (kW)	Natural Utility	Total (\$'000s)	Total (\$'000s)		Natural Rate	Total	TRC Net (\$'000s)	
	Incentives	Administr	Total																									
2010 Actuals																												
Residential Energy Efficiency Programs 2010 Residential Total	2,803	440	3,242	3,302	6,544	50%	50%	108,346	62,036	2	-	5	6,141	2	6,798	890	1	606,851	13	-	1.9	3,302	7,689	2.3	0.6	0.9	(402)	
Commercial Energy Efficiency Programs 2010 Commercial Total	2,401	170	2,570	3,655	6,225	41%	59%	126,585	103,856	2,049	-	3	8,313	2,376	9,634	1,211	1,538	815,113	19,803	-	3.2	3,655	12,383	3.4	0.7	1.7	4,464	
Joint Initiatives 2010 Joint Initiatives Total	29	429	458	0	487	94%	0%	864	748	0	-	80	56	0	61	8	0	5,700	-	-	0.1	-	70	N/A	0.1	0.1	(431)	
Conservation for Affordable Housing Programs 2010 Affordable Housing Total	49	275	324	0	324	100%	0%	4,517	3,297	0	-	17	244	0	222	30	0	19,479	-	-	0.8	-	252	N/A	0.4	0.8	(80)	
Innovative Technology 2010 Innovative Technology Total	0	0	0	0	0	-	-	0	0	0	-	-	0	0	0	0	0	-	-	-	N/A	-	-	N/A	N/A	N/A	N/A	
High carbon fuel switching 2010 High Carbon Fuel Switching Total	178	123	301	0	301	100%	0%	(7,654)	(3,827)	8	-	FS	(398)	976	(564)	(57)	976	(38,632)	44	-	FS	621	976	1.6	0.8	1.4	277	
Portfolio Level Expenditure 2010 Portfolio Level Total	4,842											-	-															
2010 TOTAL	5,460	6,278	11,738	6,957	18,723	63%	37%	232,657	166,110	2,059	0	8	14,356	3,354	16,152	2,082	2,515	1,408,510	19,860	0	1.2	6,957	20,749	3.0	0.5	0.9	(1,013)	



FORTIS BC

	PROGRAM									ALTERNATE		NET PRESENT VALUE									Benefit/cost test						
2010 FEI Programs Actuals	COSTS (\$000)							SAVINGS (GJ)		Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Participant						
	Utility			Participant	Total	% Utility	% Participant	Gross	Net	Energy	Capacity		Program (\$'000s)	Alternate (\$'000s)	Program (\$'000s)	Carbon Tax (\$'000s)	Alternate (\$'000s)	Natural Gas (GJ)	Alternate Energy (MWh)	Alternate Capacity (kW)	Natural Gas	Total Costs	Total Benefits	Benefit/Cost	Natural Gas		
	Incentives	Administratio n	Total							MWh	kW										Utility	(\$'000s)	(\$'000s)		Rate Impact	Total Resource	TRC Net Benefits (\$'000s)
2010 Residential Energy Efficiency Programs	2,686	254	2,940	3,199	6,139	48%	52%	104,795	59,965	0	-	5	5,929	0	6,480	859	0	586,021	-	-	2.0	3,199	7,339	2.3	0.6	1.0	(210)
Non Program Specific Admin Cost		74																									
2010 Residential Total	2,686	328	3,014	3,199	6,213	48%	52%	104,795	59,965	0	-	3	5,929	0	6,480	859	0	586,021	0	0	2.0	3,199	7,339	2.3	0.6	1.0	(284)
Commercial Energy Efficiency Programs	1,964	81	2,045	3,032	5,078	40%	60%	102,164	82,678	1,768	-	3	6,739	2,061	6,820	976	1,321	658,188	17,177	-	3.3	3,032	9,117	3.0	0.8	1.7	3,723
Non Program Specific Admin Cost		39																									
2010 Commercial Total	1,964	120	2,084	3,032	5,116	44%	59%	102,164	82,678	1,768	-	3	6,739	2,061	6,820	976	1,321	658,188	17,177	-	3.2	3,032	9,117	3.0	0.8	1.7	3,684
Joint Initiatives	14	371	385	0	414	93%	7%	864	748	0	0	67	56	0	61	8	0	5,700	0	0	0.1	29	70	2.4	0	0.1	(358)
Non Program Specific Admin Cost		48																									
2010 Joint Initiatives Total	14	419	433	0	462	93%	7%	864	748	0	-	67	56	0	61	8	0	5,700	0	0	0.1	-	70	N/A	0.1	0.1	(406)
Conservation for Affordable Housing Programs	39	213	253	0	253	100%	0%	3,613	2,637	0	0	16	194	0	164	24	0	15,520	0	0	0.8	0.0	187	0.0	0.5	0.8	(59)
Non Program Specific Admin Cost		43																									
2010 Affordable Housing Total	39	256	296	0	296	100%	0%	3,613	2,637	0	0	16	194	0	164	24	0	15,520	0	0	0.7	-	187	N/A	0.4	0.7	(102)
Innovative Technology																											
Energy Efficiency Program																											
Non Program Specific Admin Cost																											
2010 Innovative Technology Total																											
High Carbon Fuel Switching	29	46	75	0	75	100%	0%	(1,247)	(624)	1	0	FS	(61)	159	(67)	(9)	159	(6,103)	7	0	FS	76.4	159	2.1	0.5	1.2	23
Non Program Specific Admin Cost		1																									
2010 High Carbon Fuel Switching Total	29	47	76	0	76	100%	0%	(1,247)	(624)	1	0	FS	(61)	159	(67)	(9)	159	(6,103)	7	0	FS	76.4	159	2.1	0.5	1.2	23
Portfolio Level Expenditure																											
Conservation Education & Outreach		1,415																									
Enabling Activities		70																									
Non Program Specific Portfolio Level Cost		1,289																									
Industrial Program Costs		4																									
Labor Costs		1,307																									
2010 FEI Portfolio Level Total		4,085																									
2010 Total	4,732	5,256	9,988	6,232	16,249	61%	38%	210,189	145,404	1,769	0	7.9	12,857	2,220	13,458	1,859	1,480	1,259,325	17,184	0	1.3	6,232	16,796	2.7	0.5	0.9	(1,171)

FORTIS BC VANCOUVER ISLAND

2010 FEVI Programs Actuals	PROGRAM								ALTERNATE		NET PRESENT VALUE									BENEFIT/COST							
	COSTS (\$000)							SAVINGS (GJ)		Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas Utility	Participant			Natural Gas Rate Impact	Total Resource	TRC Net Benefits (\$'000s)
	Utility			Participa nt	Total	% Utility	% Participant	Gross	Net	Energy MWh	Capacity kW		Program (\$'000s)	Alternate (\$'000s)	Program (\$'000s)	Carbon Tax (\$'000s)	Alternate (\$'000s)	Natural Gas (GJ)	Alternate Energy (MWh)	Alternate Capacity (kW)		Total Costs (\$'000s)	Total Benefits (\$'000s)	Benefit/C ost			
	Incentives	Administrat ion	Total																								
2010 Residential Energy Efficiency Programs: Energy Efficiency Program Non Program Specific Admin Cost 2010 Residential Total	117	76	193	103	296	65%	35%	3,551	2,072	2	-	9	212	2	318	31	1	20,830	13	-	1.1	103	350	3.4	0.4	0.7	(83)
Commercial Energy Efficiency Programs: Energy Efficiency Program Non Program Specific Admin Cost 2010 Commercial Total	437	20	456	623	1,079	42%	58%	24,421	21,178	282	-	3	1,574	315	2,814	235	217	156,925	2,626	-	3.4	623	3,266	5.2	0.5	1.8	810
Joint Initiatives Energy Efficiency Program Non Program Specific Admin Cost 2010 Joint Initiatives Total	15	1	16	0	16	100%	0%	0	0	-	-	LB	-	-	-	-	-	-	-	-	LB	-	-	N/A	N/A	LB	LB
Conservation for Affordable Housing Programs Energy Efficiency Program Non Program Specific Admin Cost 2010 Affordable Housing Total	10	16	26	0	26	100%	0%	904	660	-	-	7	50	-	59	6	-	3,959	-	-	1.9	-	65	N/A	0.6	1.9	23
Innovative Technology Energy Efficiency Program Non Program Specific Admin Cost 2010 Innovative Technology Total																											
High Carbon Fuel Switching High Carbon Fuel Switching Program Non Program Specific Admin Cost 2010 High Carbon Fuel Switching Total	149	76	225	-	225	100%	0%	(6,407)	(3,204)	7	-	FS	(337)	817	(497)	(48)	817	(32,529)	37	-	FS	545	817	1.5	0.9	1.5	255
Portfolio Level Expenditure Conservation Education & Outreach Enabling Activities Non Program Specific Portfolio Level Cost Industrial Program Costs Labor Costs FEVI Portfolio level total	727	1,022	1,749	725	2,474	71%	29%	22,468	20,706	290	0	12	1,498	1,133	2,694	224	1,035	149,185	2,676	0	0.9	725	3,952	5.4	0.3	1.1	158

FORTIS BC		PROGRAM													ALTERNATE		NET PRESENT VALUE										BENEFIT/COST																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
2010 Residential Programs		COSTS (\$000)													SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	TRC Net Benefits																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net	Years	Energy		Capacity	(\$/GJ)		Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity		Total Costs	Total Benefits	Benefit/Cost																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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2010 Residential Programs		COSTS (\$000)													SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)			Participant Benefits (Costs)			Program Net Savings			Natural Gas Utility	Participant			Natural Gas Rate Impact	Total Resource	TRC Net Benefits																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net	Years	Energy		Capacity	(\$/GJ)		Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas (\$)	Alternate Energy (MWh)	Alternate Capacity (kW)	Total Costs (\$'000s)		Total Benefits (\$'000s)	Benefit/Cost	Natural Gas				Total Resource	TRC Net Benefits (\$'000s)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		Incentives	Administration	Total	Incentives	Administration	Total																																	Energy	Capacity	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)	(\$)	Energy	Capacity																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

FORTIS BC		PROGRAM													ALTERNATE		NET PRESENT VALUE									BENEFIT/COST								
2010 Commercial Programs		COSTS (\$000)											SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	TRC Net Benefits	
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net		MWh	kW		(\$/GJ)	Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy		Alternate Capacity	Total Costs	Total Benefits			Benefit/Cost
		Incentives	Administration	Total	Incentives	Administration	Total																											
FEI	Label	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
	Source Sheet or Calculation	Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	M+N	Program	Program	Program	D/Y	OxJ	Q x N x AL	M x N x AN	M x N x AD	N x (QxAP + RxAQ)	PV(ΔP, Q)	PV(ΔK, P, Q* N)	PV(ΔK, P, R)	T/D	H>O, (V+W)*G	H+O, (V+W)*G X	AD/AC	T/(V+D)	(T+U)/I	(T+U)+I
2010 Commercial Energy Efficiency Programs																																		
New Construction																																		
Efficient Boiler Program		74	1	75	0	0	0	101	176	43%	0%	57%	3,207	82%	2,630	20	0	-	3	277	N/A	282	40	N/A	27,055	0	-	3.7	101	322	3.2	0.8	1.6	101
Light Comm. ENERGY STAR® Boiler Program		0	0	1	0	0	0	1	2	31%	0%	69%	111	82%	91	20	0	-	1	10	N/A	10	1	N/A	936	0	-	15.6	1	11	8.1	0.9	4.8	8
Retrofit																																		
Retrofit Efficient Boiler Program		1,189	23	1,213	0	0	0	1,610	2,823	43%	0%	57%	44,880	82%	36,802	20	0	-	3	3,872	N/A	3,951	554	N/A	378,622	0	-	3.2	1,610	4,505	2.8	0.7	1.4	1,049
Retrofit Light Comm. ENERGY STAR® Boiler Program		90	5	95	0	0	0	325	420	23%	0%	77%	7,696	82%	6,311	20	0	-	1	664	N/A	678	95	N/A	64,926	0	-	7.0	325	773	2.4	0.9	1.6	244
Retrofit Efficient Commercial Water Heater		15	3	19	0	0	0	21	40	47%	0%	53%	623	95%	592	12	0	-	4	45	N/A	46	7	N/A	4,607	0	-	2.4	21	53	2.5	0.7	1.1	5
Fireplace timer pilot program		10	0	10	0	0	0	0	10	100%	0%	0%	585	100%	585	5	0	-	4	23	N/A	23	4	N/A	2,374	0	-	2.3	-	27	N/A	0.7	2.3	13
Retrofit Energy Assessment		66	25	91	0	0	0	0	91	100%	0%	0%	26,840	65%	17,446	1	0	-	6	215	N/A	154	35	N/A	16,247	0	-	2.4	-	189	N/A	0.9	2.4	124
PSECA		519	25	543	0	0	0	974	1,517	36%	0%	64%	18,222	100%	18,222	1	1,768	-	3	1,634	2,061	1,676	241	1,321	163,420	17,177	-	3.0	974	3,237	3.3	0.7	2.4	2,179
2010 Total Commercial		1,964	81	2,045	0	0	0	3,032	5,078	40%	0%	60%	102,164		82,678		1,768	-	3	6,739	2,061	6,820	976	1,321	658,188	17,177	0	3.3	3,032	9,117	3.0	0.8	1.7	3,723

		PROGRAM															ALTERNATE		NET PRESENT VALUE									BENEFIT/COST									
2010 Commercial Programs		COSTS (\$000)											SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)			Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	TRC Net Benefits			
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net		Years	Energy		Capacity	(\$/GJ)	Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy		Alternate Capacity	Total Costs	Total Benefits			Benefit/Cost	Rate Impact	Total Resource
		Incentives	Administration	Total	Incentives	Administration	Total																														
Label	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH				
Source Sheet or Calculation	Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	MxN	Program	Program	Program	D/Y	OxJ	Q x N x AL	M x N x AN	M x N x AO	N x (QuAP + RxAQ)	PV(A P,-Q)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H=0, (V+W)-D	H=0, (V+W)-D, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I				
2010																																					
Commercial Energy Efficiency Programs																																					
New Construction																																					
Efficient Boiler Program																																					
Retrofit																																					
Efficient Boiler Program																																					
Light Comm. ENERGY STAR® Boiler Program																																					
Retrofit Efficient Commercial Water Heater Program																																					
Spray N'Save																																					
Retrofit Energy Assesment Program																																					
PSECA																																					
Total Commercial																																					

FORTIS BC		PROGRAM														ALTERNATE		NET PRESENT VALUE									BENEFIT/COST								
2010 Joint Initiatives Programs		COSTS (\$000)										SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	TRC Net Benefits			
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross		Net	Energy		Capacity	Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy		Alternate Capacity	Total Costs	Total Benefits			Benefit/Cost	Rate Impact	Total Resource
		Incentives	Administration	Total	Incentives	Administration	Total																												
Label	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH		
Source Sheet or Calculation	Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	MxN	Program	Program	Program	D/Y	OxJ	Q x N x AL	M x N x AN	M x N x AO	N x (QxAP + RxAQ)	PV(A P,-Q)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H>0, (V+W)<0	H<0, (V+W)>0, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I		
2010																																			
RESIDENTIAL:																																			
Tier 3 ENERGY STAR Washer / Dryer Rebates		7	0	7	0	0	0	29	36	18%	0%	82%	364	90%	328	14	0	-	2	28	N/A	30	4	N/A	2,801	0	-	4.3	29	35	1.2	0.8	0.8	(8)	
Water Savers Pilot		8	7	14	0	0	0	0	14	100%	0%	0%	500	84%	420	10	0	-	5	28	N/A	31	4	N/A	2,899	0	-	2.0	-	35	N/A	0.6	2.0	14	
EcoEnergy Audits			349	349					349																										
City of Vancouver Weatherization			15	15					15																										
Total Residential		14	371	385	-	-	-	29	414	93%	-	7%	864		748		0	-	67	56	0	61	8	0	5,700	0	0	0.1	29	70	2.4	0.1	0.1	(358)	



		PROGRAM														ALTERNATE		NET PRESENT VALUE									BENEFIT/COST												
2010 Joint Initiatives Programs		COSTS (\$000)											SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)			Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant									
		Utility			Partners												Energy	Capacity		(\$/GJ)	Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity			Total Costs	Total Benefits				Benefit/Cost	Natural Gas		TRC Net Benefits
		Incentives	Administration	Total	Incentives	Administration	Total																																
FEVI		B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH					
Label		B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH					
Source Sheet or Calculation		Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	M+N	Program	Program	Program	D/Y	O+J	Q x N x AL	M x N x AN	M x N x AO	N x (Q+P + R+Q)	PV(A P,-O)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H+O, (V+W)+O	H+O, (V+W)+O, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I					
2010																																							
RESIDENTIAL:																																							
EcoEnergy D-Visit Rebates		15	1	16	0	0	0	0	16	100%	0%	0%	0	100%	0	0	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB					
Total Residential		15	1	16	0	0	0	0	16	100%	-	0%	0		0	0	0	-	LB	0	0	0	0	0	-	-	-	LB	-	-	N/A	N/A	LB	LB					

FORTIS BC		PROGRAM													ALTERNATE		NET PRESENT VALUE										BENEFIT/COST								
2010 Conservation for Affordable Housing Programs		COSTS (\$000)											SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)			Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	Total Resource	TRC Net Benefits
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net		Energy	Capacity		Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity	Total Costs		Total Benefits	Benefit/Cost				
																																Incentives			
		B	C	D	E	F	G	H	I	J	K	L	M	N	O		P	Q		R	S	T	U	V	W	X	Y	Z		AA	AB				
Source Sheet or Calculation		Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	MxN	Program	Program	Program	D/Y	OxJ	Q x N x AL	M x N x AN	M x N x AD	N x (QxAP + RxAQ)	PV(AL,P,-Q)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H=0, (V+W)>0	H=0, (V+W)>0, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I	
2010																																			
RESIDENTIAL:																																			
Energy Savings Kits		39	44	83	0	0	0	0	83	100%	0%	0%	3,613	73%	2,637	8	0	-	5	194	N/A	164	24	N/A	15,520	0	-	2.3	-	187	N/A	0.8	2.3	111	
REnEW		0	148	148	0	0	0	0	148	100%	0%	0%	0	100%	0	0	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB	
SEMP Study		0	14	14	0	0	0	0	14	100%	0%	0%	0	100%	0	0	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB	
Mobile Homes Study		0	8	8	0	0	0	0	8	100%	0%	0%	0	100%	0	0	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB	
Total Residential		39	213	253	0	0	0	0	253	100%	-	0%	3,613		2,637		0	0	16	194	LB	164	24	LB	15,520	LB	LB	0.8	-	187	N/A	0.5	0.8	(59)	

FORTIS BC		PROGRAM													ALTERNATE		NET PRESENT VALUE									BENEFIT/COST								
2010 Conservation for Affordable Housing Programs		COSTS (\$000)										SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	TRC Net Benefits		
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross		Net	Energy		Capacity	(\$/GJ)	Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas		Alternate Energy	Alternate Capacity	Total Costs			Total Benefits	Benefit/Cost
		Incentives	Administration	Total	Incentives	Administration	Total																											
Label		B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
Source Sheet or Calculation		Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	M=N	Program	Program	Program	D/Y	OxI	Q x N x L	M x N x AN	M x N x AO	N x (QxAP + RxAQ)	PV(AI,P,-O)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H+O, (V+W)+O	H+O, (V+W)+O, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I
2010																																		
RESIDENTIAL:																																		
ESK		10	11	21	0	0	0	0	21	100%	0%	0%	904	73%	660	8	0	-	5	50	N/A	59	6	N/A	3,959	0	-	2.4	-	65	N/A	0.6	2.4	29
Mobile Home Study		0	2	2	0	0	0	0	2	100%	0%	0%	0	100%	0	0	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB
Strategic Energy Management Plan		0	3	3	0	0	0	0	3	100%	0%	0%	0	100%	0	0	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB
Total Residential		10	16	26	0	0	0	0	26	100%	-	0%	904		660		0	0	7	50	N/A	59	6	N/A	3,959	N/A	N/A	1.9	-	65	N/A	0.6	1.9	23

FORTIS BC																																			
2010 High Carbon Fuel Switching Programs		PROGRAM															ALTERNATE		NET PRESENT VALUE									BENEFIT/COST							
		COSTS (\$000)												SAVINGS (GJ)			LIFE	Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas Utility	Participant			Natural Gas Rate Impact	TRC Net Benefits (\$'000s)	
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net	Years		Energy L	Capacity kW		Program (\$'000s)	Alternate (\$'000s)	Program (\$'000s)	Carbon Tax (\$'000s)	Alternate (\$'000s)	Natural Gas (GJ)	Alternate Energy (MWh)	Alternate Capacity (kW)		Total Costs (\$'000s)	Total Benefits (\$'000s)	Benefit/Cost			
		Incentives	Administration	Total	Incentives	Administration	Total																												
																																			Program
Label	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH		
Source Sheet or Calculation	Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	MxN	Program	Program	Program	D/Y	OxJ	Q x N x AL	M x N x AN	M x N x AO	N x (QxAP + RxAQ)	PV(AJ,P,-Q)	PV(AK,P,-Q'N)	PV(AK,P,-R)	T/D	H=O, (V+W)-O	H=O, (V+W)-O, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I		
2010																																			
Innovative Technologies																																			
NGV Vehicles (Kelowna School Bus)		363	1	364	-	-	-	-	364	100%	-	0%	(4,312)	100%	(4,312)	15	95	-	F5	(377)	834	(418)	(57)	834	(38,348)	927	-	F5	475	834	1.8	0.6	1.1	93	
NGV Vehicles (Surrey)		27	1	27	-	-	-	-	27	100%	-	0%	(1,538)	100%	(1,538)	8	34	-	F5	(86)	190	(95)	7	190	(8,050)	211	-	F5	109	190	1.7	0.6	1.7	76	
NGV Vehicles (Waste Management Inc.)		804	1	804	-	-	-	-	804	100%	-	0%	(21,140)	100%	(21,140)	10	468	-	F5	(1,404)	3,100	(1,554)	(218)	3,100	(145,905)	3,445	-	F5	1,773	3,100	1.7	0.7	1.4	892	
Solar Water heating PSECA Program		229	-	229	264	-	264	958	1,451	16%	0	66%	2,579	100%	2,579	25	-	-	8	300	-	329	42	-	29,053	-	-	1.3	958	372	0.4	0.5	0.2	(1,152)	
LNG (Vedder)		4,393	1	4,394	-	-	-	-	4,394	100%	-	0%	(138,500)	100%	(138,500)	5	3,583	-	F5	(5,369)	13,583	(5,828)	(882)	13,583	(562,146)	15,092	-	F5	6,710	13,583	2.0	0.6	1.4	3,820	
Total Residential		5,816	2	5,818	264	-	264	958	7,040	-	0	14%	(162,911)	-	(162,911)	-	4,180	-	F5	(6,937)	17,707	(7,567)	(1,128)	17,707	(726,396)	19,675	-	F5	9,653	17,707	1.8	0.6	1.3	3,730	

FORTIS BC		PROGRAM														ALTERNATE		NET PRESENT VALUE									BENEFIT/COST							
2010 Innovative Technologies Programs		COSTS (\$000)										SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings				Participant						
		Utility			Partners																													
		Incentives	Administration	Total	Incentives	Administration	Total																											
FEVI								Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net	Years	MWh	kW																
Label		B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
Source Sheet or Calculation		Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	M+N	Program	Program	Program	D/Y	OxAJ	Q x N x AL	M x N x AN	M x N x AO	N x (OxAP + RxAQ)	PV(AI,P,-O)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H>0, (V+W)>0	H=0, (V+W)=0, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I
2010																																		
RESIDENTIAL:																																		
Solar Water heating PSECA Program TGV1		143	0	143	162	0	162	491	796	18%	20%	62%	1,683	100%	1,683	25	0	-	7	209	N/A	364	29	N/A	19,845	0	-	1.5	491	393	0.8	0.4	0.3	(587)
Total Commercial		143	0	143	162	0	162	491	796	18%	0	62%	1,683		1,683		0	0	7	209	0	364	29	0	19,845	0	0	1.5	491	393	0.8	0.4	0.3	(587)

	PROGRAM														ALTERNATE		NET PRESENT VALUE									BENEFIT/COST							
2010 High Carbon Fuel Switching Programs	COSTS (\$000)											SAVINGS (GJ)			LIFE	Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas Utility	Participant			Natural Gas Rate Impact	Total Resource	TRC Net Benefits (\$'000s)
	Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net		Energy L	Capacity kW		Program (\$'000s)	Alternate (\$'000s)	Program (\$'000s)	Carbon Tax (\$'000s)	Alternate (\$'000s)	Natural Gas (GJ)	Alternate Energy (MWh)	Alternate Capacity (kW)		Total Costs (\$'000s)	Total Benefits (\$'000s)	Benefit/Cost			
FEI	Incentives	Administration	Total	Incentives	Administration	Total																											
Label	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
Source Sheet or Calculation	Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	MeN	Program	Program	Program	D/Y	OxAJ	Q x N x AL	M x N x AN	M x N x AO	N x (QxAP + RxAQ)	PV(AJ,P,-O)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H>0, (V+W)>0	H=0, (V+W)=0, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-1
2010																																	
Residential																																	
Switch 'N' Shrink High Carbon Fuel Switching	29	46	75	-	-	-	-	75	100%	-	0%	(1,247)	50%	(624)	18	1	-	FS	(61)	159	(67)	(9)	159	(6,103)	7	-	FS	76	159	2.1	0.5	1.2	23
Total Residential	29	46	75	-	-	-	-	75		-	0%	(1,247)		(624)		1	-	FS	(61)	159	(67)	(9)	159	(6,103)	7	-	FS	76	159	2.1	0.5	1.2	23

		PROGRAM														ALTERNATE		NET PRESENT VALUE									BENEFIT/COST																								
2010 High Carbon Fuel Switching		COSTS (\$000)											SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	TRC Net Benefits																		
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net		Energy	Capacity		(\$/GJ)	Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy		Alternate Capacity	Total Costs	Total Benefits			Benefit/Cost	Rate Impact	Total Resource															
		Incentives	Administration	Total	Incentives	Administration	Total																														MWh	kW	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)	(GJ)	(MWH)	(kW)	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)
FEVI		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net	MWh	kW	(\$/GJ)	Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity	Total Costs	Total Benefits	Benefit/Cost	Rate Impact	Total Resource																				
Source Sheet or Calculation		Incentives	Administration	Total	Incentives	Administration	Total																									Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net	Energy	Capacity	(\$/GJ)	Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity	Total Costs
Label		B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH																	
Source Sheet or Calculation		Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	M+N	Program	Program	Program	D/Y	O+J	Q x N x AL	M x N x AN	M x N x AO	N x (Q+AP + R+AQ)	PV(A P,-Q)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H+Q, (V+W)+Q	H+Q, (V+W)+Q, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I																	
2010																																																			
RESIDENTIAL:																																																			
Switch 'N' Shrink High Carbon Fuel Switching		149	76	225	0	0	0	0	225	100%	0%	0%	(6,407)	50%	(3,204)	18	7	-	FS	(337)	817	(497)	(48)	817	(32,529)	37	-	FS	545	817	1.5	0.9	1.5	255																	
Total Residential		149	76	225	-	-	-	0	225	100%	-	0%	(6,407)		(3,204)		7	-	FS	(337)	817	(497)	(48)	817	(32,529)	37	-	FS	545	817	1.5	0.9	1.5	255																	



2011 DSM Planned

	PROGRAM								ALTERNATE		NET PRESENT VALUE									Benefits/cost test								
	COSTS (\$000)							SAVINGS (GJ)		Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings				Participant						
	Utility									Energy	Capacity		Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity	Natural Gas	Total Costs	Total Benefits	Benefit/Cost	Natural Gas		TRC Net Benefits	
	Incentives	Administration	Total																									Rate Impact
2011 Planned																												
Residential Energy Efficiency Programs 2011 Residential Total	1,710	825	2,535	3	2,538	100%	0%	27,540	21,288	0	0	14	1,952	0	2,179	277	0	187,405	0	0	0.8	3	2,456	834.4	0.4	0.8	(586)	
Commercial Energy Efficiency Programs 2011 Commercial Total	3,091	172	3,263	5,418	8,694	38%	62%	160,630	133,090	(1,281)	0	3	12,318	(1,764)	12,684	1,694	(1,130)	1,144,830	(14,697)	0	3.8	5,418	13,248	2.4	0.8	1.2	1,860	
Joint Initiatives 2011 Joint Initiatives Total	2,678	605	3,283	7,090	10,372	32%	68%	98,163	87,916	0	0	4	9,652	0	10,019	1,322	0	901,538	0	0	2.9	7,090	11,341	1.6	0.7	0.9	(720)	
Conservation for Affordable Housing Programs 2011 Affordable Housing Total	1,462	1,109	2,571	0	2,571	100%	0%	16,087	13,519	231	0	24	1,381	391	1,168	160	207	105,500	2,504	0	0.5	-	1,535	N/A	0.4	0.7	(799)	
Innovative Technology 2011 Innotative Technology Total	3,931	124	4,055	603	4,851	84%	12%	(225,928)	(225,928)	5,771	2	FS	(13,502)	32,739	(13,206)	(2,047)	36,377	(1,349,902)	36,377	26	FS	15,856	36,377	2.3	0.8	1.8	14,387	
High carbon fuel switching 2011 High Carbon Fuel Switching Total	420	104	524	0	524	100%	0	(17,200)	(8,600)	18	0	FS	(917)	2,529	(1,253)	(128)	2,529	(86,875)	100	0	FS	1,381	2,529	1.8	0.9	1.8	1,088	
Portfolio Level Expenditure 2011 Portfolio Level Total	10,669																											
2011 TOTAL	13,292	13,607	26,900	13,114	40,218	67%	33%	59,292	21,286	4,740	2	30	10,884	33,895	11,590	1,279	37,983	902,497	24,283	26	0.4	13,114	50,852	3.9	0.3	1.1	4,561	

FORTIS BC

	PROGRAM									ALTERNATE		NET PRESENT VALUE									Benefit/cost test						
2011 FEI Programs Planned	COSTS (\$000)							SAVINGS (GJ)		Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas Utility	Participant			Natural Gas Rate Impact	Total Resource	TRC Net Benefits (\$'000s)
	Utility			Participant	Total	% Utility	% Participant	Gross	Net	Energy MWh	Capacity kW		Program (\$'000s)	Alternate (\$'000s)	Program (\$'000s)	Carbon Tax (\$'000s)	Alternate (\$'000s)	Natural Gas (GJ)	Alternate Energy (MWh)	Alternate Capacity (kW)		Total Costs (\$'000s)	Total Benefits (\$'000s)	Benefit/Cost			
	Incentives	Administration	Total																								
<b>2011 Residential Energy Efficiency Programs:</b>																											
Energy Efficiency Program	1,373	375	1,748	(23)	1,724	101%	-1%	22,032	17,030	0	-	12	1,556	0	1,605	221	0	149,446	-	-	0.9	-	1,849	N/A	0.5	0.9	(168)
Non Program Specific Admin Cost		314																									
<b>2011 Residential Total</b>	<b>1,373</b>	<b>689</b>	<b>2,062</b>	<b>(23)</b>	<b>2,038</b>	<b>101%</b>	<b>-1%</b>	<b>22,032</b>	<b>17,030</b>	<b>0</b>	<b>-</b>	<b>12</b>	<b>1,556</b>	<b>-</b>	<b>1,605</b>	<b>221</b>	<b>-</b>	<b>149,446</b>	<b>-</b>	<b>-</b>	<b>0.8</b>	<b>-</b>	<b>1,849</b>	<b>N/A</b>	<b>0.4</b>	<b>0.8</b>	<b>(482)</b>
<b>Commercial Energy Efficiency Programs:</b>																											
Energy Efficiency Program	2,701	108	2,809	4,572	7,391	38%	62%	141,022	117,077	(1,281)	-	3	10,862	(1,764)	10,454	1,510	(1,130)	1,021,668	(14,697)	-	3.9	4,572	10,834	2.4	0.8	1.2	1,707
Non Program Specific Admin Cost		30																									
<b>2011 Commercial Total</b>	<b>2,701</b>	<b>138</b>	<b>2,839</b>	<b>4,572</b>	<b>7,421</b>	<b>38%</b>	<b>62%</b>	<b>141,022</b>	<b>117,077</b>	<b>(1,281)</b>	<b>-</b>	<b>3</b>	<b>10,862</b>	<b>(1,764)</b>	<b>10,454</b>	<b>1,510</b>	<b>(1,130)</b>	<b>1,021,668</b>	<b>(14,697)</b>	<b>-</b>	<b>3.8</b>	<b>4,572</b>	<b>10,834</b>	<b>2.4</b>	<b>0.8</b>	<b>1.2</b>	<b>1,677</b>
<b>Joint Initiatives</b>																											
Energy Efficiency Program	2,428	354	2,732	6,354	9,137	30%	70%	88,536	79,180	0	0	3	8,729	0	8,934	1,194	0	814,827	0	0	3.2	6,354.4	10,128	1.6	0.7	1.0	(407)
Non Program Specific Admin Cost		160																									
<b>2011 Joint Initiatives Total</b>	<b>2,428</b>	<b>514</b>	<b>2,942</b>	<b>6,354</b>	<b>9,297</b>	<b>32%</b>	<b>68%</b>	<b>88,536</b>	<b>79,180</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>8,729</b>	<b>0</b>	<b>8,934</b>	<b>1,194</b>	<b>0</b>	<b>814,827</b>	<b>0</b>	<b>0</b>	<b>3.0</b>	<b>6,354</b>	<b>10,128</b>	<b>1.6</b>	<b>0.7</b>	<b>0.9</b>	<b>(567)</b>
<b>Conservation for Affordable Housing Programs</b>																											
Energy Efficiency Program	1,170	881	2,051	0	2,051	100%	0%	12,870	10,816	185	0	24	1,107	312	908	128	166	84,514	2,003	0	0.5	0.0	1,202	0.0	0.4	0.7	(631)
Non Program Specific Admin Cost		7																									
<b>2011 Affordable Housing Total</b>	<b>1,170</b>	<b>888</b>	<b>2,058</b>	<b>0</b>	<b>2,058</b>	<b>100%</b>	<b>0%</b>	<b>12,870</b>	<b>10,816</b>	<b>185</b>	<b>0</b>	<b>32</b>	<b>1,107</b>	<b>312</b>	<b>908</b>	<b>128</b>	<b>166</b>	<b>84,514</b>	<b>2,003</b>	<b>0</b>	<b>0.5</b>	<b>-</b>	<b>1,202</b>	<b>N/A</b>	<b>0.4</b>	<b>0.7</b>	<b>(638)</b>
<b>Innovative Technology</b>																											
Energy Efficiency Program	3,926	29	3,955	600	4,715	84%	13%	(225,989)	(225,989)	5,771	2	FS	(13,509)	32,739	(13,219)	(2,048)	4,938	(1,350,618)	36,377	26	FS	15,867	4,938	0.3	0.8	1.8	14,515
Non Program Specific Admin Cost		85																									
<b>2010 Innovative Technology Total</b>	<b>3,926</b>	<b>114</b>	<b>4,040</b>	<b>600</b>	<b>4,800</b>	<b>84%</b>	<b>13%</b>	<b>(225,989)</b>	<b>(225,989)</b>	<b>5,771</b>	<b>2</b>	<b>FS</b>	<b>(13,509)</b>	<b>32,739</b>	<b>(13,219)</b>	<b>(2,048)</b>	<b>4,938</b>	<b>(1,350,618)</b>	<b>36,377</b>	<b>26</b>	<b>FS</b>	<b>15,867</b>	<b>4,938</b>	<b>0.3</b>	<b>0.8</b>	<b>1.8</b>	<b>14,430</b>
<b>High Carbon Fuel Switching</b>																											
High Carbon Fuel Switching Program	100	21	121	0	121	100%	0%	(3,440)	(1,720)	4	0	FS	(178)	506	(186)	(25)	506	(17,116)	20	0	FS	211.2	506	2.4	0.6	1.7	207
Non Program Specific Admin Cost		0																									
<b>2011 High Carbon Fuel Switching Total</b>	<b>100</b>	<b>21</b>	<b>121</b>	<b>0</b>	<b>121</b>	<b>100%</b>	<b>0%</b>	<b>(3,440)</b>	<b>(1,720)</b>	<b>4</b>	<b>0</b>	<b>FS</b>	<b>(178)</b>	<b>506</b>	<b>(186)</b>	<b>(25)</b>	<b>506</b>	<b>(17,116)</b>	<b>20</b>	<b>0</b>	<b>FS</b>	<b>211</b>	<b>506</b>	<b>2.4</b>	<b>0.6</b>	<b>1.7</b>	<b>207</b>
<b>Portfolio level expenditure</b>																											
Conservation Education & Outreach		2,890																									
Enabling activities		1,776																									
DSMS consultant costs		304																									
Industrial Program costs		1,875																									
Labor		2,168																									
<b>TGI Portfolio level total</b>		<b>9,013</b>																									
<b>2011 Total</b>	<b>11,698</b>	<b>11,376</b>	<b>23,074</b>	<b>11,503</b>	<b>34,747</b>	<b>66%</b>	<b>33%</b>	<b>35,031</b>	<b>(3,606)</b>	<b>4,679</b>	<b>2</b>	<b>32.8</b>	<b>8,566</b>	<b>31,794</b>	<b>8,495</b>	<b>981</b>	<b>4,479</b>	<b>702,719</b>	<b>23,702</b>	<b>26</b>	<b>0.4</b>	<b>11,503</b>	<b>13,955</b>	<b>1.2</b>	<b>0.3</b>	<b>1.1</b>	<b>5,613</b>

FORTIS BC VANCOUVER ISLAND

2011 FEVI Programs Planned	PROGRAM							ALTERNATE		NET PRESENT VALUE									BENEFIT/COST								
	COSTS (\$000)							SAVINGS (GJ)		Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas Utility	Participant			Natural Gas Rate Impact	Total Resource	TRC Net Benefits (\$'000s)
	Utility			Participant	Total	% Utility	% Participant	Gross	Net	Energy MWh	Capacity kW		Program (\$'000s)	Alternate (\$'000s)	Program (\$'000s)	Carbon Tax (\$'000s)	Alternate (\$'000s)	Natural Gas (GJ)	Alternate Energy (MWh)	Alternate Capacity (kW)		Total Costs (\$'000s)	Total Benefits (\$'000s)	Benefit/Cost			
	Incentives	Administration	Total																								
2011 Residential Energy Efficiency Programs: Energy Efficiency Program Non Program Specific Admin Cost 2011 Residential Total	337	96	433	26	459	94%	6%	5,508	4,258	0	0	11	396	0	575	56	0	37,959	0	0	0.9	26	631	24.0	0.4	0.9	(64)
Commercial Energy Efficiency Programs: Energy Efficiency Program Non Program Specific Admin Cost 2011 Commercial Total	337	136	473	26	499	94%	6%	5,508	4,258	0	0	11	396	0	575	56	0	37,959	0	0	0.8	26	631	24.0	0.4	0.8	(104)
Joint Initiatives Energy Efficiency Program Non Program Specific Admin Cost 2011 Joint Initiatives Total	391	24	415	846	1,263	33%	67%	19,608	16,013	0	0	3	1,456	0	2,230	184	0	123,163	0	0	3.5	846	2,414	2.9	0.6	1.2	193
Conservation for Affordable Housing Programs Energy Efficiency Program Non Program Specific Admin Cost 2011 Affordable Housing Total	391	34	425	846	1,273	33%	67%	19,608	16,013	0	0	3	1,456	0	2,230	184	0	123,163	0	0	3.4	846	2,414	2.9	0.5	1.1	183
Innovative Technology Energy Efficiency Program Non Program Specific Admin Cost 2010 Innovative Technology Total	249	51	300	735	1,036	29%	71%	9,627	8,736	0	0	3	923	0	1,085	127	0	86,712	0	0	3.1	735	1,212	1.6	0.7	0.9	(113)
High Carbon Fuel Switching High Carbon Fuel Switching Program Non Program Specific Admin Cost 2011 High Carbon Fuel Switching Total	249	91	340	735	1,076	29%	71%	9,627	8,736	0	0	3	923	0	1,085	127	0	86,712	0	0	2.7	735	1,212	1.6	0.6	0.9	(153)
Portfolio level expenditure Conservation Education & Outreach Enabling Activities DSMS consultant costs Industrial Program Costs Labor Costs TGVI Portfolio level total	292	218	510	0	510	100%	0%	3,217	2,704	46	0	24	275	78	260	32	41	20,986	501	0	0.5	0	333	0.0	0.4	0.7	(157)
2011 Planned Total	292	221	513	0	513	100%	0%	3,217	2,704	46	0	21	275	78	260	32	41	20,986	501	0	0.5	0	333	0.0	0.4	0.7	(160)
2011 Planned Total	5	0	5	3	41	12%	8%	61	61	0	0	7	8	0	13	1	0	716	0	0	1.6	3	14	4.5	0.4	0.2	(33)
2011 Planned Total	5	10	15	3	51	29%	6%	61	61	0	0	7	8	0	13	1	0	716	0	0	0.5	3	14	4.5	0.3	0.2	(43)
2011 Planned Total	320	83	403	0	403	100%	0%	(13,760)	(6,880)	15	0	FS	(739)	2,023	(1,067)	(103)	2,023	(69,759)	80	0	FS	1,170	2,023	1.7	0.9	1.8	881
2011 Planned Total	320	83	403	0	403	100%	0%	(13,760)	(6,880)	15	0	FS	(739)	2,023	(1,067)	(103)	2,023	(69,759)	80	0	FS	1,170	2,023	1.7	0.9	1.8	881
2011 Planned Total	1,595	2,230	3,825	1,611	5,472	70%	29%	24,261	24,892	61	0	19	2,318	2,101	3,096	298	2,065	199,777	580	0	1	1,611	5,458	3	0	0.8	(1,052)

2011 DSM Planned

	PROGRAM								ALTERNATE		NET PRESENT VALUE									Benefits/cost test														
	COSTS (\$000)							SAVINGS (GJ)		Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Participant													
	Utility									Energy	Capacity		Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity	Natural Gas	Total Costs	Total Benefits	Benefit/Cost	Natural Gas	TRC Net Benefits								
	Incentives	Administration	Total																								Participant	Total	% Utility	% Participant	Gross	Net	MWh	kW
2011 Planned																																		
Residential Energy Efficiency Programs 2011 Residential Total	1,710	825	2,535	3	2,538	100%	0%	27,540	21,288	0	0	14	1,952	0	2,179	277	0	187,405	0	0	0.8	3	2,456	834.4	0.4	0.8	(586)							
Commercial Energy Efficiency Programs 2011 Commercial Total	3,091	172	3,263	5,418	8,694	38%	62%	160,630	133,090	(1,281)	0	3	12,318	(1,764)	12,684	1,694	(1,130)	1,144,830	(14,697)	0	3.8	5,418	13,248	2.4	0.8	1.2	1,860							
Joint Initiatives 2011 Joint Initiatives Total	2,678	605	3,283	7,090	10,372	32%	68%	98,163	87,916	0	0	4	9,652	0	10,019	1,322	0	901,538	0	0	2.9	7,090	11,341	1.6	0.7	0.9	(720)							
Conservation for Affordable Housing Programs 2011 Affordable Housing Total	1,462	1,109	2,571	0	2,571	100%	0%	16,087	13,519	231	0	24	1,381	391	1,168	160	207	105,500	2,504	0	0.5	-	1,535	N/A	0.4	0.7	(799)							
Innovative Technology 2011 Innotative Technology Total	0	0	0	0	0	#DIV/0!	#DIV/0!	0	0	0	0	-	0	0	0	0	0	0	0	0	N/A	-	-	N/A	N/A	N/A	0							
High carbon fuel switching 2011 High Carbon Fuel Switching Total	420	104	524	0	524	100%	0	(17,200)	(8,600)	18	0	FS	(917)	2,529	(1,253)	(128)	2,529	(86,875)	100	0	FS	1,381	2,529	1.8	0.9	1.8	1,088							
Portfolio Level Expenditure 2011 Portfolio Level Total	10,669																																	
2011 TOTAL	9,361	13,483	22,845	12,511	35,367	65%	35%	285,220	247,214	(1,032)	0	10	24,386	1,156	24,796	3,326	1,606	2,252,399	(12,094)	0	1.1	12,511	29,728	2.4	0.5	0.7	(9,825)							

FORTIS BC

2011 DSM Planned

	PROGRAM									ALTERNATE		NET PRESENT VALUE									Benefit/cost test						
2011 FEI Programs Planned	COSTS (\$000)							SAVINGS (GJ)		Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings				Participant					
	Utility			Participant	Total	% Utility	% Participant	Gross	Net	Energy	Capacity		Program (\$'000s)	Alternate (\$'000s)	Program (\$'000s)	Carbon Tax (\$'000s)	Alternate (\$'000s)	Natural Gas (GJ)	Alternate Energy (MWh)	Alternate Capacity (kW)	Natural Gas Utility	Total Costs (\$'000s)	Total Benefits (\$'000s)	Benefit/Cost	Natural Gas Rate Impact	Total Resource	TRC Net Benefits (\$'000s)
	Incentives	Administration	Total							MWh	kW																
2011 Residential Energy Efficiency Programs:																											
Energy Efficiency Program	1,373	375	1,748	(23)	1,724	101%	-1%	22,032	17,030	0	-	12	1,556	0	1,605	221	0	149,446	-	-	0.9	-	1,849	N/A	0.5	0.9	(168)
Non Program Specific Admin Cost		314																									
2011 Residential Total	1,373	689	2,062	(23)	2,038	101%	-1%	22,032	17,030	0	-	12	1,556	-	1,605	221	-	149,446	-	-	0.8	-	1,849	N/A	0.4	0.8	(482)
Commercial Energy Efficiency Programs:																											
Energy Efficiency Program	2,701	108	2,809	4,572	7,391	38%	62%	141,022	117,077	(1,281)	-	3	10,862	(1,764)	10,454	1,510	(1,130)	1,021,668	(14,697)	-	3.9	4,572	10,834	2.4	0.8	1.2	1,707
Non Program Specific Admin Cost		30																									
2011 Commercial Total	2,701	138	2,839	4,572	7,421	38%	62%	141,022	117,077	(1,281)	-	3	10,862	(1,764)	10,454	1,510	(1,130)	1,021,668	(14,697)	-	3.8	4,572	10,834	2.4	0.8	1.2	1,677
Joint Initiatives																											
Energy Efficiency Program	2,428	354	2,732	6,354	9,137	30%	70%	88,536	79,180	0	0	3	8,729	0	8,934	1,194	0	814,827	0	0	3.2	6,354.4	10,128	1.6	0.7	1.0	(407)
Non Program Specific Admin Cost		160																									
2011 Joint Initiatives Total	2,428	514	2,942	6,354	9,297	32%	68%	88,536	79,180	0	0	3	8,729	0	8,934	1,194	0	814,827	0	0	3.0	6,354	10,128	1.6	0.7	0.9	(567)
Conservation for Affordable Housing Programs																											
Energy Efficiency Program	1,170	881	2,051	0	2,051	100%	0%	12,870	10,816	185	0	24	1,107	312	908	128	166	84,514	2,003	0	0.5	0.0	1,202	0.0	0.4	0.7	(631)
Non Program Specific Admin Cost		7																									
2011 Affordable Housing Total	1,170	888	2,058	0	2,058	100%	0%	12,870	10,816	185	0	32	1,107	312	908	128	166	84,514	2,003	0	0.5	-	1,202	N/A	0.4	0.7	(638)
Innovative Technology																											
Energy Efficiency Program																											
Non Program Specific Admin Cost																											
2010 Innovative Technology Total																											
High Carbon Fuel Switching																											
High Carbon Fuel Switching Program	100	21	121	0	121	100%	0%	(3,440)	(1,720)	4	0	FS	(178)	506	(186)	(25)	506	(17,116)	20	0	FS	211.2	506	2.4	0.6	1.7	207
Non Program Specific Admin Cost		0																									
2011 High Carbon Fuel Switching Total	100	21	121	0	121	100%	0%	(3,440)	(1,720)	4	0	FS	(178)	506	(186)	(25)	506	(17,116)	20	0	FS	211	506	2.4	0.6	1.7	207
Portfolio level expenditure																											
Conservation Education & Outreach		2,890																									
Enabling activities		1,776																									
DSMS consultant costs		304																									
Industrial Program costs		1,875																									
Labor		2,168																									
TGI Portfolio level total		9,013																									
2011 Total	7,772	11,262	19,034	10,903	29,947	64%	36%	261,020	222,383	(1,093)	0	9.3	22,076	(945)	21,714	3,029	(459)	2,053,338	(12,674)	0	1.2	10,903	24,284	2.2	0.5	0.7	(8,817)

FORTIS BC VANCOUVER ISLAND

2011 DSM Planned

2011 FEVI Programs Planned	PROGRAM								ALTERNATE		NET PRESENT VALUE									BENEFIT/COST							
	COSTS (\$000)							SAVINGS (GJ)		Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas Utility	Participant			Natural Gas Rate Impact	Total Resource	TRC Net Benefits (\$'000s)
	Utility			Participant	Total	% Utility	% Participant	Gross	Net	Energy MWh	Capacity kW		Program (\$'000s)	Alternate (\$'000s)	Program (\$'000s)	Carbon Tax (\$'000s)	Alternate (\$'000s)	Natural Gas (GJ)	Alternate Energy (MWh)	Alternate Capacity (kW)		Total Costs (\$'000s)	Total Benefits (\$'000s)	Benefit/Cost			
	Incentives	Administratio n	Total																								
2011 Residential Energy Efficiency Programs: Energy Efficiency Program Non Program Specific Admin Cost 2011 Residential Total	337	96 40	433	26	459	94%	6%	5,508	4,258	0	0	11	396	0	575	56	0	37,959	0	0	0.9	26	631	24.0	0.4	0.9	(64)
Commercial Energy Efficiency Programs: Energy Efficiency Program Non Program Specific Admin Cost 2011 Commercial Total	391	24 10	415	846	1,263	33%	67%	19,608	16,013	0	0	3	1,456	0	2,230	184	0	123,163	0	0	3.5	846	2,414	2.9	0.6	1.2	193
Joint Initiatives Energy Efficiency Program Non Program Specific Admin Cost 2011 Joint Initiatives Total	249	51 40	300	735	1,036	29%	71%	9,627	8,736	0	0	3	923	0	1,085	127	0	86,712	0	0	3.1	735	1,212	1.6	0.7	0.9	(113)
Conservation for Affordable Housing Programs Energy Efficiency Program Non Program Specific Admin Cost 2011 Affordable Housing Total	292	218 3	510	0	510	100%	0%	3,217	2,704	46	0	24	275	78	260	32	41	20,986	501	0	0.5	0	333	0.0	0.4	0.7	(157)
Innovative Technology Energy Efficiency Program Non Program Specific Admin Cost 2010 Innovative Technology Total	292	221	513	0	513	100%	0%	3,217	2,704	46	0	21	275	78	260	32	41	20,986	501	0	0.5	0	333	0.0	0.4	0.7	(160)
High Carbon Fuel Switching High Carbon Fuel Switching Program Non Program Specific Admin Cost 2011 High Carbon Fuel Switching Total	320	83 0	403	0	403	100%	0%	(13,760)	(6,880)	15	0	FS	(739)	2,023	(1,067)	(103)	2,023	(69,759)	80	0	FS	1,170	2,023	1.7	0.9	1.8	881
Portfolio level expenditure Conservation Education & Outreach Enabling Activities DSMS consultant costs Industrial Program Costs Labor Costs TGVI Portfolio level total	1,590	2,220	3,810	1,608	5,420	70%	30%	24,200	24,831	61	0	19	2,310	2,101	3,082	297	2,065	199,060	580	0	1	1,608	5,444	3	0	0.8	(1,009)

FORTIS BC		PROGRAM															ALTERNATE		NET PRESENT VALUE										BENEFIT/COST													
2011 Residential Planned	FEI	COSTS (\$000)													SAVINGS (GJ)			LIFE  Years	Impact		Levelized Cost  (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas  Utility	Participant			Natural Gas  Rate Impact	Total Resource	TRC Net Benefits  (\$'000s)						
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net	Energy  MWh	Capacity  kW		Program	Alternate		Program	Carbon Tax	Alternate	Natural Gas  (GJ)	Alternate Energy  (MWh)	Alternate Capacity  (kW)	Total Costs  (\$'000s)	Total Benefits  (\$'000s)		Benefit/Cost											
		Incentives	Administration	Total	Incentives	Administration	Total																									Program	Alternate				Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity
Label	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH									
Source Sheet or Calculation	Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	M+N	Program	Program	Program	D/Y	OnAJ	Q x N x AL	M x N x AN	M x N x AD	N x (QxAP + RxAQ)	PV(AI,P,-O)	PV(AK,P,-Q'N)	PV(AK,P,-R)	T/D	H=O, (V+W)+D	H=O, (V+W)+D, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I									
2011																																										
RESIDENTIAL:																																										
EnerChoice Fireplaces (Retrofit)		576	117	693	0	0	0	(219)	474	146%	0%	-46%	14,880	76%	11,309	15	0	-	7	1,065	N/A	1,098	151	N/A	102,031	0	-	1.5	-	1,468	N/A	0.6	2.2	591								
ENERGY STAR Hot Water Heaters (Retrofit)		429	138	567	0	0	0	195	762	74%	0%	26%	7,152	80%	5,722	13	0	-	12	491	N/A	506	70	N/A	47,415	0	-	0.9	195	577	3.0	0.5	0.6	(271)								
TLC campaign		368	120	488	0	0	0	0	488	100%	0%	0%	0	100%	0	1	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB								
Total Residential		1,373	375	1,748	-	-	-	(23)	1,724	101%	-	-1%	22,032		17,030		0	-	12	1,556	0	1,605	221	0	149,446	-	-	0.9	N/A	1,849	N/A	0.5	0.9	(168)								



2011 Residential Planned		PROGRAM														ALTERNATE		NET PRESENT VALUE									BENEFIT/COST																									
		COSTS (\$000)											SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)			Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	TRC Net Benefits																		
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net		MWh	kW		(\$/GJ)	Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity		Total Costs	Total Benefits	Benefit/Cost			Rate Impact	Total Resource																
		Incentives	Administration	Total	Incentives	Administration	Total																														Energy	Capacity	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)	(GJ)	(MWh)	(kW)	Utility	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)
		Label	B	C	D	E	F																														G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
Source Sheet or Calculation	Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	M+N	Program	Program	Program	D/Y	OxJ	Q x N x AL	M x N x AN	M x N x AG	N x (QuAP + RuAQ)	PV(A)(P, -O)	PV(AK,P, -Q*N)	PV(AK,P, R)	T/D	H+D, (V+W)+D	H+D, (V+W)+D, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I																			
2011		101	40	141	0	0	0	81	222	64%	0%	36%	1,788	80%	1,430	13	0	-	12	125	N/A	181	18	N/A	12,030	0	-	0.9	81	199	2.5	0.4	0.6	(98)																		
ENERGY STAR Domestic Hot Water Heaters (Retrofits)		144	29	173	0	0	0	(55)	118	146%	0%	-46%	3,720	76%	2,827	15	0	-	7	271	N/A	393	38	N/A	25,930	0	-	1.6	-	486	N/A	0.5	2.3	153																		
EnerChoice Fireplaces (Retrofits)		92	26	118	0	0	0	0	118	100%	0%	0%	0	100%	0	1	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB																		
TLC		2010														11	396	0	575	56	0	37,959	-	-	0.9	26	631	24.0	0.4	0.9	(64)																					
Total Residential		337	96	433	-	-	-	26	459	94%	-	6%	5,508		4,258		0	-																																		

FORTIS BC		PROGRAM															ALTERNATE		NET PRESENT VALUE										BENEFIT/COST									
2011 Commercial Programs Planned		COSTS (\$000)															SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	Total Resource	TRC Net Benefits
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net	MWh	kW	Program	Carbon Tax		Alternate	Natural Gas		Alternate Energy	Alternate Capacity	Total Costs	Total Benefits	Benefit/Cost										
																													Incentives	Administration	Total		Incentives	Administration	Total			
		FEI	Label	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q		R	S		T	U	V	W	X	Y	Z	AA		AB	AC	AD			
	Source Sheet or Calculation	Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	M+N	Program	Program	Program	D/Y	OxU	Q x N x AL	M x N x AN	M x N x AO	N x (QxAP + RxAQ)	PV(ALP,Q)	PV(AKP,Q*1N)	PV(AKP,R)	T/D	H+D, (V+W)+D	H+D, (V+W)+D, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I				
2011 Commercial Energy Efficiency Programs																																						
New Construction																																						
Efficient Boiler Program		197	2	200	0	0	0	269	469	43%	0%	57%	8,552	82%	7,013	20	0	-	3	784	N/A	753	108	N/A	73,434	0	-	3.9	269	861	3.2	0.8	1.7	316				
Light Commercial Energy Star Boiler Program		14	1	15	0	0	0	50	65	23%	0%	77%	1,184	82%	971	20	0	-	1	109	N/A	104	15	N/A	10,167	0	-	7.4	50	119	2.4	0.9	1.7	44				
Efficient Water Heater		7	2	8	0	0	0	9	17	47%	0%	53%	267	95%	254	20	0	-	3	21	N/A	27	4	N/A	2,656	0	-	2.5	9	31	3.4	0.6	1.2	3				
Spray Valve		0	0	0	0	0	0	0	0	100%	0%	0%	36	88%	32	5	0	-	3	1	N/A	1	0	N/A	129	0	-	3.5	-	1	N/A	0.8	3.5	1				
Retrofit																																						
Retrofit Efficient Boiler Program		1,311	25	1,337	0	0	0	1,775	3,112	43%	0%	57%	49,470	82%	40,565	20	0	-	3	4,537	N/A	4,356	622	N/A	424,785	0	-	3.4	1,775	4,978	2.8	0.8	1.5	1,425				
Light Energy Star Commercial Boiler Program		156	9	165	0	0	0	562	727	23%	0%	77%	13,320	82%	10,922	20	0	-	1	1,222	N/A	1,173	168	N/A	114,375	0	-	7.4	562	1,340	2.4	0.9	1.7	495				
Retrofit Efficient Water Heater Program		99	9	108	0	0	0	136	244	44%	0%	56%	4,005	95%	3,805	20	0	-	3	309	N/A	409	58	N/A	39,842	0	-	2.9	136	467	3.4	0.6	1.3	65				
Energy Assessment Program		73	27	100	0	0	0	0	100	100%	0%	0%	29,768	65%	19,349	1	0	-	6	271	N/A	171	39	N/A	18,058	0	-	2.7	-	210	N/A	1.0	2.7	170				
Fireplace Timer		20	0	20	0	0	0	0	20	100%	0%	0%	1,200	100%	1,200	5	0	-	4	51	N/A	47	8	N/A	4,901	0	-	2.5	-	55	N/A	0.8	2.5	31				
Retrofit Spray Valve		20	3	23	11	0	11	0	33	68%	32%	0%	2,115	88%	1,861	5	0	-	3	79	N/A	73	12	N/A	7,601	0	-	3.5	-	85	N/A	0.8	2.4	46				
Radiant Tube Heater Pilot Program		3	7	10	0	0	0	11	21	46%	0%	54%	275	100%	275	20	0	-	3	31	N/A	30	4	N/A	2,880	0	-	3.2	11	34	3.0	0.8	1.5	10				
PSECA		800	24	824	0	0	0	1,759	2,583	32%	0%	68%	30,830	100%	30,830	20	(1,281)	-	3	3,448	(1,764)	3,310	473	(1,130)	322,840	(14,697)	-	4.2	1,759	2,653	1.5	0.8	0.7	(899)				
Total Commercial		2,701	108	2,809	11	-	11	4,572	7,391	38%	0	62%	141,022		117,077		(1,281)	-	3	10,862	(1,764)	10,454	1,510	(1,130)	1,021,668	(14,697)	-	3.9	4,572	10,834	2.4	0.8	1.2	1,707				

2011 Commercial Programs Planned		PROGRAM														ALTERNATE		NET PRESENT VALUE										BENEFIT/COST									
		COSTS (\$000)											SAVINGS (\$)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	TRC Net Benefits				
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net		MWh	Capacity		Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity		Total Costs	Total Benefits	Benefit/Cost			Rate Impact	Total Resource		
		Incentives	Administration	Total	Incentives	Administration	Total																													Utility	(\$'000s)
		FEVI	Label	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	
	Source Sheet or Calculation	Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	M+N	Program	Program	Program	D/Y	OxI	Q x N x AL	M x N x AN	M x N x AD	N x (QxAP + RxAQ)	PV(AI,P,Q)	PV(AK,P,Q*H)	PV(AK,P,R)	T/D	H=0, (V+W)=0	H=0, (V+W)=0, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I			
2010																																					
Commercial Energy Efficiency Programs																																					
New Construction																																					
Efficient Boiler Program																																					
Efficient Commercial Water Heater																																					
Retrofits																																					
Efficient Boiler Program																																					
Light Comm. ENERGY STAR® Boiler Program																																					
Retrofit Efficient Commercial Water Heater Program																																					
Retrofit Energy Assessment Program																																					
Fireplace timer																																					
Spray Valve Program																																					
PSECA																																					
Total Commercial																																					

FORTIS BC		PROGRAM															ALTERNATE		NET PRESENT VALUE										BENEFIT/COST																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
2011 Joint Initiatives Planned		COSTS (\$000)											SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	TRC Net Benefits																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net		Years	Energy		Capacity	(\$/GJ)	Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas		Alternate Energy	Alternate Capacity	Total Costs			Total Benefits	Benefit/Cost	Rate Impact	Total Resource																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Incentives	Administration	Total	Incentives	Administration	Total																															Gross	Net-to-Gross	Net	MWh	kW	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)	(GJ)	(MWh)	(kW)	Utility	(\$'000s)	(\$'000s)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

	PROGRAM														ALTERNATE		NET PRESENT VALUE									BENEFIT/COST																			
2011 Joint Initiatives Programs Planned	COSTS (\$000)											SAVINGS (\$)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)			Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	TRC Net Benefits												
	Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net		Energy	Capacity		(\$/GJ)	Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity		Total Costs	Total Benefits	Benefit/Cost														
	Incentives	Administration	Total	Incentives	Administration	Total																												MWh	kW	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)	(\$'000s)	(GJ)	(MWh)	(kW)	Rate Impact	Total Resource
FEVI	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH												
Label	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH												
Source Sheet or Calculation	Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	M+N	Program	Program	Program	D/Y	O+J	Q x N x AL	M x N x AN	M x N x AO	N x (Q+AP + RAQ)	PV(A P,-Q)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H+D, (V+W)+D	H+D, (V+W)+D, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I												
2011																																													
RESIDENTIAL:																																													
Washing Machine Rebate	63	8	71	0	0	0	359	430	17%	0%	83%	3,780	95%	3,591	14	0	-	2	329	N/A	478	47	N/A	31,613	0	-	4.6	359	525	1.5	0.6	0.8	(101)												
Live Smart BC 2010-2011	27	15	42	0	0	0	88	130	32%	-	68%	1,221	88%	1,075	-	0	-	4	127	N/A	129	17	N/A	11,731	0	-	3.0	88	147	1.7	0.7	1.0	(3)												
Live Smart BC 2011-2012	160	18	178	-	-	-	0	288	38%	0%	62%	4,625	88%	4,070	-	0	-	4	467	0	477	63	0	43,367	-	-	2.6	288	541	1.9	0.7	1.0	2												
Home Efficiency Web Portal	0	10	10	0	0	0	0	10	100%	0%	0%	0	100%	0	0	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB												
Total Residential	249	51	300	-	-	-	735	1,036	29%	-	71%	9,627		8,736		0	-	3	923	0	1,085	127	0	86,712	-	-	3.1	735	1,212	1.6	0.7	0.9	(113)												

FORTIS BC		PROGRAM															ALTERNATE		NET PRESENT VALUE										BENEFIT/COST																														
2011 Conservation for Affordable Housing Programs		COSTS (\$000)												SAVINGS (GJ)			LIFE	Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas Utility	Participant			Natural Gas Rate Impact	Total Resource	TRC Net Benefits (\$'000s)																								
		Utility			Partners			Participant	Total	% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net	Energy MWh		Capacity kW	Program (\$'000s)		Alternate (\$'000s)	Program (\$'000s)	Carbon Tax (\$'000s)	Alternate (\$'000s)	Natural Gas (GJ)	Alternate Energy (MWh)	Alternate Capacity (kW)	Total Costs (\$'000s)		Total Benefits (\$'000s)	Benefit/Cost																												
		Incentives	Administration	Total	Incentives	Administration	Total																									Program				D+G+H	D/I	G/I	H/I	Program	Program	MxN	Program	Program	D/Y	OxJ	Q x N x AL	M x N x AN	M x N x AD	N x (QxAP + RxAQ)	PV(AL,P,-Q)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H=0, (V+W)=0	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I
Label		B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH																									
Source Sheet or Calculation		Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	MxN	Program	Program	Program	D/Y	OxJ	Q x N x AL	M x N x AN	M x N x AD	N x (QxAP + RxAQ)	PV(AL,P,-Q)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H=0, (V+W)=0	H=0, (V+W)=0, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I																									
2011																																																											
RESIDENTIAL:																																																											
Energy Savings Kits		88	98	186	0	0	0	0	186	100%	0%	0%	7,216	73%	5,267	8	0	-	6	416	N/A	327	47	N/A	31,271	0	-	2.2	-	374	N/A	0.8	2.2	229																									
Mobile Homes Study		0	8	8	0	0	0	0	8	100%	0%	0%	0	0%	0	0	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB																									
CHF CO-Ops Study		0	12	12	0	0	0	0	12	100%	0%	0%	0	0%	0	0	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB																									
RenEW		0	150	150	0	0	0	0	150	100%	0%	0%	0	0%	0	0	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB																									
ECAP		1,082	613	1,694	0	0	0	0	1,694	100%	0%	0%	5,654	98%	5,548		185	-	32	691	312	581	81	166	53,242	2,003	-	0.4	-	827	N/A	0.3	0.6	(691)																									
Total Residential		1,170	881	2,051	0	0	0	0	2,051	100%	-	0%	12,870		10,816		185	0	24	1,107	312	908	128	166	84,514	2,003	N/A	0.5	-	1,202	N/A	0.4	0.7	(631)																									

FORTIS BC		PROGRAM													ALTERNATE		NET PRESENT VALUE									BENEFIT/COST								
2011 Conservation for Affordable Housing Programs		COSTS (\$000)											SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant					
		Utility			Partners																													
								Incentives	Administration	Total	Incentives	Administration	Total	Participant	Total		% Utility	% Partner	% Participant	Gross	Net-to-Gross	Net	Energy	Capacity	(\$/GJ)	Program	Alternate	Program	Carbon Tax	Alternate	Natural Gas	Alternate Energy	Alternate Capacity	Utility
FEVI		B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
		Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	MeN	Program	Program	Program	D/Y	OxAJ	Q x N x AL	M x N x AN	M x N x AO	N x (QxAP + RxAQ)	PV(ALP,-O)	PV(AKP,-Q*N)	PV(AKP,-R)	T/D	H>0, (V+W)>0	H<0, (V+W)>0, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I
2011																																		
RESIDENTIAL:																																		
	Retrofit ESK	22	25	47	0	0	0	0	47	100%	0%	0%	1,804	73%	1,317	8	0	-	6	105	N/A	117	12	N/A	7,897	0	-	2.3	-	129	N/A	0.6	2.3	58
	Mobile Homes Study	0	2	2	0	0	0	0	2	100%	0%	0%	0	0%	0	1	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB
	CHF CO-Ops	0	3	3	0	0	0	0	3	100%	0%	0%	0	0%	0	0	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB
	Energy Efficiency Specialist Certification	0	35	35	0	0	0	0	35	100%	0%	0%	0	0%	0	0	0	-	LB	LB	N/A	N/A	N/A	N/A	-	0	-	LB	-	-	N/A	N/A	LB	LB
	ECAP	270	153	424	0	0	0	0	424	100%	0%	0%	1,414	99%	1,387		46	-	32	170	78	143	20	41	13,089	501	-	0.4	-	204	N/A	0.3	0.6	(176)
	Total Residential	292	218	510	0	0	0	0	510	100%	-	0%	3,217		2,704		46	0	24	275	78	260	32	41	20,986	501	N/A	0.5	-	333	N/A	0.4	0.7	(157)

FORTIS BC		PROGRAM															ALTERNATE		NET PRESENT VALUE										BENEFIT/COST																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
2011 Innovative Technologies Planned		COSTS (\$000)												SAVINGS (GJ)			LIFE	Impact		Levelized Cost (\$/GJ)	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	TRC Net Benefits																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		Utility			Partners											Years	Energy	Capacity																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						



FORTIS BC																																	
		PROGRAM														ALTERNATE		NET PRESENT VALUE										BENEFIT/COST					
2011 Innovative Technologies Planned		COSTS (\$000)										SAVINGS (GJ)			LIFE	Impact		Levelized Cost	Utility Benefits (Costs)		Participant Benefits (Costs)			Program Net Savings			Natural Gas	Participant			Natural Gas	TRC Net Benefits	
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		Incentives	Administration	Total	Incentives	Administration	Total																										
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Source Sheet or Calculation	Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	M+N	Program	Program	Program	D/Y	OxAJ	Q x N x AL	M x N x AN	M x N x AO	N x (QxAP + RxAQ)	PV(AI,P,-O)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H>0, (V+W)>0	H<0, (V+W)>0, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I
2011																																	
SolarBC Schools Incentive Program	5	0	5	33	0	33	3	41	12%	80%	8%	61	100%	61	25	0	-	7	8	N/A	13	1	N/A	716	-	-	1.6	3	14	4.5	0.4	0.2	(33)
Total IT	5	0	5	33	0	33	3	41	12%	80%	8%	61	100%	61	25	-	-	7	8	N/A	13	1	N/A	716	-	-	1.6	3	14	4.5	0.4	0.2	(33)

FORTIS BC		PROGRAM														ALTERNATE		NET PRESENT VALUE										BENEFIT/COST																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Source Sheet or Calculation	Program	Program	B+C	Program	Program	E+F	Program	D+G+H	D/I	G/I	H/I	Program	Program	MxN	Program	Program	Program	D/Y	OxAJ	Q x N x AL	M x N x AN	M x N x AO	N x (QxAP + RxAQ)	PV(AI,P,-O)	PV(AK,P,-Q*N)	PV(AK,P,-R)	T/D	H=0, (V+W)>0	H=0, (V+W)>0, X	AD/AC	T/(V+D)	(T+U)/I	(T+U)-I	
2011																																		
RESIDENTIAL:																																		
Switch 'N' Shrink High Carbon Fuel Switching		320	83	403	0	0	0	0	403	100%	0%	0%	(13,760)	50%	(6,880)	18	15	-	FS	(739)	2,023	(1,067)	(103)	2,023	(69,759)	80	-	FS	1,170	2,023	1.7	0.9	1.8	881
Total Residential		320	83	403	-	-	-	0	403	100%	-	0%	(13,760)		(6,880)		15	-	FS	(739)	2,023	(1,067)	(103)	2,023	(69,759)	80	-	FS	1,170	2,023	1.7	0.9	1.8	881

**Appendix C**

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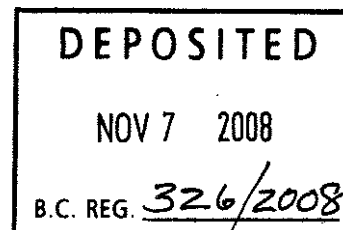
**DSM REGULATION AND BCUC ORDERS**

**PROVINCE OF BRITISH COLUMBIA  
REGULATION OF THE MINISTER OF  
ENERGY, MINES AND PETROLEUM RESOURCES**

**Ministerial Order No.**

M 271

I, Richard Neufeld, Minister of Energy, Mines and Petroleum Resources, order that the attached regulation is made.



Richard Neufeld  
Date

November 6, 2008

Minister of Energy, Mines and  
Petroleum Resources

---

*(This part is for administrative purposes only and is not part of the Order.)*

**Authority under which Order is made:**

Act and section:- Utilities Commission Act, R.S.B.C. 1996, c. 473, s. 125.1 (4) (e)

Other (specify):- \_\_\_\_\_

November 3, 2008

R/1175/2008/27

## DEMAND-SIDE MEASURES REGULATION

### Definitions

1 In this regulation:

**“Act”** means the *Utilities Commission Act*;

**“bulk electricity purchaser”** means a public utility that purchases electricity from the authority for resale to the public utility’s customers;

**“community engagement program”** means a program delivered by

(a) a public utility to a public entity either

(i) to increase the public entity’s awareness about ways to increase energy conservation and energy efficiency or to encourage the public entity to conserve energy or use energy efficiently, or

(ii) to assist the public entity to increase the public’s awareness about ways to increase energy conservation and energy efficiency or to encourage the public to conserve energy or use energy efficiently, or

(b) a public utility in cooperation with a public entity to increase the public’s awareness about ways to increase energy conservation and energy efficiency or to encourage the public to conserve energy or use energy efficiently;

**“education program”** means an education program about energy conservation and efficiency, and includes the funding of the development of such a program;

**“energy device”** has the same meaning as in the *Energy Efficiency Act*;

**“energy efficiency training”** means training for persons who

(a) manufacture, sell or install energy-efficient products,

(b) design, construct or act as a real estate broker with respect to energy-efficient buildings,

(c) manage energy systems in buildings, or

(d) conduct energy efficiency audits;

**“energy-using product”** has the same meaning as in the *Energy Efficiency Act* (Canada);

**“expenditure portfolio”** means the class of demand-side measures that is composed of all of the demand-side measures proposed by a public utility in an expenditure schedule submitted under section 44.2 of the Act;

**“low-income household”** means a household whose residents receive service from the public utility and who have, in a taxation year, a before-tax annual household income equal to or less than the low-income cut off established by Statistics Canada for that year for households of that type;

**“plan portfolio”** means the class of demand-side measures that is composed of all of the demand-side measures proposed by a public utility in a plan submitted under section 44.1 of the Act;

**“public awareness program”** means a program delivered by a public utility

- (a) to increase the awareness of the public, including the public utility's customers, about ways to increase energy conservation and energy efficiency or to encourage the public, including the public utility's customers, to conserve energy or use energy efficiently, or
- (b) to increase participation by the public utility's customers in other demand-side measures proposed by the public utility in an expenditure portfolio or a plan portfolio

but does not include a program to increase the amount of energy sold or delivered by the public utility;

**"public entity"** means a local government, first nation, non-profit society incorporated under the *Society Act* or trade union;

**"regulated item"** means

- (a) an energy device,
- (b) an energy-using product,
- (c) a building design, or
- (d) thermal insulation;

**"school"** means a school regulated under the *School Act* or the *Independent School Act*;

**"specified demand-side measure"** means

- (a) a demand-side measure referred to in section 3 (c) or (d),
- (b) the funding of energy efficiency training,
- (c) a community engagement program, or
- (d) a technology innovation program;

**"specified standard"** means a standard in any of the following:

- (a) the Energy Efficiency Standards Regulation, B.C. Reg. 389/93;
- (b) the Energy Efficiency Regulations S.O.R./94-651;
- (c) the British Columbia Building Code, if the standard promotes energy conservation or the efficient use of energy;

**"technology innovation program"** means a program

- (a) to develop a technology, a system of technologies, a building design or an industrial facility design that is
  - (i) not commonly used in British Columbia, and
  - (ii) the use of which could directly or indirectly result in significant reductions of energy use or significantly more efficient use of energy,
- (b) to do what is described in paragraph (a) and to give demonstrations to the public of any results of doing what is described in paragraph (a), or
- (c) to gather information about a technology, a system of technologies, a building design or an industrial design referred to in paragraph (a).

#### **Application**

- 2 (1) This regulation applies only with respect to demand-side measures proposed by the authority.

- (2) Effective June 1, 2009,
  - (a) subsection (1) is repealed, and
  - (b) section 3 does not apply to a public utility that is owned or operated by a local government or has fewer than 10,000 customers.

**Adequacy**

- 3 A public utility's plan portfolio is adequate for the purposes of section 44.1 (8) (c) of the Act only if the plan portfolio includes all of the following:
  - (a) a demand-side measure intended specifically to assist residents of low-income households to reduce their energy consumption;
  - (b) if the plan portfolio is submitted on or after June 1, 2009, a demand-side measure intended specifically to improve the energy efficiency of rental accommodations;
  - (c) an education program for students enrolled in schools in the public utility's service area,
  - (d) if the plan portfolio is submitted on or after June 1, 2009, an education program for students enrolled in post-secondary institutions in the public utility's service area.

**Cost effectiveness**

- 4 (1) Subject to subsections (4) and (5), the commission, in determining for the purposes of section 44.1 (8) (c) or 44.2 (5) (d) of the Act the cost-effectiveness of a demand-side measure proposed in an expenditure portfolio or a plan portfolio, may compare the costs and benefits of
  - (a) the demand-side measure individually,
  - (b) the demand-side measure and other demand-side measures in the portfolio, or
  - (c) the portfolio as a whole.
- (2) In determining whether a demand-side measure referred to in section 3 (a) is cost effective, the commission must,
  - (a) in addition to conducting any other analysis the commission considers appropriate, use the total resource cost test, and
  - (b) in using the total resource cost test, consider the benefit of the demand-side measure to be 130% of its value when determined without reference to this subsection.
- (3) In determining whether a demand-side measure of a bulk electricity purchaser is cost-effective, the commission must consider the benefit of the avoided supply cost to be the authority's long-term marginal cost of acquiring new electricity to replace the electricity sold to the bulk electricity purchaser and not the bulk electricity purchaser's cost of purchasing electricity from the authority.
- (4) The commission must determine the cost-effectiveness of a specified demand-side measure proposed in a plan portfolio or an expenditure portfolio by determining whether the portfolio is cost effective as a whole.



- (5) If the commission is satisfied that a public awareness program proposed in a plan portfolio or an expenditure portfolio is likely to accomplish the goals set out in paragraph (a) or (b) of the definition of "public awareness program", the commission must determine the cost-effectiveness of the program by determining whether the portfolio is cost-effective as a whole.
- (6) The commission may not determine that a proposed demand-side measure is not cost effective on the basis of the result obtained by using a ratepayer impact measure test to assess the demand-side measure.
- (7) In considering the benefit of a demand-side measure that, in the commission's opinion, will increase the market share of a regulated item with respect to which there is a specified standard that has not yet commenced, the commission may include in the benefit a proportion of the benefit that, in the commission's opinion, will result from the commencement and application of the specified standard with respect to the regulated item.

**2010 Legislative Session: 2nd Session, 39th Parliament**  
**FIRST READING**

The following electronic version is for informational purposes only.  
The printed version remains the official version.

**HONOURABLE BLAIR LEKSTROM**  
**MINISTER OF ENERGY, MINES AND**  
**PETROLEUM RESOURCES**

**BILL 17 — 2010**  
**CLEAN ENERGY ACT**

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Explanatory Note
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HER MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of British Columbia, enacts as follows:

## **Definitions**

**1** (1) In this Act:

**"acquire"**, used in relation to the authority, means to enter into an energy supply contract;

**"authority"** has the same meaning as in section 1 of the *Hydro and Power Authority Act*;

**"British Columbia's energy objectives"** means the objectives set out in section 2;

**"Burrard Thermal"** means the gas-fired generation asset owned by the authority and located in Port Moody, British Columbia;

**"clean or renewable resource"** means biomass, biogas, geothermal heat, hydro, solar, ocean, wind or any other prescribed resource;

**"demand-side measure"** means a rate, measure, action or program undertaken

(a) to conserve energy or promote energy efficiency,

(b) to reduce the energy demand a public utility must serve, or

(c) to shift the use of energy to periods of lower demand,

but does not include

(d) a rate, measure, action or program the main purpose of which is to encourage a switch from the use of one kind of energy to another such that the switch would increase greenhouse gas emissions in British Columbia, or

(e) any rate, measure, action or program prescribed;

**"electricity self-sufficiency"** means electricity self-sufficiency as described in section 6 (2);

**"expenditure for export"** means the amount of an expenditure for the construction or extension of a plant or system or for an acquisition of electricity that is in addition to the amount the authority would have had to spend

(a) to achieve electricity self-sufficiency, and

(b) to undertake anything referred to in section 7 (1), except to the extent the expenditure is accounted for in paragraph (a);

**"feed-in tariff program"** means a program, that may be established under section 16, under which the authority offers to enter into energy supply contracts with persons generating electricity from clean or renewable resources using prescribed technologies in prescribed regions of British Columbia;

**"greenhouse gas"** has the same meaning as in section 1 of the *Greenhouse Gas Reduction Targets Act*;

**"heritage assets"** means

(a) any equipment or facilities for the transmission or distribution of electricity in respect of which, on the date on which this Act receives First Reading in the Legislative Assembly, a certificate of public convenience and necessity has been granted, or has been deemed to have been granted, to the authority or the transmission corporation under the *Utilities Commission Act*,

(b) generation and storage assets identified in Schedule 1 of this Act, and

(c) equipment and facilities that are for the transmission or distribution of electricity and that are identified in Schedule 1 of this Act;

**"integrated resource plan"** means an integrated resource plan required to be submitted under section 3;

**"transmission corporation"** means British Columbia Transmission Corporation.

(2) Words and expressions used but not defined in this Act or the regulations, unless the context otherwise requires, have the same meanings as in the *Utilities Commission Act*.

## **PART 1 — BRITISH COLUMBIA'S ENERGY OBJECTIVES**

### **British Columbia's energy objectives**

2 The following comprise British Columbia's energy objectives:

- (a) to achieve electricity self-sufficiency;
- (b) to take demand-side measures and to conserve energy, including the objective of the authority reducing its expected increase in demand for electricity by the year 2020 by at least 66%;
- (c) to generate at least 93% of the electricity in British Columbia from clean or renewable resources and to build the infrastructure necessary to transmit that electricity;
- (d) to use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources;
- (e) to ensure the authority's ratepayers receive the benefits of the heritage assets and to ensure the benefits of the heritage contract under the *BC Hydro Public Power Legacy and Heritage Contract*

*Act* continue to accrue to the authority's ratepayers;

(f) to ensure the authority's rates remain among the most competitive of rates charged by public utilities in North America;

(g) to reduce BC greenhouse gas emissions

(i) by 2012 and for each subsequent calendar year to at least 6% less than the level of those emissions in 2007,

(ii) by 2016 and for each subsequent calendar year to at least 18% less than the level of those emissions in 2007,

(iii) by 2020 and for each subsequent calendar year to at least 33% less than the level of those emissions in 2007,

(iv) by 2050 and for each subsequent calendar year to at least 80% less than the level of those emissions in 2007, and

(v) by such other amounts as determined under the *Greenhouse Gas Reduction Targets Act*;

(h) to encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emissions in British Columbia;

(i) to encourage communities to reduce greenhouse gas emissions and use energy efficiently;

(j) to reduce waste by encouraging the use of waste heat, biogas and biomass;

(k) to encourage economic development and the creation and retention of jobs;



- (l) to foster the development of first nation and rural communities through the use and development of clean or renewable resources;
- (m) to maximize the value, including the incremental value of the resources being clean or renewable resources, of British Columbia's generation and transmission assets for the benefit of British Columbia;
- (n) to be a net exporter of electricity from clean or renewable resources with the intention of benefiting all British Columbians and reducing greenhouse gas emissions in regions in which British Columbia trades electricity while protecting the interests of persons who receive or may receive service in British Columbia;
- (o) to achieve British Columbia's energy objectives without the use of nuclear power;
- (p) to ensure the commission, under the *Utilities Commission Act*, continues to regulate the authority with respect to domestic rates but not with respect to expenditures for export, except as provided by this Act.

### **Integrated resource plans**

- 3** (1) The authority must submit to the minister, in accordance with subsection (6), an integrated resource plan that is consistent with good utility practice and that includes all of the following:
- (a) a description of the authority's forecasts, over a defined period, of its energy and capacity requirements to achieve electricity self-sufficiency;
  - (b) a description of what the authority plans to do to achieve electricity self-sufficiency and to respond

to British Columbia's other energy objectives,  
including plans respecting

- (i) the implementation of demand-side measures,
- (ii) the construction or extension of facilities,
- (iii) the acquisition of electricity from other persons, and
- (iv) the use of rates, including rates to encourage
  - (A) energy conservation or efficiency,
  - (B) the use of energy during periods of lower demand,
  - (C) the reduction of the energy demand the authority must serve, or
  - (D) the development and use of electricity from clean or renewable resources;

(c) a description of the consultations carried out by the authority respecting the development of the integrated resource plan;

(d) a description of

- (i) the expected export demand during a defined period,
- (ii) the potential for British Columbia to meet that demand,
- (iii) the actions the authority has taken to seek suitable opportunities for the export of electricity from clean or renewable resources, and
- (iv) the extent to which the authority has arranged for contracts for the export of electricity and the transmission or other

services necessary to facilitate those exports;

(e) if the authority plans to make an expenditure for export, a specification of the amount of the expenditure and a rationale for making it.

(2) In the first integrated resource plan the authority submits to the minister, and in any other integrated resource plan the minister by order specifies, the authority must include a description of the authority's infrastructure and capacity needs for electricity transmission for the period ending 30 years after the date the integrated resource plan is submitted.

(3) The description referred to in subsection (2) must include an assessment of the potential for developing, during the period referred to in subsection (2), grouped by geographic area, electricity generation from clean or renewable resources in British Columbia.

(4) The authority must carry out any consultations required by a regulation under section 35 (g) and submit a report to the minister, within the time prescribed, respecting those consultations.

(5) The authority must plan to rely on no energy and no capacity from Burrard Thermal, except in the case of emergency or as authorized by regulation.

(6) An integrated resource plan must be submitted

(a) within 18 months from the date this Part comes into force, and

(b) once every 5 years after the submission under paragraph (a), unless a submission date is prescribed for the purposes of this subsection, in which case an integrated resource plan must be submitted by the prescribed submission date.

(7) The authority may submit an amendment to an integrated resource plan approved under section 4, and section 4 applies to the submission.

(8) If the Lieutenant Governor in Council approves an amendment submitted under subsection (7), the approved amendment is to be considered a part of the approved integrated resource plan.

## **Approval and procurement**

**4** (1) After the minister receives an integrated resource plan, the Lieutenant Governor in Council, for the purposes of sections 44.2 (5.1), 46 (3.3) and 71 (2.21) and (2.51) of the *Utilities Commission Act*, may, by order,

(a) approve or reject the plan, and

(b) if the Lieutenant Governor in Council is satisfied that it is in the interests of British Columbians to pursue opportunities for export, require the authority, its subsidiaries or both to do the following:

(i) begin a process or processes by the time specified in the order to acquire the specified amount per year of energy and capacity from clean or renewable resources;

(ii) acquire the energy and capacity referred to in subparagraph (i) within the time specified in the order;

(iii) secure the necessary transmission capacity;

(iv) submit, for the purposes of subsection (2), a report to the minister respecting the expenditures for export resulting from compliance with subparagraphs (i) to (iii).

(2) In an order under subsection (1) (b) of this section, the Lieutenant Governor in Council may exempt the authority from sections 45 to 47 of the *Utilities Commission Act* with respect to anything to be done under subsection (1) (b) (iii) of this section.

(3) The authority and its subsidiaries and persons and their successors and assigns who enter into an energy supply contract as a result of a process referred to in subsection (1) (b) (i) of this section are exempt from section 71 of the *Utilities Commission Act* with respect to the energy supply contract.

(4) The Lieutenant Governor in Council, for the purposes of subsection (5) (a), may approve a report submitted under subsection (1) (b) (iv).

(5) In setting rates for the authority, the commission must ensure that the rates do not allow the authority to recover

(a) its expenditures for export as set out in a report approved by the Lieutenant Governor in Council under subsection (4), and

(b) any other expenditures for export.

### **Status report**

5 (1) The authority must submit to the minister, by the time the minister requires, a status report respecting the authority's most recently approved integrated resource plan.

(2) The minister must make public a status report submitted under subsection (1) in the same manner and at the same time that the minister makes public a service plan under the *Budget Transparency and Accountability Act*.

### **Electricity self-sufficiency**

6 (1) In this section:

**"electricity supply obligations"** means

(a) electricity supply obligations for which rates are filed with the commission under section 61 of the *Utilities Commission Act*, and

(b) any other electricity supply obligations that exist at the time this section comes into force,

determined by using the authority's prescribed forecasts of its energy requirements and peak load, taking into account demand-side measures, that are in an integrated resource plan approved under section 4;

**"heritage energy capability"** means the maximum amount of annual energy that the heritage assets that are hydroelectric facilities can produce under prescribed water conditions.

(2) The authority must achieve electricity self-sufficiency by holding,

(a) by the year 2016 and each year after that, the rights to an amount of electricity that meets the electricity supply obligations, and

(b) by the year 2020 and each year after that, the rights to 3 000 gigawatt hours of energy, in addition to the amount of electricity referred to in paragraph (a), and the capacity required to integrate that energy

solely from electricity generating facilities within the Province,

(c) assuming no more in each year than the heritage energy capability, and

(d) relying on Burrard Thermal for no energy and no capacity, except as authorized by regulation.

(3) The authority must remain capable of meeting its electricity supply obligations from the electricity referred to in subsection (2) (a) and (b), except to the extent the authority may be permitted, by regulation, to enter into contracts in the

prescribed circumstances and on the prescribed terms and conditions.

(4) A public utility, in planning in accordance with section 44.1 of the *Utilities Commission Act* for

(a) the construction or extension of generation facilities, and

(b) energy purchases,

must consider British Columbia's energy objective to achieve electricity self-sufficiency.

### **Exempt projects, programs, contracts and expenditures**

**7** (1) The authority is exempt from sections 45 to 47 and 71 of the *Utilities Commission Act* to the extent applicable, and from any other sections of that Act that the minister may specify by regulation, with respect to the following projects, programs, contracts and expenditures of the authority, as they may be further described by regulation:

(a) the Northwest Transmission Line, a 287 kilovolt transmission line between the Skeena substation and Bob Quinn Lake, and related facilities and contracts;

(b) Mica Units 5 and 6, a project to install two additional turbines and related works and equipment at Mica;

(c) Revelstoke Unit 6, a project to install an additional turbine and related works and equipment at Revelstoke;

(d) Site C, a project to build a third dam on the Peace River in northeast British Columbia to provide approximately

(i) 4 600 gigawatt hours of energy each year, and

- (ii) 900 megawatts of capacity;
- (e) a bio-energy phase 2 call to acquire up to 1 000 gigawatt hours per year of electricity;
- (f) one or more agreements with pulp and paper customers eligible for funding under Canada's Green Transformation Program under which agreement or agreements the authority acquires, in aggregate, up to 1 200 gigawatt hours per year of electricity;
- (g) the clean power call request for proposals, issued on June 11, 2008, to acquire up to 5 000 gigawatt hours per year of electricity from clean or renewable resources;
- (h) the standing offer program described in section 15;
- (i) the feed-in tariff program described in section 16;
- (j) the actions taken to comply with section 17 (2) and (3);
- (k) the program described in section 17 (4).

(2) The persons and their successors and assigns who enter into an energy supply contract with the authority related to anything referred to in subsection (1) are exempt from section 71 of the *Utilities Commission Act* with respect to the energy supply contract.

(3) The commission must not exercise a power under the *Utilities Commission Act* in a way that would directly or indirectly prevent the authority from doing anything referred to in subsection (1).

## **Rates**



8 (1) In setting rates under the *Utilities Commission Act* for the authority, the commission must ensure that the rates allow the authority to collect sufficient revenue in each fiscal year to enable it to recover its costs incurred with respect to

(a) the achievement of electricity self-sufficiency,  
and

(b) a project, program, contract or expenditure referred to in section 7 (1), except

(i) to the extent the expenditure is accounted for in paragraph (a), and

(ii) for costs, prescribed for the purposes of this section, respecting the feed-in tariff program.

(2) Subject to subsection (1) of this section, the commission must set under the *Utilities Commission Act* a rate proposed by the authority with respect to the project referred to in section 7 (1) (a) of this Act.

(3) The commission must not, except on application by the authority, cancel, suspend or amend a rate set in accordance with subsection (2).

(4) The authority must provide to the minister, in accordance with the regulations, an annual report comparing the electricity rates charged by the authority with electricity rates charged by public utilities in other jurisdictions in North America, including an assessment of the extent to which the authority's electricity rates continue to be competitive with those other rates.

### **Domestic long-term sales contracts**

9 The authority must establish, in accordance with the regulations, a program to develop potential offers respecting domestic long-term sales contracts for availability to prescribed classes of customers on prescribed terms, including

terms respecting price, for prescribed volumes of energy over prescribed periods.

## **PART 2 — PROHIBITIONS**

### **Two-rivers system development**

**10** In this Part:

**"approval"** includes a certificate, licence, permit or other authorization;

**"prohibited projects"** means

(a) a project of the authority, referred to in Schedule 2 of this Act, for electricity generation on a stream, and

(b) a project for electricity generation on a stream with a storage capability in excess of a prescribed storage capability,

but does not include the two-rivers projects;

**"stream"** has the same meaning as in section 1 of the *Water Act*;

**"two-rivers projects"** means

(a) the authority's facilities, on the Peace River and the Columbia River System, existing on the date this section comes into force and upgrades or extensions to those facilities, and

(b) the project commonly known as Site C.

### **Project prohibitions**

**11** (1) Despite any other enactment, a minister, or an employee or agent of the government or of a municipality or regional district, must not issue an approval under an applicable enactment for a person to

- (a) undertake a prohibited project, or
- (b) construct all or part of the facilities of a prohibited project.

(2) Despite any other enactment, an approval under another enactment is without effect if it is issued contrary to subsection (1).

### **Prohibited acquisitions**

**12** (1) In this section:

**"facility"** means a facility for the generation of electricity and any transmission or distribution equipment to deliver that electricity to the point of interconnection with the authority's integrated service area;

**"protected area"** means

- (a) a park, recreation area, or conservancy, as defined in section (1) of the *Park Act*,
- (b) an area established under the *Environment and Land Use Act* as a park or protected area, or
- (c) an area established or continued as an ecological reserve under the *Ecological Reserve Act* or by the *Protected Areas of British Columbia Act*.

(2) The authority must not make an offer to acquire electricity from a person whose proposed facility is to be located, in whole or in part, in a protected area, unless the location is permitted under the enactments referred to in the definition of "protected area" in subsection (1).

(3) A person referred to in subsection (2) must not offer to sell electricity to the authority.

### **Burrard Thermal**

**13** The authority must not operate Burrard Thermal, except

- (a) in the case of emergency,
- (b) to provide transmission support services, or
- (c) as authorized by regulation.

### **PART 3 — PRESERVING HERITAGE ASSETS**

#### **Sale of heritage assets prohibited**

- 14** (1) The authority must not sell or otherwise dispose of the heritage assets.
- (2) Nothing in subsection (1) prevents the authority from disposing of heritage assets if the assets disposed of are no longer used or useful for their intended purpose, or they are to be replaced with one or more assets that will perform similar functions.

### **PART 4 — STANDING OFFER AND FEED-IN TARIFF PROGRAMS**

#### **Standing offer program**

- 15** (1) In this section:

**"eligible facility"** means a generation facility that

- (a) either
  - (i) has only one generator and the generator's nameplate capacity is less than or equal to the maximum nameplate capacity or has more than one generator and the total nameplate capacity of all of them is a capacity less than or equal to the maximum nameplate capacity, or
  - (ii) meets the prescribed requirements, and
- (b) either
  - (i) is a high-efficiency cogeneration facility,
  - or

(ii) generates energy by means of a prescribed technology or from clean or renewable resources,

but does not include a prescribed generation facility or class of generation facilities;

**"maximum nameplate capacity"** means 10 megawatts or, if another capacity is prescribed for the purposes of this section, the prescribed capacity.

(2) The authority must establish and, except in the prescribed circumstances, maintain a standing offer program to acquire electricity from eligible facilities.

(3) The authority may establish, in accordance with the prescribed requirements, if any, the criteria, terms and conditions on which offers under the standing offer program under subsection (2) are to be made.

### **Feed-in tariff program**

**16** (1) To facilitate the achievement of one or more of British Columbia's energy objectives, the Lieutenant Governor in Council, by regulation, may require the authority to establish a feed-in tariff program.

(2) If the authority is required to establish a feed-in tariff program, the authority may establish, in accordance with the prescribed requirements, if any, the criteria, terms and conditions under which offers may be made under the feed-in tariff program.

(3) The authority may not enter into an energy supply contract as a result of an offer made under the feed-in tariff program if the energy supply contract, by itself or in aggregate with other energy supply contracts entered into under the feed-in tariff program, would result in an expenditure that exceeds the prescribed amount in the prescribed period.

(4) Without limiting section 34 (2) (c),

(a) requirements prescribed by the Lieutenant Governor in Council, and

(b) criteria, terms and conditions established by the authority

made for the purpose of subsection (2) may be made with respect to different regions, prices and technologies.

## **PART 5 — ENERGY EFFICIENCY MEASURES AND GREENHOUSE GAS REDUCTIONS**

### **Smart meters**

**17** (1) In this section:

**"private dwelling"** means

(a) a structure that is occupied as a private residence, or

(b) if only part of a structure is occupied as a private residence, that part of the structure;

**"smart grid"** means the prescribed equipment;

**"smart meter"** means a meter that meets the prescribed requirements, and includes related components, equipment and metering and communication infrastructure that meet the prescribed requirements.

(2) Subject to subsection (3), the authority must install and put into operation smart meters and related equipment in accordance with and to the extent required by the regulations.

(3) The authority must complete all obligations imposed under subsection (2) by the end of the 2012 calendar year.

(4) The authority must establish a program to install and put into operation a smart grid in accordance with and to the extent required by the regulations.

(5) The authority may, by itself, or by its engineers, surveyors, agents, contractors, subcontractors or employees, enter on any land, other than a private dwelling, without the consent of the owner, for a purpose relating to the use, maintenance, safeguarding, installation, replacement, repair, inspection, calibration or reading of its meters, including smart meters, or of its smart grid.

(6) If a public utility, other than the authority, makes an application under the *Utilities Commission Act* in relation to smart meters, other advanced meters or a smart grid, the commission, in considering the application, must consider the government's goal of having smart meters, other advanced meters and a smart grid in use with respect to customers other than those of the authority.

### **Greenhouse gas reduction**

**18** (1) In this section, "**prescribed undertaking**" means a project, program, contract or expenditure that is in a class of projects, programs, contracts or expenditures prescribed for the purpose of reducing greenhouse gas emissions in British Columbia.

(2) In setting rates under the *Utilities Commission Act* for a public utility carrying out a prescribed undertaking, the commission must set rates that allow the public utility to collect sufficient revenue in each fiscal year to enable it to recover its costs incurred with respect to the prescribed undertaking.

(3) The commission must not exercise a power under the *Utilities Commission Act* in a way that would directly or indirectly prevent a public utility referred to in subsection (2) from carrying out a prescribed undertaking.

(4) A public utility referred to in subsection (2) must submit to the minister, on the minister's request, a report respecting the prescribed undertaking.

(5) A report to be submitted under subsection (4) must include the information the minister specifies and be submitted in the form and by the time the minister specifies.

### **Clean or renewable resources**

**19** (1) To facilitate the achievement of British Columbia's energy objective set out in section 2 (c), a person to whom this subsection applies

(a) must pursue actions to meet the prescribed targets in relation to clean or renewable resources, and

(b) must use the prescribed guidelines in planning for

(i) the construction or extension of generation facilities, and

(ii) energy purchases.

(2) Subsection (1) applies to

(a) the authority, and

(b) a prescribed public utility, if any, and a public utility in a class of prescribed public utilities, if any.

## **PART 6 — FIRST NATIONS CLEAN ENERGY BUSINESS FUND**

### **First Nations Clean Energy Business Fund**

**20** (1) In this section:

**"first nation"** means

(a) a band, as defined in the *Indian Act* (Canada), and

(b) an aboriginal governing body, however organized and established by aboriginal people;



**"power project"** means an electricity generation or transmission project

(a) that is in a class of projects prescribed for the purposes of this section, other than a project of any organization in the government reporting entity, as defined in the *Budget Transparency and Accountability Act*,

(b) for which a licence, if applicable, under the *Water Act* for a power purpose, as defined section 1 of that Act, is issued after the date this section comes into force, and

(c) for which a prescribed authorization, if applicable, under an enactment respecting land is granted after this section comes into force;

**"special account"** means the special account, as defined in section 1 of the *Financial Administration Act*, established under subsection (2) of this section.

(2) A special account, to be known as the First Nations Clean Energy Business Fund special account, is established.

(3) The initial balance of the special account is an amount, not to exceed \$5 million, prescribed by Treasury Board.

(4) The balance of the special account is increased by

(a) any other amount received by the government for payment into the account, and

(b) a prescribed percentage of the prescribed land and water revenues the government derives from power projects.

(5) Despite section 21 (3) of the *Financial Administration Act*, the minister, in accordance with a spending plan approved by Treasury Board, may pay an amount of money out of the special account for any of the following purposes:

- (a) to share the revenues referred to in subsection (4) (b), up to a prescribed percentage of the revenue, under an agreement or agreements with one or more first nations;
- (b) to facilitate the participation of first nations and aboriginal people in the clean energy sector;
- (c) to pay the costs of administering the special account.

## **PART 7 — TRANSMISSION CORPORATION**

### **Division 1 — Transfer of Property, Shares and Obligations**

#### **Definitions**

**21** In this Division:

**"excluded contract"** means a contract that was entered into, assumed by or assigned to the transmission corporation and that is governed by the law of a jurisdiction other than British Columbia;

**"excluded permit"** means a permit, approval, registration, authorization, licence, exemption, order or certificate issued, granted or provided to the transmission corporation under the law of a jurisdiction other than British Columbia;

**"included contract"** includes any contract entered into, assumed by or assigned to the transmission corporation, but does not include an excluded contract;

**"included permit"** includes a permit, approval, registration, authorization, licence, exemption, order or certificate, including a certificate of public convenience and necessity under the *Utilities Commission Act*, but does not include an excluded permit;

**"right"**, in relation to a right held by the authority or the transmission corporation, includes a right under a trust, a cause of action and a claim.

### **Transfer of property**

**22** (1) Subject to subsection (2) and despite any enactment or law to the contrary, on the coming into force of this Part, all of the transmission corporation's rights, property, assets, included contracts and included permits are transferred to and vested in the authority.

(2) Subsection (1) does not apply to excluded contracts and excluded permits.

(3) Despite any enactment or law to the contrary, on the coming into force of this Part, the shares of the transmission corporation are transferred to and vested in the authority.

(4) The shares transferred to and vested in the authority under subsection (3) must not be sold or otherwise disposed of, but may be surrendered for cancellation.

(5) Despite any enactment or law to the contrary,

(a) the transfer and vesting effected by subsections (1) and (3) take effect without

(i) the execution or issue of any record, or

(ii) any registration or filing of this Act or any other record in or with any registry or other office,

(b) the transfer and vesting effected by subsections (1) and (3) take effect despite

(i) any prohibition on all or any part of the transfer and vesting, and

(ii) the absence of any consent or approval that is or may be required for all or any part of the transfer and vesting,

(c) if any right, property, asset, included contract or included permit referred to in subsection (1) is registered or otherwise recorded in the name of the transmission corporation, the registration or record may remain but is deemed, for all purposes of this and all other enactments and law, to reflect that the right, property, asset, included contract or included permit is owned by and vested in or held by the authority, and

(d) in any record in or by which the authority deals with a right, property, asset, included contract or included permit referred to in subsection (1), it is sufficient to cite this Act as effecting and confirming the transfer from the transmission corporation to the authority of the included contract or included permit or of the title to the right, property or asset and the vesting of that title in the authority.

(6) For the purposes of this section, assets that become assets of the authority under this section include records and parts of records, and, without limiting this, all of the records and parts of records of the transmission corporation are transferred to and become the records of the authority on the coming into force of this Part.

(7) Without limiting subsection (5) (c) of this section, or section 383.1 of the *Land Title Act*, if a right, property or asset referred to in subsection (1) of this section is registered or recorded in the name of the transmission corporation,

(a) the authority may, in its own name,

(i) effect a transfer, charge, encumbrance or other dealing with the right, property or asset, and

(ii) execute any record required to give effect to that transfer, charge, encumbrance or other dealing, and

(b) an official

(i) who has authority over a registry or office, including, without limitation, the personal property registry and a land title office, in which title to or interests in the right, property or asset is registered or recorded, and

(ii) to whom a record referred to in paragraph (a) (ii) executed by or on behalf of the authority is submitted in support of the transfer, charge, encumbrance or other dealing

must give the record the same effect as if it had been duly executed by the transmission corporation.

### **Transfer of obligations and liabilities**

**23** On the coming into force of this Part, all obligations and liabilities of the transmission corporation, except for obligations and liabilities under an excluded contract or excluded permit,

(a) are transferred to and assumed by the authority,

(b) become the authority's obligations and liabilities,

(c) cease to be obligations and liabilities of the transmission corporation, and

(d) may be enforced against the authority as if the authority had incurred them.

## **Records of transferred assets and liabilities**

**24** (1) Subject to subsection (2), a reference to the transmission corporation in any document, including, without limitation, any record, security agreement, lease, included permit, included contract, instrument or certificate that relates to anything transferred to the authority under this Part, is deemed to be a reference to the authority.

(2) If, under this Part, a part of a right, property, asset, obligation or liability is transferred to the authority, any document, including, without limitation, any record, security agreement, lease, included permit, included contract, instrument or certificate that relates to anything transferred to the authority under this Part, is deemed to be amended to reflect the authority's interests in that right, property, asset, obligation or liability.

## **Transfer is not a default**

**25** Despite any provision to the contrary in any document, including, without limitation, any record, security agreement, lease, included permit, included contract, instrument or certificate, the transfer to the authority of a right, property, asset, included contract, included permit, share, obligation or liability under sections 22 and 23 does not constitute a breach or contravention of, or an event of default under, or confer a right to terminate the document, and, without limiting this, does not entitle any person who has an interest in the right, property, asset, included contract, included permit, share, obligation or liability to claim any damages, compensation or other remedy.

## **Legal proceedings**

**26** (1) Any legal proceeding being prosecuted or pending by or against the transmission corporation on the date this Part comes into force may be prosecuted, or its prosecution may

be continued, by or against the authority, and may not be prosecuted or continued against the transmission corporation.

(2) A conviction against the transmission corporation may be enforced against the authority, and may not be enforced against the transmission corporation.

(3) A ruling, order or judgment in favour of or against the transmission corporation may be enforced by or against the authority, and may not be enforced by or against the transmission corporation.

(4) A cause of action or claim against the transmission corporation existing on the date this Part comes into force must be prosecuted against the authority.

(5) Subject to subsections (1) to (4), a cause of action, claim or liability to prosecution existing on the date this Part comes into force is unaffected by anything done under this Part.

## **Division 2 — Employees**

### **Definitions**

**27** In this Division:

**"adjustment plan"** means an adjustment plan under section 54 of the *Labour Relations Code*;

**"collective agreement"** has the same meaning as in section 1 (1) of the *Labour Relations Code*.

### **Transfer of employees**

**28** (1) It is deemed that the persons who were, immediately before the coming into force of this Part, employees of the transmission corporation are, on the coming into force of this Part, transferred to and become employees of the authority.

(2) A question or difference between the authority and

(a) a transferred employee who is a member of a unit of employees for which a trade union has been certified under the *Labour Relations Code*, or

(b) a trade union representing transferred employees,

respecting the application of the *Labour Relations Code*, or the interpretation or application of this Division, may be referred to the Labour Relations Board in accordance with the procedure set out in the *Labour Relations Code* and its regulations.

(3) The Labour Relations Board may decide a question or difference referred to in subsection (2) in any of the ways, and by applying any of the remedies, available under the *Labour Relations Code*.

(4) On the date this Part comes into force, in respect of employees who are members of units of employees for which a trade union has been certified under the *Labour Relations Code*, the authority is the successor employer of those employees for the purposes of section 35 of the *Labour Relations Code*, without prejudice to the authority's right to apply for consolidation or merger of the bargaining units.

(5) If the authority or any trade union representing transferred employees makes an application to the Labour Relations Board to consolidate or merge the bargaining units representing transferred employees into a single bargaining unit for each trade union, the Labour Relations Board must consider that application having regard to the principles of business efficiency and without reference to the labour relations history at the authority or the transmission corporation relating to the presence of more than one bargaining unit for each trade union.

## **Continuous employment**



**29** (1) The transfer of a transferred employee does not constitute a termination of the transferred employee's employment for the purposes of

- (a) an applicable collective agreement,
- (b) any employment contract involving the transferred employee, and
- (c) the *Employment Standards Act*.

(2) A transferred employee who is not subject to a collective agreement is deemed to have been employed by the authority without interruption in service.

(3) The service, with the transmission corporation, of a transferred employee who is not subject to a collective agreement is deemed to be service with the authority for the purpose of determining probationary periods and benefits, and any other employment related entitlements, under

- (a) the *Employment Standards Act*,
- (b) any other enactment, and
- (c) any employment contract.

(4) For the purposes of seniority, a transferred employee who is subject to a collective agreement is deemed to have been employed by the authority without interruption in service, unless the authority and the trade union representing the transferred employee have agreed to other seniority terms in an adjustment plan within 60 days after notice under section 54 of the *Labour Relations Code* is given, in which case the applicable terms respecting seniority in the adjustment plan apply.

(5) The service, with the transmission corporation, of a transferred employee who is subject to a collective agreement is deemed to be service with the authority for the purpose of determining probationary periods and benefits, and any other employment related entitlements, under

(a) the *Employment Standards Act*,

(b) any other enactment, and

(c) any collective agreement,

unless the authority and the trade union representing the transferred employee have agreed to other probationary periods, benefits and entitlements in an adjustment plan within 60 days after notice under section 54 of the *Labour Relations Code* is given, in which case the applicable terms respecting probationary periods, benefits and entitlements in the adjustment plan apply.

(6) A transferred employee is deemed not to have been constructively dismissed solely by virtue of the transfer under section 28.

(7) Nothing in this Part

(a) prevents the employment of a transferred employee from being lawfully terminated after the transfer under section 28,

(b) prevents any term or condition of the employment of a transferred employee from being lawfully changed after the transfer under section 28, or

(c) removes any right or remedy of a person who is terminated after the transfer under section 28 or in respect of whom a term or condition of employment has been changed after the transfer under section 28.

## **Pensions**

**30** (1) For the purposes of the *Pension Benefits Standards Act*, the transfer of a transferred employee does not constitute a termination of membership in the transmission corporation's registered pension plan, or any other pension arrangement sponsored by the transmission corporation.

(2) Despite section 36 (1) of the *Hydro and Power Authority Act*, the authority does not require the approval of the Lieutenant Governor in Council to amend the authority's registered pension plan to implement the provisions of this Part, including the authority's assumption of all liability for the pension benefits payable under the transmission corporation's registered pension plan.

(3) Despite any enactment or law to the contrary, on the coming into force of this Part, all of the rights, property and assets that comprise

(a) the balance of fund account of the pension fund of the transmission corporation's registered pension plan are transferred to and vested in the balance of fund account of the pension fund of the authority's registered pension plan, and

(b) the index reserve account and past service index reserve account of the pension fund of the transmission corporation's registered pension plan are transferred to and vested in the index reserve account of the pension fund of the authority's registered pension plan,

and the resulting pension fund must be held by the trustee of the pension fund of the authority's registered pension plan.

(4) Section 22 (5) applies to the transfer and vesting effected by subsection (3) of this section.

### **Division 3 — General**

#### **Commission subject to direction**

**31** (1) The minister, by regulation, may issue a direction to the commission with respect to the exercise of powers and the performance of duties of the commission regarding any matter relating to a transfer made under this Part or to the service or rates referred to in section 32.

(2) The commission must comply with a direction issued under subsection (1) despite

(a) any provision of, or regulation under, the *Utilities Commission Act*, except any direction issued under section 3 of that Act, and

(b) any previous decision of the commission.

(3) This section is repealed on July 1, 2011.

### ***Utilities Commission Act***

**32** (1) No approval, authorization, permit, certificate, exemption, permission, registration or order is required under the *Utilities Commission Act* with respect to

(a) the transmission corporation's ceasing to provide the service referred to in subsection (2)

(a), or

(b) any transfer under this Part.

(2) The authority is deemed to have all the approvals, authorizations, permits, certificates, exemptions, permissions, registrations or orders that, under the *Utilities Commission Act*, are or may be required to continue

(a) to provide the service the transmission corporation provided immediately before the coming into force of this Part, and

(b) to charge, collect and enforce the rates the transmission corporation charged, collected and enforced immediately before the coming into force of this Part.

(3) The commission must not, except on application by the authority, cancel, suspend or amend

(a) any approval, authorization, permit, exemption, permission, registration, order or certificate, except for the certificate issued by commission Order C-4-

08, that, under the *Utilities Commission Act*, the authority requires to provide the service and to charge, collect and enforce the rates referred to in subsection (2), or

(b) the service or rates referred to in subsection (2).

(4) Subsection (3) is repealed on July 1, 2011.

### **Designated agreements**

**33** On the coming into force of this Part, the agreements designated under section 3 of the *Transmission Corporation Act* have no force or effect.

## **PART 8 — REGULATIONS**

### **Division 1 — Regulations by Lieutenant Governor in Council**

#### **General**

**34** (1) The Lieutenant Governor in Council may make regulations referred to in section 41 of the *Interpretation Act*.

(2) In making a regulation under this Act, the Lieutenant Governor in Council may do one or more of the following:

- (a) delegate a matter to a person;
- (b) confer a discretion on a person;
- (c) make different regulations for different persons, places, things, decisions, transactions or activities.

#### **Regulations**

**35** Without limiting section 34 (1), the Lieutenant Governor in Council may make regulations as follows:

- (a) respecting forecasts for the purposes of the definition of "electricity supply obligations" in section 6 (1);
- (b) adding a heritage asset to Schedule 1 of this Act;
- (c) prescribing water conditions for the purposes of the definition of "heritage energy capability" in section 6 (1);
- (d) modifying or adding to British Columbia's energy objectives, except for the objective specified in section 2 (g);
- (e) for the purposes of sections 44.1, 44.2, 46 and 71 of the *Utilities Commission Act*, respecting the application of British Columbia's energy objectives to public utilities other than the authority;
- (f) establishing factors or guidelines the commission must follow in respect of British Columbia's energy objectives, including guidelines regarding the relative priority of the objectives set out in section 2;
- (g) respecting consultations the authority must carry out in relation to
  - (i) the development of an integrated resource plan and of an amendment to an integrated resource plan,
  - (ii) an integrated resource plan submitted under section 3 (6), and
  - (iii) an amendment to an integrated resource plan submitted under section 3 (7);
- (h) prescribing submission dates for the purposes of section 3 (6);

(i) respecting the authority's obligation under section 6 (3), including, without limitation, regulations permitting the authority to enter into contracts respecting the electricity referred to in section 6 (2) (a) and (b) and prescribing the terms and conditions on which, and the volume of electricity about which, the contracts may be entered into;

(j) respecting the program referred to in section 9, including prescribing classes of customers and terms;

(k) prescribing storage capability for the purposes of the definition of "prohibited projects" in section 10, including, without limitation, prescribing storage capability in terms of time, impoundment, mechanism or area;

(l) respecting the standing offer program to be established under section 15, including, without limitation, regulations that

(i) prescribe requirements, technologies, generation facilities and classes of generation facilities for the purposes of the definition of "eligible facility" in section 15 (1),

(ii) prescribe a capacity for the purposes of the definition of "maximum nameplate capacity" in section 15 (1),

(iii) prescribe circumstances for the purposes of section 15 (2), and

(iv) prescribe requirements for the purposes of section 15 (3);

(m) respecting the feed-in tariff program that may be established under section 16, including, without limitation, regulations that

- (i) prescribe regions and technologies for the purposes of the definition of "feed-in tariff program" in section 1 (1),
- (ii) require the authority to establish the feed-in tariff program,
- (iii) prescribe requirements for the purposes of section 16 (2),
- (iv) prescribe amounts and periods for the purposes of section 16 (3), and
- (v) prescribe costs for the purposes of section 8 (1) (b);

(n) for the purposes of the definition of "prescribed undertaking" in section 18, prescribing classes of projects, programs, contracts or expenditures that encourage

- (i) the use of
  - (A) electricity, or
  - (B) energy directly from a clean or renewable resource

instead of the use of other energy sources that produce higher greenhouse gas emissions, or

- (ii) the use of natural gas, hydrogen or electricity in vehicles, and the construction and operation of infrastructure for natural gas or hydrogen fueling or electricity charging.

## **Division 2 — Regulations by Minister**

### **General**



**36** (1) In making a regulation under this Act, the minister may do one or more of the following:

- (a) delegate a matter to a person;
- (b) confer a discretion on a person;
- (c) make different regulations for different persons, places, things, decisions, transactions or activities.

(2) The minister may make a regulation defining, for the purposes of this Act, a word or expression used but not defined in this Act.

## **Regulations**

**37** The minister may make regulations as follows:

- (a) prescribing resources for the purposes of the definition of "clean or renewable resource" in section 1 (1);
- (b) prescribing exclusions for the purposes of the definition of "demand-side measure" in section 1 (1);
- (c) authorizing the authority for the purposes of sections 3 (5), 6 and 13;
- (d) describing the projects, programs, contracts and expenditures referred to in section 7 (1), including, without limitation, by specifying the property, interests, rights, activities, contracts and rates that comprise the projects, programs, contracts and expenditures;
- (e) specifying sections of the *Utilities Commission Act* for the purposes of section 7 (1);
- (f) respecting reports to be provided to the minister by the authority under section 8 (4), including, without limitation, regulations respecting the jurisdictions with which comparisons are to be

made, the rate classes to be considered, the factors to be used in making the comparisons and conducting the assessments, and the meaning to be given to the word "competitive";

(g) for the purposes of section 17, respecting smart meters and smart-grids and their installation, including, without limitation,

(i) prescribing the types of smart meters to be installed, including the features or functions each meter must have or be able to perform,

(ii) prescribing types of smart grids to be installed, including, without limitation, equipment to detect unauthorized use or consumption of electricity, equipment to facilitate distributed generation and associated telecommunication and back-up systems, and

(iii) prescribing the classes of users for whom smart meters must be installed, and, without limiting section 36 (1) (c), requiring the authority to install different types of smart meters for different classes of users;

(h) prescribing targets, guidelines, public utilities and classes of public utilities for the purposes of section 19;

(i) issuing a direction for the purposes of section 31.

### **Division 3 — Regulations by Treasury Board**

#### **Regulations**

**38** Treasury Board may make regulations as follows:

(a) prescribing classes of projects and authorizations for the purposes of the definition of "power project" in section 20 (1), including, without limitation, prescribing classes of projects by reference to whether, or the extent to which, a project is a project of any organization of the government reporting entity, within the meaning of that definition;

(b) prescribing amounts and percentages for the purposes of section 20 (3), (4) (b) and (5) (a).

## **PART 9 — TRANSITION**

### **Transition**

**39** (1) The Lieutenant Governor in Council may make regulations considered appropriate for the purpose of more effectively bringing this Act into operation, and to remedy any transitional difficulties encountered in doing so, and for that purpose, may make regulations disapplying or varying any provision of this Act.

(2) Subject to subsection (3), this section is repealed on the date that is 2 years after the coming into force of this section and, on this section's repeal, any regulations made under it are also repealed.

(3) The Lieutenant Governor in Council, by regulation, may substitute for the date referred to in subsection (2) a date that is no later than 3 years after the coming into force of this section.

## **PART 10 — CONSEQUENTIAL AMENDMENTS**

### ***BC Hydro Public Power Legacy and Heritage Contract Act***

**40 Section 1 of the BC Hydro Public Power Legacy and Heritage Contract Act, S.B.C. 2003, c. 86, is amended by repealing the definition of "protected assets".**

**41 Section 2 is repealed.**

**42 Section 4 (2) (a) is amended by striking out ", the Hydro and Power Authority Act and the Transmission Corporation Act;" and substituting "and the Hydro and Power Authority Act;".**

**43 The Schedule is repealed.**

#### ***Environmental Assessment Act***

**44 Section 11 (2) (b) of the Environmental Assessment Act, S.B.C. 2002, c. 43, is amended by adding ", including potential cumulative environmental effects" after "assessment".**

#### ***Financial Information Act***

**45 Schedule 1 of the Financial Information Act, R.S.B.C. 1996, c. 140, is amended by striking out "Transmission Corporation Act".**

#### ***Forest Act***

**46 Section 47.6 (2.11) (b) of the Forest Act, R.S.B.C. 1996, c. 157, as enacted by section 18 (c) of the Greenhouse Gas Reduction (Emissions Standards) Statutes Amendment Act, 2008, S.B.C. 2008, c. 20, is amended by striking out everything after "has received notification" and substituting "under section 79.1."**

**47 Section 47.7 (f) (ii) is amended by adding "other than a forestry licence to cut issued under section 47.6 (2.11)" after "forestry licence to cut".**

**48 Section 47.72, as enacted by section 20 of the Greenhouse Gas Reduction (Emissions Standards) Statutes Amendment Act, 2008, is amended**

***(a) in subsection (1) (f) by striking out "a regulation made under section 151.6 (2)." and substituting "section 79.1.", and***

***(b) in subsection (2) by striking out "of harvest completion" and substituting "in accordance with section 79.1" and by striking out "a regulation made under section 151.6 (2)" and substituting "section 79.1."***

***49 Section 47.73, as enacted by section 20 of the Greenhouse Gas Reduction (Emissions Standards) Statutes Amendment Act, 2008, is amended by striking out everything after "gave the notification" and substituting "in accordance with section 79.1."***

***50 Section 47.9, as enacted by section 22 of the Greenhouse Gas Reduction (Emissions Standards) Statutes Amendment Act, 2008, is amended by striking out "a regulation made under section 151.6 (2)" and substituting "section 79.1".***

***51 The following Division is added after section 79:***

#### **Division 4.1 — Miscellaneous**

##### **Order respecting notice**

**79.1** (1) During the term of an agreement under section 12, the minister may order that the agreement holder must notify the minister, in accordance with the requirements specified in the order, whether the agreement holder has abandoned or intends to abandon any rights the agreement holder has in respect of Crown timber that has been cut under the agreement but has not been removed from an area specified in the order.

(2) If an agreement holder referred to in subsection (1) notifies the minister that the agreement holder has abandoned or intends to abandon the rights referred to in subsection (1), the minister may order the agreement holder not to destroy or otherwise deal with the Crown timber referred to in that subsection.

(3) If an agreement holder referred to in subsection (1) notifies the minister that the agreement holder has not abandoned and does not intend to abandon the rights referred to in subsection (1), the minister may order the agreement holder not to destroy the Crown timber referred to in that subsection, if the minister is satisfied that a market exists for that Crown timber.

(4) A person to whom an order under this section has been given must comply with the order.

### ***Freedom of Information and Protection of Privacy Act***

***52 Schedule 2 of the Freedom of Information and Protection of Privacy Act, R.S.B.C. 1996, c. 165, is amended by striking out the following:***

Public Body: British Columbia Transmission Corporation

Head: Chair .

### ***Hydro and Power Authority Act***

***53 Section 1 of the Hydro and Power Authority Act, R.S.B.C. 1996, c. 212, is amended in the definition of "power" by adding ", except in sections 12 (1) and 38 (2), " before "includes energy".***

***54 Section 12 (1) is repealed and the following substituted:***

(1) Subject to this Act and the regulations, the authority has the capacity and the rights, powers and privileges of an individual of full capacity and, in addition, has

(a) the power to amalgamate in any manner with a firm or person, and

(b) any other power prescribed.

(1.1) The authority's purposes are

- (a) to generate, manufacture, conserve, supply, acquire and dispose of power and related products,
- (b) to supply and acquire services related to anything in paragraph (a), and
- (c) to do other things as may be prescribed.

(1.2) The authority may not engage in activities or classes of activities prescribed for the purposes of this subsection without obtaining an applicable approval as prescribed.

**55 Section 32 is amended**

**(a) in subsection (7) (c) by adding "section 32 and" before "Division",**

**(b) in subsection (7) by adding the following paragraph:**

(c.01) the *Clean Energy Act*; ,

**(c) in subsection (7) (x) by adding "44.1," after "sections", and**

**(d) by repealing subsection (8).**

**56 Section 38 is amended by renumbering the section as section 38 (1) and by adding the following subsection:**

(2) Without limiting subsection (1), the Lieutenant Governor in Council may make regulations

- (a) prescribing powers for the purposes of section 12 (1),
- (b) prescribing purposes of the authority for the purposes of section 12 (1.1), and
- (c) for the purposes of section 12 (1.2), prescribing activities, classes of activities and approval requirements.

***Transmission Corporation Act***

***57 The Transmission Corporation Act, S.B.C. 2003, c. 44, is repealed.***

***Utilities Commission Act***

***58 Section 1 of the Utilities Commission Act, R.S.B.C. 1996, c. 473, is amended by repealing the definitions of "demand-side measure" and "government's energy objectives" and substituting the following:***

**"British Columbia's energy objectives"** has the same meaning as in section 1 (1) of the *Clean Energy Act*;

**"demand-side measure"** has the same meaning as in section 1 (1) of the *Clean Energy Act*; .

***59 Section 1 is amended by repealing the definition of "transmission corporation".***

***60 Section 3 (2) is amended by striking out "or" at the end of paragraph (a) and by adding the following paragraph:***

(a.1) any provision of the *Clean Energy Act* or the regulations under that Act, or .

***61 Section 5 (0.1) and (4) to (9) is repealed.***

***62 Section 28 is amended***

***(a) in subsection (1) by striking out "90" and substituting "200", and***

***(b) by adding the following subsections:***

(2.1) If required to do so by regulation, the commission, in accordance with the prescribed requirements, must set a rate for the authority respecting the service provided under subsection (1).

(2.2) A requirement prescribed for the purposes of subsection (2.1) applies despite



(a) any other provision of this Act or any regulation under this Act, except for a regulation under section 3, or

(b) any previous decision of the commission.

**63 Section 29 is amended by striking out "90" and substituting "200".**

**64 Section 43 (1.1) is repealed.**

**65 Section 44.1 is amended**

**(a) by repealing subsections (1) and (4), and**

**(b) by repealing subsection (8) (a) and (b) and substituting the following:**

(a) the applicable of British Columbia's energy objectives,

(b) the extent to which the plan is consistent with the applicable requirements under sections 6 and 19 of the *Clean Energy Act*, .

**66 Section 44.2 is amended**

**(a) in subsection (3) by striking out "subject to subsections (5) and (6)," and substituting "subject to subsections (5), (5.1) and (6),"**

**(b) in subsection (5) by adding "filed by a public utility other than the authority" after "expenditure schedule" and by repealing paragraphs (a) and (c) and substituting the following:**

(a) the applicable of British Columbia's energy objectives,

(c) the extent to which the plan is consistent with the applicable requirements under sections 6 and 19 of the *Clean Energy Act*, , and

**(c) by adding the following subsection:**

(5.1) In considering whether to accept an expenditure schedule filed by the authority, the commission, in addition to considering the interests of persons in British Columbia who receive or may receive service from the authority, must consider and be guided by

- (a) British Columbia's energy objectives,
- (b) an applicable integrated resource plan approved under section 4 of the *Clean Energy Act*,
- (c) the extent to which the schedule is consistent with the requirements under section 19 of the *Clean Energy Act*, and
- (d) if the schedule includes expenditures on demand-side measures, the extent to which the demand-side measures are cost-effective within the meaning prescribed by regulation, if any.

**67 Section 46 is amended**

**(a) in subsection (3) by striking out "Subject to subsections (3.1) and (3.2)," and substituting "Subject to subsections (3.1) to (3.3),"**

**(b) in subsection (3.1) by adding "applied for by a public utility other than the authority" after "under subsection (3)" and by repealing paragraphs (a) and (c) and substituting the following:**

- (a) the applicable of British Columbia's energy objectives,
- (c) the extent to which the application for the certificate is consistent with the applicable requirements under sections 6 and 19 of the *Clean Energy Act*, , **and**

**(c) by adding the following subsection:**

(3.3) In deciding whether to issue a certificate under subsection (3) to the authority, the commission, in addition to considering the interests of persons in British Columbia who

receive or may receive service from the authority, must consider and be guided by

- (a) British Columbia's energy objectives,
- (b) an applicable integrated resource plan approved under section 4 of the *Clean Energy Act*, and
- (c) the extent to which the application for the certificate is consistent with the requirements under section 19 of the *Clean Energy Act*.

**68 Section 58.1 (2) (a) (ii) is amended by striking out "or 125.1 (4) (f)".**

**69 Part 3.1 is repealed.**

**70 Section 71 is amended**

**(a) in subsection (2.1) by adding "filed by a public utility other than the authority" after "whether an energy supply contract" and by repealing paragraphs (a) and (c) and substituting the following:**

- (a) the applicable of British Columbia's energy objectives,
- (c) the extent to which the energy supply contract is consistent with the applicable requirements under sections 6 and 19 of the *Clean Energy Act*, ,

**(b) by adding the following subsection:**

(2.21) In determining under subsection (2) whether an energy supply contract filed by the authority is in the public interest, the commission, in addition to considering the interests of persons in British Columbia who receive or may receive service from the authority, must consider and be guided by

- (a) British Columbia's energy objectives,

- (b) an applicable integrated resource plan approved under section 4 of the *Clean Energy Act*,
- (c) the extent to which the energy supply contract is consistent with the requirements under section 19 of the *Clean Energy Act*,
- (d) the quantity of the energy to be supplied under the contract,
- (e) the availability of supplies of the energy referred to in paragraph (d),
- (f) the price and availability of any other form of energy that could be used instead of the energy referred to in paragraph (d), and
- (g) in the case only of an energy supply contract that is entered into by a public utility, the price of the energy referred to in paragraph (d). ,

**(c) in subsection (2.5) by adding "with respect to a submission by a public utility other than the authority" after "under subsection (2.4)" and by repealing paragraphs (a) and (c) and substituting the following:**

- (a) the applicable of British Columbia's energy objectives,
- (c) the extent to which the application for the proposed contract is consistent with the applicable requirements under sections 6 and 19 of the *Clean Energy Act*, and , **and**

**(d) by adding the following subsection:**

(2.51) In considering the public interest under subsection (2.4) with respect to a submission by the authority, the commission, in addition to considering the interests of persons in British Columbia who receive or may receive service from the authority, must consider and be guided by

- (a) British Columbia's energy objectives,

(b) an applicable integrated resource plan approved under section 4 of the *Clean Energy Act*, and

(c) the extent to which the application for the proposed contract is consistent with the requirements under section 19 of the *Clean Energy Act*.

**71 Section 125 (2) is amended by adding the following paragraph:**

(e) requiring the commission to set a rate for the purposes of section 28 (2.1) and prescribing requirements for the purposes of that section.

**72 Section 125.1 is amended**

**(a) by repealing subsections (2), (3) and (4) (a), (c), (d), (f) and (j) to (n), and**

**(b) in subsection (4) (e) by adding "and" at the end of subparagraph (ii), by striking out ", and" at the end of subparagraph (iii) and by repealing subparagraph (iv).**

**73 Section 125.2 (3) is amended by striking out "transmission corporation" and substituting "authority".**

***Wildfire Act***

**74 Section 7 of the *Wildfire Act*, S.B.C. 2004, c. 31, is amended**

**(a) by adding the following subsections:**

(2.1) A person who is in a prescribed class of persons and who carries out an industrial activity or a prescribed activity on an area must, within the prescribed period and to the prescribed extent, abate a fire hazard on the area.

(2.2) A person referred to in subsection (2) is not required to abate a fire hazard on an area if a person referred to in subsection (2.1) is required to abate the fire hazard. , **and**

**(b) in subsection (3) by striking out "subsection (2)" in both places and substituting "subsections (2) and (2.1)" and by adding "applicable" before "person".**

**75 Section 43 (3) is amended by striking out "section 7 (2) or (4)," and substituting "section 7 (2), (2.1) or (4),".**

**76 Section 72 (2) (g) is repealed and the following substituted:**

- (g) respecting the abatement of fire hazards,  
including, without limitation,
- (i) prescribing classes of person, activities and time periods for the purposes of section 7 (2.1), and
  - (ii) specifying, for the purposes of section 7 (2.1), the extent to which a fire hazard must be abated, .

## **Commencement**

**77** The provisions of this Act referred to in column 1 of the following table come into force as set out in column 2 of the table:

<b>Item</b>	<b>Column 1 Provisions of Act</b>	<b>Column 2 Commencement</b>
1	Anything not elsewhere covered by this table	The date of Royal Assent
2	Section 20	July 5, 2010
3	Section 42	July 5, 2010
4	Section 45	By regulation of the Lieutenant Governor in Council
5	Section 52	By regulation of the Lieutenant Governor in Council
6	Section 55 (d)	July 5, 2010
7	Section 57	July 5, 2010
8	Section 59	July 5, 2010

9	Section 73	July 5, 2010
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## **Schedule 1**

### **Heritage Assets**

Those generation and storage assets commonly known as the following:

Aberfeldie  
 Alouette  
 Ash River  
 Bridge River  
 Buntzen/Coquitlam  
 Burrard Thermal  
 Cheakamus  
 Clowhom  
 Duncan  
 Elko  
 Falls River  
 Fort Nelson  
 G. M. Shrum  
 Hugh Keenleyside Dam (Arrow Reservoir)  
 John Hart  
 Jordan  
 Kootenay Canal  
 La Joie  
 Ladore  
 Mica, including units 1 to 6  
 Peace Canyon

Prince Rupert  
Puntledge  
Revelstoke, including units 1 to 6  
Ruskin  
Site C  
Seton  
Seven Mile  
Shuswap  
Spillimacheen  
Stave Falls  
Strathcona  
Waneta  
Wahleach  
Walter Hardman  
Whatshan

## **Schedule 2**

### **Prohibited Projects**

The projects of the authority, as set out in appendix F-8 of the authority's long-term acquisition plan, exhibit B-1-1, filed with the commission on June 12, 2008, are prohibited projects for the purposes of section 10, in particular, the following projects identified in appendix F-8:

- (a) Murphy Creek;
- (b) Border;
- (c) High Site E;
- (d) Low Site E;
- (e) Elaho;



- (f) McGregor Lower Canyon;
- (g) Homathko River;
- (h) Liard River;
- (i) Iskut River;
- (j) Cutoff Mountain;
- (k) McGregor River Diversion.

### **Explanatory Note**

This Bill sets out British Columbia's energy objectives, requires the British Columbia Hydro and Power Authority to submit an integrated resource plan describing what it plans to do in response to those objectives, and requires the authority to achieve electricity self-sufficiency by the year 2016. The Bill also prohibits certain projects from proceeding, ensures that the benefits of the heritage assets are preserved for British Columbians, provides for the establishment of energy efficiency measures and establishes the First Nations Clean Energy Business Fund. The Transmission Corporation and the authority are also to be unified under this Bill.



**IN THE MATTER OF**

**TERASEN GAS INC.  
TERASEN GAS (VANCOUVER ISLAND) INC.**

**AND**

**ENERGY EFFICIENCY AND CONSERVATION APPLICATION**

**DECISION**

**April 16, 2009**

**Before:**

**A.W.K. Anderson, Commissioner  
A.A. Rhodes, Commissioner**

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**ORDER NO. G-36-09**

**APPENDIX 1 – LIST OF EXHIBITS**

## **1.0 BACKGROUND AND REGULATORY PROCESS**

### **1.1 The Application**

On May 28, 2008 Terasen Gas Inc. (“TGI”) and Terasen Gas (Vancouver Island) Inc. (“TGVI”) (collectively “Terasen”) filed its Energy Efficiency and Conservation (“EEC”) Programs Application (“Application”) with the British Columbia Utilities Commission (“the Commission”).

In the Application, Terasen requested an order or orders approving the following:

- Increases of EEC expenditures in the period 2008-2010 to \$46.944 million for TGI and \$9.667 million for TGVI, a combined total of \$56.6 million;
- Capitalisation of incremental EEC expenditures as a regulatory asset deferral account on an after tax basis and amortisation of the account over 20 years;
- An increase in the amortisation period to 20 years for incentive amounts that are added to deferral accounts for 2008 and 2009 as part of the 2008-2009 extension of the 2004-2007 TGI PBR Settlement Agreement (“TGI PBR Extended Settlement”) approved by Order G-33-07 and the 2008-2009 extension of the 2006-2007 TGVI Revenue Requirements Settlement Agreement (“TGVI RR Extended Settlement”) approved by Order G-34-07;
- Changes to the benefit-cost analysis undertaken to evaluate EEC measures as outlined below:
  - Implementation of a portfolio approach to benefit-cost analysis such that the Total Resource Cost (“TRC”) test for all programs combined must return an overall combined result of one or more;
  - Elimination of the requirement to include free-riders in benefit-cost tests;
  - Inclusion of the benefits of savings associated with implementation of a regulation as a result of EEC programs aimed at preparing the marketplace for the introduction of regulation of minimum efficiency levels in equipment, buildings or energy systems
  - Inclusion of the impact of carbon-pricing as one of the inputs to the benefit-cost tests;

- A requirement that Terasen submit annually to the Commission, by the end of the first quarter following year-end, for each year of the funding period, a report on all EEC initiatives and activities, expenditures and results for TGI and TGVl.

The Commission directed that the Application would follow a written hearing process after hearing submissions from intervenors and interested parties.

Intervenors registered for the hearing were:

- British Columbia Hydro and Power Authority (“BC Hydro”),
- British Columbia Old Age Pensioners’ Organization et. al. (“BCOAPO”),
- B.C. Sustainable Energy Association and the Sierra Club of Canada (British Columbia Chapter) (collectively, “BCSEA-SCBC”),
- The Ministry of Energy, Mines and Petroleum Resources (“MEMPR”),
- The Rental Owners and Managers Society of B.C. (“ROMS”),
- FortisBC Inc.,
- Pacific Northern Gas Ltd. (“PNG”),
- The Commercial Energy Consumers Association of BC (“CEC”) and
- Direct Energy Marketing Limited

In addition to parties registering as intervenors, numerous letters of comment were received.

Two rounds of Information Requests were conducted.

Intervenors BC Hydro and BCSEA-SCBC also filed evidence.

The process was complete on December 5, 2008 with the filing of Terasen’s reply submission.

## 1.2 Legal and Regulatory

### 1.2.1 The Utilities Commission Act

The Application is made pursuant to Section 44.2 of the Act, which states, in part:

“(1) A public utility may file with the commission an expenditure schedule containing one or more of the following:

(a) a statement of the expenditures on demand-side measures the public utility has made or anticipates making during the period addressed by the schedule;...”

and:

“(3) After reviewing an expenditure schedule submitted under subsection (1), the commission, subject to subsections (5) and (6), must

(a) accept the schedule, if the commission considers that making the expenditures referred to in the schedule would be in the public interest, or  
(b) reject the schedule.

(4) The commission may accept or reject, under subsection (3), a part of a schedule.

(5) In considering whether to accept an expenditure schedule, the commission must consider

(a) the government's energy objectives,  
(b) the most recent long-term resource plan filed by the public utility under section 44.1, if any,  
(c) whether the schedule is consistent with the requirements under section 64.01 or 64.02, if applicable,  
(d) if the schedule includes expenditures on demand-side measures, whether the demand-side measures are cost-effective within the meaning prescribed by regulation, if any, and  
(e) the interests of persons in British Columbia who receive or may receive service from the public utility.

(6) If the commission considers that an expenditure in an expenditure schedule was determined to be in the public interest in the course of determining that a long-term resource plan was in the public interest under section 44.1 (6),

(a) subsection (5) of this section does not apply with respect to that expenditure, and

(b) the commission must accept under subsection (3) the expenditure in the expenditure schedule.”

### 1.2.2 The Long Term Resource Plan

The Commission Panel notes that, with respect to subsection 44.2 (5) (b) and subsection 44.2(6), Terasen filed its consolidated 2008 Resource Plan (on behalf of TGI, TGV and Terasen Gas (Whistler) Inc.) on June 27, 2008, which was accepted as described in Order G-194-08 and its accompanying Reasons. As noted in the Reasons, the Commission Panel specifically excluded any consideration or determination with respect to whether the EEC expenditures included in the instant Application were in the public interest. Accordingly, the Commission Panel considers that subsection 5 of s. 44.2 is applicable to the Application, whereas subsection 44.2(6) is not.

### 1.2.3 ‘Cost effectiveness’ and the Demand Side Measures (DSM) Regulation

Subsection 44.2 (5)(d) requires the Commission to consider whether the EEC expenditures are “. . . cost-effective within the meaning prescribed by regulation, if any, . . .”.

On November 7, 2008, the Government issued Ministerial Order M271/2008 which attached B.C. Reg. 326/2008 - Demand-Side Measures Regulation. Section 3 of the DSM Regulation deals with the “adequacy” of a demand-side measures “plan portfolio” and section 4 of the DSM Regulation sets forth certain requirements with respect to the determination of whether such expenditures are “cost effective”. Section 2 of the DSM Regulation provides that the regulation applies only to ‘the authority’ (BC Hydro) until June 1, 2009, at which time the regulation will become more generally applicable. Accordingly the requirements of sections 3 and 4 are not applicable to Terasen’s current EEC Application.



#### 1.2.4 BC Government's Energy Objectives

Subsection 44.2 (5)(a) of the Act requires the Commission to consider the “government’s energy objectives” in considering whether to accept an expenditure schedule. The “government’s energy objectives” are defined in section 1 of the Act as follows:

- “(a) to encourage public utilities to reduce greenhouse gas emissions;
- (b) to encourage public utilities to take demand-side measures;
- (c) to encourage public utilities to produce, generate and acquire electricity from clean or renewable sources;
- (d) to encourage public utilities to develop adequate energy transmission infrastructure and capacity in the time required to serve persons who receive or may receive service from the public utility;
- (e) to encourage public utilities to use innovative energy technologies
  - (i) that facilitate electricity self-sufficiency or the fulfillment of their long-term transmission requirements, or
  - (ii) that support energy conservation or efficiency or the use of clean or renewable sources of energy;
- (f) to encourage public utilities to take prescribed actions in support of any other goals prescribed by regulation...”

## 2.0 TERASEN'S PROPOSED EEC EXPENDITURES

Terasen is applying for approval of an increase in allowed expenditures for EEC activity for TGI and TGVl to a total of approximately \$56.6 million over the three year Program Period 2008 to 2010, an increment of \$48.062 million over currently approved DSM spending for the two utilities.

(Exhibit B-1, p. 8)

The proposed EEC Expenditures, by Program Area, by Utility, are set out in the table below.

Table 1

(\$000)

<b>Spend by Program Area 2008 -2010</b>	<b>TGI</b>	<b>TGVl</b>	<b>Total</b>
Residential Energy Efficiency	8,552	734	9,286
Commercial Energy Efficiency	19,592	2,199	21,791
Residential Fuel Switching	1,332	2,367	3,699
Conservation Education and Outreach	11,068	2,767	13,835
Joint Initiatives	2,400	600	3,000
Trade Relations	1,200	300	1,500
Conservation Potential Review	400	100	500
Innovative Technologies, NGV and Measurement	2,400	600	3,000
<b>Total</b>	<b>46,944</b>	<b>9,667</b>	<b>56,611</b>

(Source: Exhibit B-1, p. 9)

Terasen states that it is most efficient for the Commission to approve the overall expenditure level, by utility, for the funding period rather than by approving the funding by program area or by individual program initiative. Terasen submits that this approach will allow it to respond quickly to changes within initiatives and to new opportunities that might arise, and will reduce the administrative burden related to EEC activity. (Exhibit B-1, pp. 50-51)

Terasen also submits that the energy savings from the EEC expenditures will result in savings with a present value of almost 10 million gigajoules (“GJs”) over the lives of the various measures proposed, while fuel switching activity is estimated to result in approximately 2.3 million GJs of additional load. The anticipated present value of net energy savings is approximately 7.7 million GJs, not including potential savings arising from Conservation Education and Outreach, Joint Initiatives or Innovative Technologies, NGV and Measurement program areas. (Exhibit B-1, p. 10) Terasen further states that DSM expenditures at current levels would result in cumulative annual savings of 1.3 million (nominal, rather than present value) GJs by 2016, whereas the proposed expenditures would result in cumulative annual savings of approximately 6.4 million nominal GJs in the same time period. (Exhibit B-1, p. 11)

## **2.1 Residential and Commercial Energy Efficiency**

Terasen developed its budget estimates for Residential Energy Efficiency, Commercial Energy Efficiency and Residential Fuel Switching based on work done in 2006 in its Conservation Potential Review (“CPR”). Those estimates were refined by Habart and Associates Consulting Inc. (“Habart”) as described in Habart’s September 2007 Report (“Habart Report”) provided in Appendix 9 of the Application. (Exhibit B-1, p. 52) The Habart Report concluded that total DSM funding of approximately \$35 million over the three-year period would be required. (Exhibit B-1, Appendix 9, p. 23)

Terasen states that “[t]he key finding of the CPR was the Achievable Potential” which is a measure of savings which could realistically be achieved within the study period. (Exhibit B-1, p. 45) The Achievable Potential from the CPR is outlined in the table below:

Table 2

## CPR Findings

By 2015/2016, GJ per year	TGVI	Lower Mainland	Interior	Total
Residential EE	-369,000	-5,298,000	-1,847,000	-7,514,000
Commercial EE	-385,000	-1,396,000	-431,000	-2,212,000
Industrial EE	-32,430	-933,064	-924,210	-1,889,704
<b>Subtotal</b>	<b>-786,430</b>	<b>-7,627,064</b>	<b>-3,202,210</b>	<b>-11,615,704</b>
Residential Fuel Substitution				1,453,000
<b>Potential Annual Impact</b>				<b>-10,162,704</b>

(Exhibit B-1, Table 4.1, p. 45)

Terasen states that “[t]he strategies outlined in this Application, and the expenditures for which approval is being sought, are based to a significant degree on the findings of the CPR and the subsequent work undertaken with Habart.” (Exhibit B-1, p. E-3)

In discussing estimation of new dwelling heating loads, the 2006 CPR states that: “[d]iscussions with provincial government staff indicated that a number of changes to residential buildings are under consideration that could affect the thermal performance of British Columbia’s new housing over the study period.” The changes being considered include targets for new construction, including residential buildings and all commercial buildings (including apartments) and strategies to achieve improved thermal performance in related residential equipment and products, including furnaces, fireplaces, and windows. (Exhibit B-1, Appendix 1, p. 33)

### 2.1.1 Residential Energy Efficiency

Terasen proposes spending \$9.286 million on Residential Energy Efficiency for both TGI and TGVI over the Program Period (Exhibit B-1, p. 55, Table 6.2b). The Residential Energy Efficiency program area includes both new construction and retrofit initiatives.

#### 2.1.1.1 New Construction

For new construction, Terasen is proposing EnerChoice Fireplace and Energy Star Appliance initiatives. The EnerChoice Fireplace program will provide an incentive to customers who purchase and install an EnerChoice rated fireplace, insert or free-standing stove. The Energy Star Appliance program provides incentives for customers who use natural gas for domestic hot water (“DHW”) heating to install Energy Star clothes washers and/or dishwashers. (Exhibit B-1, p. 59)

Terasen states “[t]he key decision makers in this market for the [new construction] programs . . . are builders and developers who build single family homes and row-houses” and “. . . new construction EEC portfolio in the residential market will include programs that encourage customers, whether they be individuals building a new home, or builders and developers, to install energy efficient appliances.” (Exhibit B-1, p. 58) (emphasis in original)

#### 2.1.1.2 Retrofit

For the residential retrofit market Terasen is proposing an Energy Star Heating System Upgrade program that will reprise earlier versions of this program, and will provide customers who install an Energy Star heating system a credit on their Terasen bill for gas service. Terasen’s Application is based on funding for incentives for gas furnace upgrades in single family dwellings (“SFDs”) and duplexes in the Terasen service territory. Terasen estimates upgrades to 5.3 percent of the stock of pre-1976 SFDs and duplexes or 8,180 furnace upgrades to the end of 2009. Terasen notes that due to expected new Federal government regulations requiring all furnaces sold in Canada to meet a minimum standard of 90 percent efficiency after December 31, 2009, this program will conclude prior to that date. (Exhibit B-1, pp. 59-60)

Terasen is also proposing EnerChoice Fireplace and Energy Star Appliance programs for the retrofit market as for the new construction market. The Hearth, Patio & Barbeque Association of Canada will provide assistance in promotional and educational aspects of the EnerChoice Fireplace program. (Exhibit B-1, p. 60)

The residential sector expenditures proposed by Terasen, by utility and program area are as follows:

Table 3

TGI and TGV Energy Efficiency (\$000)		<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>Total</b>
TGI	New Construction	411	566	1,056	2,033
	Retrofit	2,495	2,658	1,367	6,520
	Sub total, TGI	2,906	3,224	2,423	8,553
TGV	New Construction	130	156	232	518
	Retrofit	53	66	97	216
	Sub total, TGV	183	222	329	734
Total		3,089	3,446	2,752	9,287

Source: BCUC IR No. 1 Attach 56.2A

#### 2.1.1.3 Commercial Energy Efficiency

Terasen is proposing to spend \$21.7 million on commercial sector new construction and retrofit programs (Exhibit B-1, p. 60). The expenditure proposals were based on refinements of the following initial recommendations from the Habart report:

Table 4

<b><u>TGI and TGV Commercial Programs</u></b>		<b>Spending 2008-2010 (\$000)</b>	
		<b>TGI</b>	<b>TGVI</b>
<b>New Construction</b>			
	Efficient New Construction	5,297	727
	Boilers	1,928	224
	Water Heating	1,118	103
	<b>Subtotal - New Construction</b>	<b>8,343</b>	<b>1,055</b>
<b>Retrofit</b>			
	Boilers	7,395	1,074
	Building Recommissioning	3,095	354
	Next Generation Building Automation Systems	968	95
	Demand Control Ventilation	1,795	-
	High Efficiency Rooftop Units	239	17
	Water Heat	2,032	254
	<b>Subtotal - Retrofit</b>	<b>15,524</b>	<b>1,794</b>
<b>Total Commercial Energy Efficiency</b>		<b>23,867</b>	<b>2,849</b>

Source: Exhibit B-2, Attachment 56 2A TGVI and 56 2A TGI

#### 2.1.1.4 New Construction

The commercial new construction program is aimed at all new construction "...which might use natural gas space and water heating." Terasen states that "...the immediate opportunities are likely to be Multifamily Dwellings ("MFDs") and Commercial office space" and may also include some institutional buildings. (Exhibit B-1, p. 61) Terasen lists some potential areas for activity in the commercial new construction sector, and notes that program design in this sector is complex, so the program activities listed in the Application are merely summaries.

Terasen states “[t]he key decision makers in this market are owners including: governments; builders/developers; architects; engineers; interior designers; mechanical consultants; and contractors.” (Exhibit B-1, p. 61)

The new construction energy efficiency program areas include initiatives aimed at:

- Efficient New Construction Design and High Insulation Technology for windows;
- Condensing and near condensing boilers; and
- Instantaneous and condensing DHW heaters and drain water heat recovery.

(Exhibit B-1, Table 6.3.2, p. 61)

#### 2.1.2.5 Retrofit

Terasen’s commercial retrofit program is aimed at all commercial and industrial buildings with existing natural gas space and water heating equipment. Terasen again notes that, due to the complexity of programs in this sector, it has merely summarized areas of program activity and states “[m]ore detailed program development work must be completed by [Terasen] in conjunction with industry groups before these programs are rolled out.” (Exhibit B-1, p. 62)

Commercial retrofit energy efficiency program area activity includes initiatives for:

- Condensing and near condensing boilers
- Building Recommissioning
- Next Generation Building Automation Systems (“BAS”)
- High Efficiency (“HE”) Rooftop Units
- Instantaneous and condensing DHW boilers and heaters
- For TGI only, Terasen is proposing to add: demand control ventilation for large and medium commercial buildings and drainwater heat recovery.

(Exhibit B-1, p. 62, Table 6.3.2a)



Terasen states that commercial sector programs are intended to offer qualified customers a menu of programs from which to choose and that Terasen staff will work with participants in selecting the most appropriate program and/or component. (Exhibit B-1, p. 63)

#### Intervenor Positions

BCOAPO takes issue with the relative allocation of spending as between proposed residential and commercial customer groups. BCOAPO notes that residential customers make up 90 percent of Terasen's total customers and 38 percent of its total volume, whereas commercial customers represent only 9.7 percent of its customer base and 26 percent of its total volume. (BCOAPO Argument, p. 12)

#### **Commission Determination**

The Commission Panel notes BCOAPO's comments as well as the CPR evidence indicating that some 70 percent of the Achievable Potential savings are associated with the residential sector. Terasen has included residential market MFDs in its Commercial EE program, which, in the view of the Commission Panel, may also have significant potential for low income housing initiatives. Terasen indicates that it will re-direct funding amongst programs based on customer response, thus enabling funding balancing between Residential and Commercial programs as appropriate.

The Commission Panel finds the design of Terasen's Residential and Commercial EE programs to be reasonable, flexible and in the public interest, and accepts the expenditure proposals for these program areas.

## **2.2 Residential Fuel Switching**

Reduction in Greenhouse Gas (“GHG”) emissions is advanced by Terasen as a benefit in support of residential fuel switching for TGI. The stated premise is that the substitution of natural gas for electricity will reduce overall GHG emissions in the short term, by increasing the amount of electricity available to BC Hydro to meet domestic load, thereby reducing its dependence on imported power or, alternatively, allowing it to increase exports of clean power, thus enabling a reduction in the regional use of gas or coal-fired power. Terasen submits, over the longer term, to the extent BC Hydro is able to meet its load requirements, excess clean generation could be exported, displacing the use of gas and/or coal-fired generation in the region (Western Interconnection). (Exhibit B-1, p. 63; Terasen Reply, p. 5)

Terasen states that “[t]he primary objective of the fuel-switching offers is to promote the most optimal balance in energy share between electricity and natural gas, preserving BC Hydro’s generation and transmission systems for its [sic] highest value – in running lights, computers and other technology.” (Exhibit B-1, p. 64)

Terasen proposes to spend \$3.7 million in the residential fuel switching program area. It is proposing that only new construction fuel switching programs be offered in the TGI service area but that both new construction and retrofit fuel switching programs be offered in the TGVI service area.

Terasen proposes to spend the following amounts on fuel switching programs annually, over the Funding Period.

**Table 5****Residential Fuel Switching Programs**

<b>Program</b>	<b>Initiatives</b>	<b>TGI</b>	<b>TGVI</b>
<b>New Construction</b>			
Natural Gas Water Heating	NG DHW	319	693
Natural Gas Appliances	NG Range	1,013	50
	Sub Total	1,332	743
<b>Retrofits</b>			
	NG Dryer		38
Natural Gas Appliances	FS Range	-	247
	FS Dryer	-	247
Furnace Fuel Substitution	Furnace	-	766
Fireplace Fuel Substitution	EnerChoice Fireplace	-	326
	<b>Sub-total</b>		1624
	<b>Totals</b>	1332	2367

Source: Exhibit B-2, Attachments 56.2A 2 (TGI) and 56.2A 4 TGVI

**New Construction**

All new construction expenditures involve fuel switching from electricity. Only the Retrofit programs, which are limited to Vancouver Island, involve potential fuel switching from propane, oil or wood in addition to electricity. Terasen states: “[i]t is very challenging to separate out proposed expenditures for fuel switching from electricity to natural gas from vs. [sic] proposed expenditures for fuel switching from non-electric sources to natural gas, as there are a number of potential energy sources for the proposed TGVI residential retrofit program, and ...[it] cannot predict the proportion of participants switching from each energy source.” (Exhibit B-5, BC Hydro 1.1.1)

Terasen proposes fuel substitution incentive programs to encourage the use of natural gas in new construction projects for installation of natural gas domestic hot water heaters in the TGVI service area and to install a natural gas range and/or dryer in both the TGI and TGVI service areas.

(Exhibit B-1, p. 64)

### Retrofit

Incentive funding for fuel substitution retrofits is only contemplated for TGVI, as many households in its service territory still use wood, propane or fuel oil for space heating and fireplaces.

The proposed programs include incentive payments for:

- Switching to natural gas for space heating and for installing Energy Star equipment. Terasen states that “the current regulatory regime for TGVI does not allow Terasen to offer customers who switch to natural gas an incentive to install Energy Star equipment.” (Terasen proposes that it be able to offer both, but also advises that it would restrict the incentive to furnaces and boilers rated Energy Star.);
- Installation of an EnerChoice-rated fireplace, insert or free-standing stove; and
- Replacement of existing electric or propane ranges and dryers with gas appliances.

(Exhibit B-1, p. 65)

### Intervenor Positions

BCOAPO strongly opposes the inclusion of any expenditures associated with fuel switching away from electricity to natural gas in Terasen’s EEC portfolio. BCOAPO argues that there is no evidence as to an “optimal balance” as between electricity and natural gas and suggests that a movement away from (clean) electricity to a fossil fuel would not be part of such optimal balance. (BCOAPO Argument, p. 10)

BC Hydro filed the evidence of Randy Reimann, P. Eng., its manager of Resource Planning, wherein he contradicted Terasen's assertion that fuel switching away from electricity to natural gas would reduce the need for BC Hydro to import electricity from other jurisdictions which rely on coal or natural gas for generation. Mr. Reimann stated: "[t]here is no medium to long term linkage between fuel switching from electricity to natural gas and a change in BC Hydro's need for importing electric energy or ability to export such energy." (Exhibit C2-6, Direct Testimony of Randy Reimann, p. 2, Q.7)

BC Hydro also filed the evidence of Patrice Rother, its manager of Environmental Strategy in the Safety, Health and Environmental group. Ms. Rother reviewed recent GHG-related legislative and policy developments including the B.C. Greenhouse Gas Reduction Targets Act ("GGRTA"), the B.C. Climate Action Plan and the joinder of British Columbia into the Western Climate Initiative and highlighted a number of areas of uncertainty surrounding how the WCI GHG trading scheme will align with the GGRTA legislated targets and other Chinook Action Plan action items on a regional basis. (Exhibit C2-6, Direct Testimony of Patrice Rother pp. 2-3, Q. 8, 11)

### **Commission Determination**

While the Commission Panel notes the comments of Terasen regarding potential GHG benefits of fuel switching, particularly away from fossil fuels with a higher carbon content than natural gas, the Commission Panel is not convinced that expenditures on fuel switching and load building away from electricity can be properly considered in a portfolio of EEC programs at this time. The Commission Panel agrees with the comments of the BCOAPO that the "optimal balance" as between natural gas and electricity has not been established. The Commission Panel also finds that the efficiency of other energy sources over and above that of electricity has not been adequately established.

The Commission Panel also notes that natural gas does have a GHG impact which is not present in clean domestic electricity and that one of the government's energy objectives is "to encourage public utilities to reduce GHG emissions." The Commission Panel accepts the evidence of

Ms. Rother that there is considerable uncertainty, at this time, surrounding how various government initiatives will align on a regional basis. The Commission Panel finds that Terasen has not provided sufficient evidence to persuade the Panel, on a balance of probabilities, that a regional approach should be adopted as a justification for EEC expenditures aimed at substituting natural gas as a fuel to replace electricity.

The Commission Panel accepts EEC expenditures directed at fuel switching from fossil fuels with a higher carbon content than that of natural gas. Expenditure programs specifically directed at encouraging fuel switching away from electricity are rejected, as are Incentive payments for appliances for which an Energy Star rating is not available. However, expenditures are accepted for incentives to install Energy Star and EnerChoice equipment and appliances for customers who, at their own initiative, wish to switch to natural gas as the fuel of choice.

### **2.3 Conservation Education and Outreach**

This proposal is in addition to program-specific education and outreach funding, and relates to non-program-specific activities, as set out below.

- Terasen's proposed budget for Conservation Education and Outreach (CEO) was developed in consultation with Wasserman + Partners Advertising ("Wasserman"). Terasen proposes a total CEO expenditure of \$13.835 million in the 2008 to 2010 period which is 24 percent of the total EEC proposed expenditures of \$56.611 million. The Wasserman proposal states that the planned messaging will educate the public about Terasen's EEC program and related activities.

(Exhibit B-1, Appendix 8)

Terasen was requested to describe the specifics of the CEO programs and responded that these initiatives "... have not yet been fully developed, however, as outlined on page 65 of the Application, they are projected to include:

- Stakeholder industry group activities, such as first time homebuyers seminars
- Public outreach by “Team Terasen”
- Support for conservation education within the school system
- Energy Forum
- Conservation communications, as outlined in Appendix 8 in the Application.”

(Exhibit B-2, BCUC 1.28.1)

The entire proposed \$13.835 expenditure for the CEO Program Area is taken by the Conservation communications initiative of the CEO Program. \$11.550 million or 83 percent of the \$13.835 million is allocated to Mass Media Advertising and Production over the three year expenditure period. (Exhibit B-1, Appendix 8)

Terasen did not submit any details or expenditure estimates for the first four program initiatives described above.

Terasen proposes to attribute the CEO expenditures in each year equally between the Residential and Commercial Energy Efficiency programs, with none of the CEO expenditures being attributed to other Program Areas such as Fuel Switching or Trade Relations. (Exhibit B-1, p. 54)

Terasen states: “EEC expenditures will be efficient, with non-incentive costs not exceeding 50% of the expenditure in a given year.” (Exhibit B-1, p. 47, #3) Terasen does not provide any further evidence supporting the implication that, merely by not exceeding 50 percent of the total, non-incentive, expenditures, the balance represents efficiency in expenditures.

### Intervenor Positions

BCOAPO submitted that “The Application’s education and outreach component is disproportionately large, and inappropriately treated as an asset to be amorti[s]ed over 20 years.” (BCOAPO Argument, p. 14)

BCSEA-SCBC submitted the evidence of John J. Plunkett of Green Energy Economics Group, Inc. The Commission Panel reviewed Mr. Plunkett's qualifications and experience and accepts him as an expert with respect to the matters his testimony addresses in this Application.

Mr. Plunkett proposes that the CEO should be reduced by 50 percent, and the amount by which the funding is reduced be redirected to the residential and commercial efficiency programs.

Mr. Plunkett notes that while building a conservation 'ethic' in British Columbia is laudable, the primary purpose of the CEO expenditures should be to support the efficiency programs.

(Exhibit C5-5, pp. 18, 19)

### **Commission Determination**

The Commission Panel finds that Terasen has not provided sufficient evidence to support either the \$13.835 million total proposed EEC expenditures, or the allocation of some 84 percent of that amount to mass media advertising and production. The Commission Panel notes that the Commercial component comprises some 70 percent of the total expenditures in the combined Residential and Commercial Energy Efficiency program areas, to which the CEO costs have been attributed equally. The Commission Panel also notes Terasen's comments, quoted above, with respect to the key decision makers in both the new and retrofit commercial markets. The Commission Panel considers both these markets to be significantly more narrow and focused than markets which may warrant the use of mass media approaches to communication.

The Commission Panel also notes that Terasen's evidence did not include any discussion of bill stuffers or other communication methods.

The Commission Panel agrees in part with Mr. Plunkett's proposal, and considers that, while public education is an appropriate activity in support of the EEC objectives, the evidence is not sufficient to support either the full amount proposed or the allocation of the proposed CEO expenditures.

The Commission panel does not agree with Mr. Plunkett's suggestion that the funding reduction of



the CEO expenditures be redirected to the energy efficiency programs. The Commission Panel finds the evidence sufficient to establish that there is a benefit to some CEO expenditures and accepts 50 percent, \$6.918 million, as reasonable.

Terasen is directed to review the CEO program with a view to:

- altering the program to allocate funds away from the mass media campaign and to include other initiatives, with particular attention paid to conservation education within the school system and affordable housing initiatives;
- addressing the apparent imbalance of the residential to commercial expenditure ratio, approximately 30:70, in comparison to the ratio of residential to commercial Achievable Potential GJ impact of approximately 77:23 (Exhibit B-1, p. 45);
- reconsidering the apparent lack of communication expenditures directed in a focused manner to the Commercial Energy Efficiency program,
- reconsidering appropriate attribution of CEO costs to Program Areas and initiatives, and any related impact on Total Resource Cost calculations and rate impacts.

## **2.4 Joint Initiatives, Trade Relations, 2009 CPR, and Innovative Technologies, NGV and Measurement**

### **2.4.1 Joint Initiatives**

Terasen is requesting that \$1.0 million per year be approved for the development of Joint Initiatives as they arise. Initiatives that Terasen states it will, or may pursue if the funding is approved, include: support for audits for a Provincial Home Retrofit Program, DSM for affordable housing, building labeling, and community action on energy efficiency. (Exhibit B-1, pp. 66-68)

#### 2.4.1.1 Audits

The “audit” joint initiative involves providing financial assistance to customers by paying for the cost of a pre or post upgrade audit, both of which are necessary for participation in the federal government’s “Eco-Energy” program. This initiative would support the provincial government’s expressed intention to implement a province-wide home retrofit program, “LiveSmartBC”, to complement the federal government initiative. The provincial program does not contemplate paying the cost of post-retrofit audits, and Terasen sees an opportunity to provide full or partial funding to enable more of its customers to participate in the programs. (Exhibit B-1, pp. 43, 67)

#### 2.4.1.2 Affordable Housing

Terasen states that “[t]he Ministry of Energy Mines and Petroleum Resources has asked that the Terasen Utilities lead a working group on DSM for Affordable Housing, the goal of which is to find ways and means to deliver Energy Efficiency to the Affordable Housing sector in B.C. and that such group has been convened. Terasen proposes to fund its participation in any resulting DSM incentive program from the Joint Initiatives Program allocation. (Exhibit B-1, p. 67)

#### 2.4.1.3 Labeling

A further joint initiative which Terasen proposes is to co-fund a pilot project to label homes and buildings with an energy consumption/efficiency rating. Terasen states that this will assist in informing the public and promoting energy conservation and will enable comparisons as between different gas-heated homes.

#### 2.4.1.4 Community Action

Terasen also proposes to make a financial contribution to the pool of funds to which municipalities can apply under the “Community Action on Energy Efficiency” initiative for financial and research support to advance energy conservation and efficiency in their areas, through policy action and

public outreach. (Exhibit B-1, p. 68; The BC Energy Plan 2007- Policy Action #9)

### Intervenor Positions

BC Hydro supports the Joint Initiatives funding requested. (BC Hydro Argument, p. 5)

BCOAPO argues that this area of the EEC is “drastically under-funded if any meaningful [low-income energy efficiency program (“LIEEP”)...is to be developed.” (BCOAPO Argument, p. 7)

BCSEA-SCBC argues: “. . . while the four initiatives under the Join Initiatives program area may be worthwhile” they do not satisfactorily address the need for better integration of Terasen’s programs with electrical DSM programs as identified by the BCSEA-SCBC expert, Mr. Plunkett. (BCSEA-SCBC Argument, pp. 12-13) Mr. Plunkett recommends that Terasen should be directed to redesign programs by streamlining them and better integrating them with electric efficiency programs. (Exhibit C5-5, p. 5)

### **Commission Determination**

The Commission Panel accepts the expenditures requested for the Joint Initiatives Program area. The Commission Panel notes the comments of the BCOAPO and agrees that the Affordable Housing Initiative appears to be under-funded, particularly given that no portion of the requested global amount for Joint Initiatives is specifically dedicated to Affordable Housing. The Commission Panel also notes that the DSM Regulation which does not yet, but will, apply to Terasen requires that a public utility’s plan portfolio include “a demand-side measure intended specifically to assist residents of low-income households to reduce their energy consumption”. The Commission Panel therefore directs Terasen to proceed with its Joint Initiative relating to Affordable Housing and encourages Terasen to consider re-allocating funding from other approved areas of its overall spending as may be suitable.

The Commission Panel concurs with Mr. Plunkett's recommendation, and considers the Joint Initiatives Program to be an appropriate area from which funds should be used to aggressively pursue integrating Terasen's EEC programs with those of the electric utilities in British Columbia. The Commission Panel's view is that integrating the efforts of gas and electric utilities will better encourage customers to take advantage of the programs by eliminating unnecessary duplication in communication, applications, audits and similar time consuming activities.

#### 2.4.2 Trade Relations

The Trade Relations program area is aimed at the support and education of skilled trades, equipment manufacturers, distributors, suppliers and retailers, appliance and equipment salespeople and Realtors. The \$1.5 million in funding being requested for Trade Relations with this Application is to support the activities of a Terasen Utilities staff member focused on Trade Relations as it relates to energy efficiency.

#### **Commission Determination**

The Commission Panel takes note of Terasen's descriptions of the key decision makers in each of the Residential and Commercial EE programs, referred to previously, as well as the references to the complexity of the commercial new construction and retrofit sector programs and resulting paucity of detail for those program areas. (Exhibit B-1, p. 61)

The Commission Panel considers that the Trade Relations program area expenditures represent a significant duplication of the Residential and Commercial Energy Efficiency programs' non-incentive costs. As noted in the Application, the Energy Efficiency programs will significantly increase the interactions as between Terasen and its customers, and therefore increase "the opportunities for [Terasen] to communicate general conservation information in addition to program-specific information..." (Exhibit B-1, p. 46) The Commission Panel finds the evidence with respect to the details of the Trade Relations program area to be insufficient, and accordingly, this area of expenditure is rejected.

### 2.4.3 Innovative Technologies, NGV and Measurement

Terasen states that it is in a unique position to foster and further the deployment of forward-looking low carbon technologies, including measurement technologies, and is therefore seeking funding with this Application, specific to this arena. (Exhibit B-1, p. 69)

Terasen states that “[t]he amount for Innovative Technologies, NGV and measurement will need to be refined – if an effective program in Innovative Technologies, NGV and Measurement can be developed over the funding timeframe, the Companies wish to have the ability to fund such a program over the funding timeframe.” (Exhibit B-1, pp. 53, 69) Terasen states that the activity in this area would be in the nature of pilot programs, with limited time frames, geographic areas and numbers of installations. The Companies indicate that they would pursue technologies with the same underlying characteristics:

- Each promotes the efficient use of natural gas through sustainable design;
- None are currently a mainstream technology;
- Each offers the potential for at least a 10 percent GHG benefit.

Energy efficiency technologies the Companies would intend to pursue include:

- Residential
  - hydronic based heating systems;
  - Integrated energy systems providing both space heat and DHW;
  - Solar thermal assisted space or DHW systems;

- Commercial
  - hydronic based heating systems;
  - Solar thermal assisted space or DHW systems.

(Exhibit B-1, p. 73)

Terasen states that it would aim fuel-substitution initiatives at both new construction and retrofit markets in both the TGI and TGV service areas, and notes that fuel-substitution in this category refers to the displacement of natural gas using cleaner renewable technologies. The Companies state that more detailed program development work must be completed by Terasen in conjunction with industry groups before programs are rolled out or funding is allocated. (Exhibit B-1, p. 74)

### **Commission Determination**

The Commission Panel considers that Innovative Technologies, NGV and Measurement programs can be appropriate vehicles for encouraging commercial development of technologies to reduce or replace natural gas consumption and related GHG emissions.

However, as noted above, Terasen acknowledges that further refinement of this program is required and indicates uncertainty as to whether an effective program can be developed over the funding timeframe. The Commission Panel finds that there is insufficient evidence with respect to the nature and scope of the proposed program, and accordingly rejects the Innovative Technologies, NGV and Measurement program expenditures at this time. Terasen may wish to bring forward projects in this program area for consideration as they become more fully developed.

## **2.5 Conservation Potential Review Update**

The Terasen Gas April 2006 Conservation Potential Review (CPR) was a comprehensive planning document prepared for TGI to use for:

- Developing a long range energy efficiency and fuel choice strategy;
- Designing and implementing energy efficiency and fuel choice programs;
- Assessing the impact of energy efficiency and fuel choice programs on both peak and annual loads; and
- Setting annual efficiency and fuel choice targets and budgets.

(Exhibit B-1, Appendix 1, page E-1)

The 2009 CPR estimate of \$0.5 million is based on the cost to perform the previous CPR, approximately \$300,000, plus an allowance for the kind of work done by Habart to refine the CPR results into a DSM program. (Exhibit B-1, p. 53) The updated CPR would be received in 2010 and would form the basis for an application to the Commission for EEC funding for the period 2011 to 2014. (Exhibit B-1, p. 69) It also includes an allowance of \$100,000 for cost inflation from the last CPR. (Exhibit B-2, BCUC 1.21.1)

The CPR Program is discussed at Section 4 of the Application, including an illustration of the CPR Process Flow, and a table summarising the potential annual impact identified by the 2006 CPR. The 2006 CPR identifies a gross impact [consumption reduction] by 2015/2016 of 11.615 million GJs, and a Potential Annual Impact of 10.163 million GJs after adding back 1.453 million GJs of additional load attributed to the residential fuel switching program. The gross impact number includes 1.890 million GJs for Industrial Energy Efficiency (EE). Separate programs for Industrial EE are not specifically included as part of the Application. (Exhibit B-2, pp. 44-46)

The detailed 2006 CPR report is included in the Application. (Exhibit B-2, Appendix 1)

### Intervenor Positions

BCSEA-SCBC supports Terasen's proposal for approval of expenditures for an update of the CPR to form the basis for Terasen's "next tranche of EEC funding for the period 2011 to 2014." (BCSEA-SCBC Argument, p. 15)

BC Hydro supports Terasen's evidence with respect to the CPR and also the program element in the Application for additional funding for a 2009 update of the CPR. (BC Hydro Argument, p. 5)

### **Commission Determination**

The Commission Panel considers the CPR to be an important tool for use in developing, supporting and assessing this and future EEC/DSM expenditure Applications. The Commission Panel accepts the Application's CPR update expenditure proposal.

The Commission Panel anticipates that Terasen will be able to develop a stronger and more transparent linkage between the CPR, the development of programs arising from the CPR and their proposed costs in any future EEC/DSM Applications.

## **2.6 The Industrial Sector**

Terasen has not included energy efficiency (EE) initiatives for industrial customers in the Application. Terasen discusses its rationale for not planning for EE programs specifically for the industrial sector at Section 6.10 of its Application, Exhibit B-1, p. 78.

The CPR study conducted by Marbek Resource Consultants Ltd. and Willis Energy Services Ltd. (MARBEC) concluded that:



“The study findings confirm the existence of significant potential cost-effective natural gas efficiency improvements in B.C.’s manufacturing sector. In the “most likely” and “upper” achievable scenarios those energy efficiency improvements would provide between about 1,900 and 2,600 thousand GJ/yr. of savings in FY 2015/16. The same energy efficiency improvements would also provide reduced GHG emissions of approximately 80,000 to 112,000 tonnes per year as well as peak day load reductions of approximately 20 to 20.5 thousand GJ.

Two particularly significant opportunities are identified in the study results:

- Energy efficient boilers for the greenhouse and food processing facilities in the Lower Mainland.
- Energy efficient kilns for sawmills and planer mills in the Interior.”

(Exhibit B-1, Appendix 1, p. 75)

#### Intervenor Positions

MEMPR provided a Letter of Comment stating: “. . .the Ministry has an interest in seeing Terasen Gas Inc. and Terasen Gas (Vancouver Island) Inc. (“the Companies”) expand their demand-side management activities. The Ministry notes the absence of specific demand-side measures for the industrial sector in the Application. The Companies may be missing significant conservation and efficiency gains.” (MEMPR Letter of Comment, Exhibit C1-4, p. 1)

The Ministry also submitted that the Commission should include a number of determinations in its Decision with respect to the processes and timing of development of DSM measures for the manufacturing sector.

BCSEA-SCBC concurs with MEMPR’s recommendation. (BCSEA-SCBC Argument, p. 16)

Terasen submits that “a cautious approach is warranted in considering delivering incentives to industrial customers at a high enough dollar level to spur participation adequate to ensure a positive TRC. Both of these options expose customers to risk. The Terasen Utilities will continue to

explore opportunities for industrial DSM and will bring forward a proposal if they regard expenditures as being warranted and in the interests of customers.” (Terasen Reply, p. 17)

### **Commission Determination**

The Commission Panel considers that the omission of an industrial sector program in Terasen’s EEC Application is a significant and unfortunate shortcoming in Terasen’s stated efforts to support the BC Energy Plan (“Energy Plan”) Policy Actions (Exhibit B-1, Appendix 6) with respect to Energy Efficiency in the industrial sector. The Commission Panel takes particular note of Terasen’s specific exclusion of EEC Policy Action 8, which addresses the development of an “Industrial Energy Efficiency Program”. (Exhibit B-1, p. 40; Energy Plan, p. 39)

The Commission Panel takes note of the MEMPR Letter of Comment, and directs Terasen to commence the planning process for the development of an industrial EE program and to file a report outlining the process contemplated and scheduling of the development plan with the Commission for review within 90 days of this Decision. The matters addressed in the report should include those raised by MEMPR in Exhibit C4-1.

### **3.0 ASSESSMENT CRITERIA AND ACCOUNTABILITY**

Terasen believes that the benefit-cost “. . . results for the proposed EEC expenditure in this Application are under-stated, because the benefits used in the calculations include free-riders, effectively reducing the net energy savings, and exclude attribution effects, as well as excluding savings from the proposed expenditure on Joint Initiatives, Trade Relations, Conservation Education and Outreach and Innovative Technologies, Measurement and NGV. However, even with this approach, which could be considered conservative, the Total Resource Cost test result for the EEC portfolio as a whole is positive, with a ratio of 2.9., and a net financial benefit of \$139.4 million. If free rider effects are excluded, as the Companies are proposing, the EEC portfolio has a TRC ratio of 3.1 and a net financial benefit of \$165.1 million.” (Exhibit B-1, pp. 87, 88)

#### **3.1 Portfolio Approach**

Terasen proposes a “portfolio approach” to the benefit-cost analysis which involves assessing the cost effectiveness of the EEC portfolio as a whole, “on an overall combined basis, rather than on individual initiatives or program areas.” (Exhibit B-1, p. 82) Terasen proposes that the portfolio as a whole maintain a TRC ratio of 1.0 or better to allow it to include programs which, on an individual basis, may not have such a ratio in the short term, but have longer term potential to achieve the ratio. This approach would also allow Terasen to offer programs to customers in service areas which would otherwise not have sufficient customer usage to support the necessary TRC ratio. (Exhibit B-1, pp. 11-12)

#### Intervenor Positions

Mr. Plunkett indicates that judging economic performance at the portfolio level only is “problematic”. (Exhibit C5-5, p. 14) He recommends that Terasen establish the cost-effectiveness of each measure and project. (Exhibit C5-5, p. 15)

Terasen states in reply that it is not proposing that economic performance be judged only at the portfolio level and that Mr. Plunkett has mischaracterized its proposal.

Terasen states that “[t]he energy efficiency and fuel switching programs would be planned and evaluated on the TRC, the RIM test, the Utility Cost (“UC”) test and the Participant test, and the overall portfolio TRC test results would have to be greater than 1.0 to proceed.” (Exhibit B-1, p. 83)

However, Terasen also states that it is “not proposing any thresholds with respect to the RIM test, the UC test and the Participant test. In the absence of such thresholds, [it is] not comfortable stating that an activity would proceed or not based on RIM, UC and Participant test results.” Rather, Terasen proposes that “the overall portfolio level TRC must be maintained at 1.0 or greater.” (Exhibit B-4, BCUC 2.19.1)

### **Commission Determination**

The Commission Panel accepts the portfolio level approach based on achieving a portfolio TRC level, discussed below, of 1.0 or greater provided that program areas, initiatives or measures with an individual TRC of less than 1.0 are proactively designed and sufficiently support social or environmental objectives. Consequently, it is important for the components of any portfolio to be capable of analysis on an individual basis. The Commission Panel directs that Terasen include in its annual EEC Report to the Commission the results of the RIM, UC, TRC and Participant tests for each proposed DSM in its portfolio, and provide justification for continuing with any measures or groups of measures which have a TRC of less than 1.0.

### Total Resource Cost Test

Terasen proposes that the benefit-cost tests be used to evaluate its programs as outlined in the “California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects”, which is included in Exhibit B-1 as Appendix 12 (“the California Standard Practice Manual”). (Exhibit B-1, p. 82)

The California Standard Practice Manual describes the Total Resource Cost Test as a cost-effectiveness test which “measures the net cost of a demand-side management program as a resource option based on the total costs of the program, including both the participants’ and the utility’s costs.” (Exhibit B-1, Appendix 12, p. 18)

The “benefits” portion of the TRC test is made up of the avoided supply costs, valued at their marginal cost, for periods when a load reduction results. These costs are “calculated using net program savings, savings net of changes in energy use that would have happened in the absence of the program. For fuel substitution programs, benefits include the avoided device costs and avoided supply costs for the energy, using equipment not chosen by the program participant.” (Exhibit B-1, Appendix 12, p. 18)

The “costs” portion of the TRC test is made up of the program costs paid by the utility and the participants plus any increase in supply costs for periods when load is increased. This is a broad category, and includes all equipment costs, installation, operation and maintenance costs, cost of removal (less any salvage value), and administration costs, regardless of who pays, less any tax credits. For fuel substitution programs, costs also include any increase in the supply costs of the utility providing the chosen fuel. (Exhibit B-1, Appendix 12, p. 18)

The benefit-cost ratio is the ratio of discounted total program benefits to discounted total program costs over a specified period of time. A benefit-cost ratio greater than one indicates the program is beneficial, on the basis of the TRC test. (Exhibit B-1, Appendix 12, p. 19)

### Intervenor Positions

BCOAPO prefers the “Societal test” over other cost-benefit tests which it argues “do not capture the non-economic benefits of DSM programs”. (BCOAPO Argument, p. 4)

According to the California Standard Practice Manual, the “Societal test” is a variant of the TRC test. It differs in that it looks at society as a whole as opposed to the utility’s service territory and includes the effects of externalities, such as environmental implications. It also excludes tax credit benefits and uses a “societal” discount rate.

Mr. Plunkett notes in his evidence that: “[i]ncluding external social and environmental benefits in calculating DSM cost-effectiveness would be to apply the societal test, not the total resource cost (TRC) test. Other jurisdictions such as Vermont and New York apply the societal test as the threshold determinant of DSM cost-effectiveness. Explicitly valuing social and environmental externalities in DSM cost-effectiveness will lead to more efficient resource allocation – and greater societal net benefits – than the economically inferior policy of pursuing a portfolio benefit/cost ratio under the TRC test of 1.0.” (Exhibit C5-7, BCUC 1.5.2)

### **Commission Determination**

The Commission Panel acknowledges the Societal test as one which addresses a broader spectrum of factors not included in the TRC test. While recognising that societal factors have significance, the Commission Panel views many of these factors as being rather subjective and difficult to measure. The Commission Panel also takes note of the DSM Regulation which will apply to Terasen as of June 01, 2009 requiring the Commission to use, in addition to any other test it considers appropriate, the TRC test in determining whether a demand-side measure is cost-effective. While the DSM Regulation is not in effect for the purposes of this Decision, the Commission Panel does consider the TRC test to be appropriate and adequate for the purposes of this Application and accepts it as such.

### 3.2 Free Riders

Terasen seeks certain changes to the cost-benefit analysis undertaken in respect of EEC expenditures, including a proposal to “. . . eliminate the requirement to include free riders in cost-benefit tests, as the energy and emissions reduction goals of the government are absolute goals and do not consider free ridership effects.” (Exhibit B-1, p. 16)

The Application defines free riders as “. . . customers who participate in a program, but would have undertaken the same conservation actions even if the program were not offered”. Terasen’s proposal with respect to free riders includes two tables illustrating an estimated TRC benefit for the EEC Portfolio of \$165.149 million, excluding the effects of free riders, and of \$139.448 million, including the effects of free riders, a difference of \$27.701 million. Terasen’s discussion concludes with the view that “. . . the inclusion of the effects of free riders in the cost-benefit test for EEC programs distorts the value of EEC programs and is counter to the objectives of the energy plan.” (Exhibit B-1, pp. 85-86)

Terasen responded in some detail to Information Requests concerning Free Riders, including the statements that “[f]ree riders are one of the most-debated aspects of DSM cost-benefit tests as they are challenging to establish” and “[e]stimating free rider rates . . . is more of an art than a science.” (Exhibit B-2, BCUC 1.3.1)

It is Terasen’s view that “it should be the outcome [energy consumption reduction] that matters, not the way in which it was achieved.” (Exhibit B-1, p. 86) Terasen states: “. . . [Government] GHG reduction goals make no mention of net-to-gross ratios – in fact they could be considered “gross” GHG reduction goals, and presumably it is gross energy savings that will be counted towards achieving those goals. It makes sense to align gross estimations of energy savings from utility DSM programs with government’s gross GHG reduction goals.” (Exhibit B-2, BCUC 1.3.1)

Terasen notes that “[w]hile it is possible that estimated free rider rates may be higher than forecast, it is also possible that free rider rates may be lower than forecast.” (Exhibit B-2, BCUC 1.46.1)

### Intervenor Positions

With respect to the free rider issue, BCSEA-SCBC’s expert Mr. Plunkett states:

“[Terasen’s] proposal would depart from well-established Commission practice of accounting for savings from program free riders. This not only distorts economic assessment but is also inconsistent with resource planning, since it will overstate how much Terasen should expect to reduce energy supply requirements. It will also distort program design, especially in appliance and equipment replacement markets where the high-efficiency market penetration can change rapidly. Ignoring free ridership would tend to prevent adjustments in minimum qualifying efficiency levels due to a higher-efficiency market baseline.” (Exhibit C5-5, pp.15, 16)

Mr. Plunkett’s concluding recommendation included directing Terasen to modify its plan to “[d]evelop market net-to-gross ratios for programs based on estimates of free-ridership and spillover effects incorporated into program planning and design.” (Exhibit C5-5, p. 23)

BCSEA-SCBC does, however, agree with Terasen that “the inclusion or exclusion of free riders from the analysis makes no practical difference in evaluating the acceptability of this specific EEC plan on an overall basis” although it notes that “failing to incorporate the free-rider factor can distort program design.” (BCSEA-SCBC Argument, p. 19)

BCOAPO expresses the view that “. . . free ridership has the effect of over-crediting EEC programs. BCOAPO agrees that measuring free ridership is difficult, but this difficulty does not mean that it is appropriate to set it to zero.” BCOAPO concurs with Mr. Plunkett’s views with respect to the free rider issue. (BCOAPO Argument, p. 13)



### **Commission Determination**

The Commission Panel notes the position of Terasen, and the acknowledgements of BCOAPO and BCSEA-SCBC that, in the case of the Application, the free rider issue has no immediate practical impact, as the portfolio level TCR results calculated either with or without inclusion of the free rider effect is well above the 'break-even' threshold of 1.0. However, the Commission Panel does consider that this issue is likely to become a factor as the DSM initiatives of Terasen become more fully developed and refined, and therefore should be addressed in this Decision.

The Commission Panel does not agree with Terasen's position that "... the inclusion of the effects of free riders in the cost-benefit test for EEC programs distorts the value of EEC programs and is counter to the objectives of the energy plan." (Exhibit B-1, pp. 85-86) The Commission Panel considers that it would be an unacceptable distortion to measure the effectiveness DSM programs by giving credit to the programs for consumption reductions which, based Terasen's own definition (quoted above), would have taken place absent the incentive program.

The Commission Panel rejects Terasen's proposal to exclude the free rider factor from program effectiveness (TRC) calculations.

### **3.3 Attribution to Regulatory Changes**

Terasen submits that once a proposed regulation and implementation date for minimum efficiency standards for an appliance, building or energy system is announced by a regulating body, it be permitted to attribute savings to market transformation programs for that particular appliance, building or energy system in its cost benefit tests at that time. The proposal involves attributing the savings to the program over a five year span, with adjustment for the level of Terasen's support for the market transformation and the level of financial contribution by others.

Terasen submits that it is reasonable to include attribution savings in a cost-benefit test, particularly in light of the newly issued DSM Regulation. The Regulation permits the Commission to include in the benefit of measures proposed a proportion of the savings resulting from the increased market share of a regulated item because of the commencement and application of a specified standard with respect to the regulated item. (Terasen Argument, p. 39; Exhibit B-1, p. 12; Exhibit B-1, p. 16)

The attribution rates proposed by the Company, for which it seeks approval with this Application, for any such future regulation are outlined below.

Table 6  
Attribution Rates

Regulation Year	Percentage of Savings Attributed to Program
1	50
2	40
3	30
4	20
5	10

Source: Exhibit B-1, p. 87

### Intervenor Positions

BCSEA-SCBC's concern with respect to the attribution concept is based on Mr. Plunkett's evidence that it can distort program design. As with the free-rider factor, BCSEA-SCBC favours the use of net-to-gross ratios. (BCSEA-SCBC Argument, p. 20)

BC Hydro submits that "Terasen Utilities' position on attribution of savings from codes and standards to utility DSM programs is arbitrary and will result in an unrepresentative view of the benefits (higher or lower) associated with some programs." BC Hydro further submits that

“[a]ttribution of savings from codes and standards should be evaluated on a case-by-case basis” and that “the attribution rate should reflect the level of support for market transformation”, arguing that Terasen’s “position on attribution goes against this approach.” (BC Hydro Argument, p. 17)

BCOAPO states “. . . the DSM regulation 4(7) allows for the Commission to include a proportion of the benefit that, in the Commission’s opinion (not the Applicant’s) will increase market share only between the time that a specified standard has been announced, and the time that it commences. Any attribution beyond that will, predictably, distort program design.” (BCOAPO Argument, p. 13) (emphasis in original)

In its Reply, Terasen notes that “BCOAPO and BCSEA-SCBC have made submissions on attribution of benefits. This issue is not relevant to the assessment of the proposed portfolio, as the assessment does not include any attribution of benefits. With respect to the assessment of future portfolios, the Terasen Utilities repeat and rely on the submissions made in paragraphs 109 to 111 of the Initial Submissions” (which argue for the inclusion of attribution savings.) (Terasen Reply, p. 20)

### **Commission Determination**

The Commission Panel notes Terasen’s comment that the attribution issue is not relevant to this Application as the assessment does not include any attribution of benefits. However, as in the case of free riders, the Commission Panel does consider that this issue is likely to become a factor as the DSM initiatives of Terasen become more fully developed and refined, and therefore should be addressed in this Decision.

The Commission Panel accepts the position of BC Hydro that attribution of savings from codes and standards should be evaluated on a case-by-case basis and that the attribution rate should reflect the level of support for market transformation. The Commission Panel shares the BCSEA-SCBC’s

concern, as detailed in Mr. Plunkett's evidence, that the attribution concept can distort program design.

The Commission Panel rejects the Attribution to Regulatory Change proposal made in the Application and refers this issue back to Terasen to redesign and resubmit with its next annual EEC report to the Commission, giving consideration to a modified version of the Application's attribution proposal reflecting the provisions of the DSM Regulation which come into effect for Terasen on June 1, 2009. The Commission Panel directs Terasen to address, in the modified version, the matters raised by BC Hydro and BCSEA-SCBC, and also to give consideration to factors such as the length of time a particular program element has been operative at the time any applicable regulation is introduced and how compatible the program initiative is with the new regulation (e.g. if a regulation is introduced with a higher or lower threshold or standard than the program design).

### **3.4 Carbon Pricing**

As part of the Application, Terasen seeks an order approving certain changes to the benefit-cost analysis undertaken in respect of EEC expenditures, including recognizing the impact of carbon pricing as one of the inputs to the benefit-cost tests. (Exhibit B-1, pp. 15-16)

Terasen proposes that additional customer bill savings from the implementation of the tax should be included in the benefit-cost analysis for EEC programs. Terasen proposes that the activities supported by the EEC Application will contribute to consumer education and provide consumers with tools to help them reduce the impact of the proposed carbon tax on their energy expenditures. (Exhibit B-1, p. 41)

Terasen summarises its position with respect to the carbon tax matter in Argument as follows: "The customers will also enjoy a benefit associated with reduced Carbon Tax costs. Customers that install an efficient appliance or design a more efficient building as a result of Terasen's EEC initiatives will use less gas, and will therefore pay less Carbon Tax. Therefore, the avoided Carbon

Tax was included in the participant benefits, as noted in Appendices 11A and 11B of the Application” [Terasen Argument, p. 21)

### **Commission Determination**

The Commission Panel accepts Terasen’s proposal for the carbon tax reduction as an appropriate factor to be included in computing the EEC cost-benefit analysis.

### **3.5 Accountability Mechanisms**

Terasen summarises its proposal for accountability mechanisms as follows:

“In this Application the Companies have recognized the need for accountability for the funds approved for EEC programs. First, any funds not spent will not be charged to the regulatory asset deferral account. Second, the Companies intend to monitor the portfolio TRC on a monthly basis, and have proposed to file an Annual EEC Report with the Commission by the end of the first quarter every year. The Report will detail program activity, expenditures, and cost-benefit results for the previous year, as well as describe program activity and provide forecasts for the upcoming year. Third, in the event that the relief sought is granted, the Companies would form and engage an EEC stakeholder group with membership representing a broad cross section of stakeholders identified in the Application. Fourth, the Companies have indicated their intention to hold annual EEC workshops with stakeholders, at which the Companies would present updates on program progress and obtain stakeholder input on new programs and refinements to existing programs. Fifth, the Companies are proposing to develop many of the programs for the commercial sector and the DSM for Affordable Housing sector in conjunction with stakeholder advisory groups.” (Terasen Argument, p. 39)

### **Intervenor Positions**

BCSEA-BCSC states that they: “. . . support this [funding] approach, noting that the proposed accountability mechanisms are designed to be more effective and efficient than having on-going Commission involvement in decision-making within the portfolio during the Funding Period” and “BCSEA-SCBC acknowledge and support the additional accountability mechanisms proposed by Terasen in [Terasen Argument] paragraph 112.” (BCSEA-SCBC Argument, pp. 5, 20)

BCOAPO argues that, should the Application be approved, an independent audit process should be required with respect particularly to free ridership, attribution and redirection of funds. (BCOAPO Argument, p. 14)

### **Commission Determination**

The Commission Panel accepts Terasen's accountability undertakings, and considers that, while the proposal to evaluate the EEC project using the TRC test at the Portfolio level has been accepted, TRC calculations for each program area, initiative and measure should also be included in the accountability reporting as a means of assessing the components of the Project and their ongoing effectiveness.

Commission Panel directs that the annual EEC Report include the following:

- TRC, RIM, UC, and Participant test calculations of DSM at the Program Area initiative and individual measure levels in addition to the total Portfolio level reporting. Reporting of the Residential & Commercial EE program areas should also be made at the New Construction and Retrofit levels.
- any inter and intra Program Area initiative funding transfers, with supporting rationale, and the impact of such transfers on the transferor and transferee Program areas, initiatives, and measures as the case may be.
- data for fuel switching programs should be tracked in a manner which allows for reporting types of fuels replaced by natural gas, including estimated GHG impacts.

The Commission Panel also directs Terasen to include in its annual EEC Report to the Commission a discussion of its internal data gathering, monitoring and reporting control processes. The discussion should include a description of how these processes ensure that funds expended and the statistical results of the programs implemented are completely and accurately recorded and monitored, including any related internal check and audit processes. The report should also discuss how Terasen has measured or estimated the results of the EEC expenditure initiatives.

#### 4.0 CAPITALISATION OF INCREMENTAL EEC EXPENDITURES

Terasen's proposed EEC expenditures are summarised and discussed in Section 2.0. Terasen proposes to capitalise the approved incremental expenditures as a regulatory deferral account in the year in which the expenditures are incurred, with amortisation over 20 years commencing the year after the expenditures are made. The proposed amortisation period is addressed in Section 5.0 of this Decision.

Terasen's total EEC expenditures for 2008 to 2010 include operating and maintenance (O&M) expenditures for its previously approved DSM programs for 2008 and 2009. Terasen proposes to charge those O&M costs to operations in those years, with the balance of the total EEC expenditures being added to a new EEC deferral account. This method accounts for the impact of the legacy DSM Operating & Maintenance expenditures having been considered in the PBR and RR Extended Settlements for TGI and TGVI respectively. The reconciliation of the Total EEC expenditures and the amounts expensed and deferred is illustrated in the following table.

Table 7

Deferral Reconciliation	TGI			TGVI		
	2008	2009	2010	2008	2009	2010
Total EEC Expenditures	13,996	15,752	17,196	2,830	3,043	3,793
Expensed per Extended Settlements	1,624	1,624	-	500	500	-
Proposed Deferral Addition	12,372	14,128	17,196	2,330	2,543	3,793

Source: Exhibit B-1, pp. 49, 95, 97

Terasen points out that its proposed accounting treatment to capitalize the EEC expenditures is permitted under current Canadian Institute of Chartered Accountants (CICA) accounting standards. Terasen also notes that, effective 2011, all publicly accountable entities, including it will be required to comply with International Financial Reporting Standards (IFRS). Terasen is of the view

that: “. . . the proposed financial treatment of EEC funding also meets the requirements of IFRS” and goes on to state that “[i]f, however, after further discussion and closer examination in conjunction with auditors and other utilities, the EEC funding failed to pass these [IFRS] tests, then [Terasen] will revisit the program to ensure that it continues in a fashion which maintains an alignment on interests between customers, investors and government policy.” (Exhibit B-1, pp. 81-82)

### Intervenor Positions

BCSEA-SCBC comments on Terasen’s “. . . proposal to capitalize incremental EEC expenditures amortised over 20 years. BCSEA-SCBC supports this concept, including the 20 year amortisation period due to the life-expectancy of gas DSM measures.” (BCSEA-SCBC Argument, p. 17)

### **Commission Determination**

The Commission Panel accepts Terasen’s proposal to capitalize the approved EEC expenditure to a regulatory deferral account, and to amortise the deferral account balances over an appropriate time period. The related issues of the quantum of the expenditures approved and the appropriate amortisation period(s) for the program areas are addressed in other sections of this Decision.



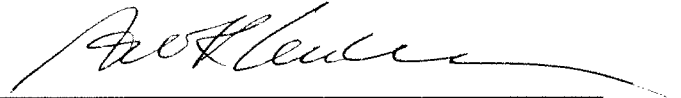
## **5.0 AMORTISATION OF EEC EXPENDITURES**

Terasen proposes to amortise its EEC expenditures, including both program, and incentive and rebate costs, over a 20 year period, based on a calculation of the 22.5 years as the weighted average measurable life of the proposed appliance and energy system installations. Terasen's weighted average calculation is based on achieving estimated volumes, mix and lives of installations for the various measures being proposed. (Exhibit B-1, p. 80, and Appendix 40.2) FortisBC and BC Hydro each use 10 year amortisation periods. (Exhibit B-2, p. 95) Terasen states: "...research failed to uncover any examples where utilities are using or proposing amortisation periods as long as 20 years" for DSM programs. (Exhibit B-2, p. 97)

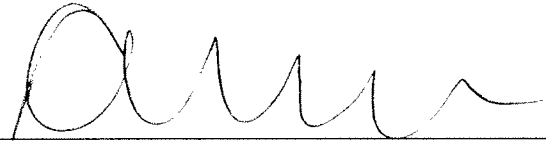
### **Commission Determination**

The Commission Panel rejects the 20 year amortisation period proposed by Terasen. The Commission panel considers the underlying forecast assumptions on which the Terasen methodology is based to be inherently uncertain, and deserving little weight. The Commission Panel does consider that a ten year amortisation period provides a reasonable balance, considering both the DSM objectives and customer impact. Terasen is directed to base its amortisation of approved EEC expenditures over periods not to exceed 10 years.

**DATED** at the City of Vancouver, in the Province of British Columbia, this 16<sup>th</sup> day of April 2009.

A handwritten signature in cursive script, appearing to read 'A.W. Keith Anderson', written over a horizontal line.

A.W. KEITH ANDERSON  
COMMISSIONER

A handwritten signature in cursive script, appearing to read 'Alison A. Rhodes', written over a horizontal line.

ALISON A. RHODES  
COMMISSIONER

**BRITISH COLUMBIA  
UTILITIES COMMISSION**

**ORDER  
NUMBER G-36-09**

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**IN THE MATTER OF  
the Utilities Commission Act, R.S.B.C. 1996, Chapter 473**

**and**

**Terasen Gas Inc. and Terasen Gas (Vancouver Island) Inc.  
Energy Efficiency and Conservation Programs Application**

**BEFORE:** A.W.K. Anderson, Commissioner April 16, 2009  
A.A. Rhodes, Commissioner

**O R D E R**

**WHEREAS:**

- A. On May 28, 2008 Terasen Gas Inc. and Terasen Gas (Vancouver Island) Inc. (collectively "Terasen") filed an application for approval of various concepts and expenditures in support of an expanded energy efficiency and conservation ("EEC") strategy, and to capitalize incremental EEC expenditures by charging the expenditures to a regulatory asset deferral account and amortising the balance over 20 years (the "Application"); and
- B. On June 3, 2008 the British Columbia Utilities Commission ("Commission") issued a letter requesting that interested parties register and file comments on Terasen's proposed timetable before June 11, 2008; and
- C. By Order G-102-08 dated June 19, 2008, the Commission issued a Preliminary Regulatory Timetable which included two rounds of Commission Information Requests and one round of Intervenor Information Requests, and requested comments from all parties on further process for reviewing the Application; and
- D. In response to Order G-102-08, the Commission received replies from Terasen and the following Intervenor: B.C. Ministry of Energy Mines and Petroleum Resources ("MEMPR"), British Columbia Hydro and Power Authority ("BC Hydro"), B.C. Sustainable Energy Association and the Sierra Club of British Columbia ("BCSEA-SCBC"), the Commercial Energy Consumers Association of British Columbia ("CEC"), B.C. Old Age Pensioners' Organization et al. ("BCOAPO"); and
- E. Following its review of comments from Terasen and Intervenor, the Commission issued Letter L-39-08 dated September 8, 2008 ordering a second round of Intervenor Information Requests; and

**BRITISH COLUMBIA  
UTILITIES COMMISSION**

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- F. By Order G-130-08 dated September 18, 2008 the Commission established a Written Hearing Process and Regulatory Timetable for its review of the Application; and
- G. The Written Hearing Process concluded on December 5, 2008 with the filing of Terasen's reply submission; and
- H. The Commission has reviewed and considered the evidence and submissions of Terasen and Registered Intervenor.

**NOW THEREFORE** pursuant to section 44.2 of the Utilities Commission Act, and subject to the specific determinations, qualifications and directions set out in the Decision issued concurrently with this Order, the Commission orders as follows:

- 1. The following proposed expenditures are accepted:
  - (a) \$31.077 million for the combined Residential Energy Efficiency and Commercial Energy Efficiency programs;
  - (b) Expenditures for programs or initiatives directed at fuel switching away from fossil fuels with a higher carbon content than that of natural gas to natural gas;
  - (c) \$6.918 million for the Conservation Education and Outreach program;
  - (d) \$3 million for Joint Initiatives; and
  - (e) \$0.5 million for Conservation Potential Review.
- 2. Expenditures in the sum of \$3 million for Innovative Technologies, Natural Gas Vehicles and Measurement and \$1.5 million for Trade Relations are rejected.
- 3. The proposed portfolio approach is accepted.
- 4. The Total Resource Cost test is accepted as the appropriate test for cost effectiveness.

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5. The proposal to exclude the free rider factor from benefit-cost analyses is rejected.
6. The proposal for Attribution of Regulatory Changes is rejected.
7. The proposal to include carbon tax reductions in computing benefit-cost analyses is accepted.
8. Terasen is to commence the planning process for development of an Industrial EEC program and file a report with the Commission within 90 days of the date of the Decision.
9. The proposal for accountability mechanisms is accepted and Terasen is to file an annual report on its EEC activities as described in the Commission's Decision.
10. Subject to paragraph 11 below, the proposal to capitalise the approved EEC expenditure to a regulatory deferral account and to amortise the deferral account balances is accepted.
11. The proposal to amortise EEC expenditures over a 20 year period is rejected. Terasen is directed to base its amortisation of approved EEC expenditures over periods not to exceed 10 years.

**DATED** at the City of Vancouver, in the Province of British Columbia, this 16<sup>th</sup> day of April 2009.

BY ORDER



A.W.K. Anderson  
Commissioner

IN THE MATTER OF  
the Utilities Commission Act, R.S.B.C. 1996, Chapter 473

and

Terasen Gas Inc. and Terasen Gas (Vancouver Island) Inc.  
Energy Efficiency and Conservation Programs Application

**EXHIBIT LIST**

**Exhibit No.**

**Description**

*COMMISSION DOCUMENTS*

- |     |  |
|-----|--|
| A-1 | Letter dated June 3, 2008 issuing request for comments on process and proposed timetable                       |
| A-2 | Letter dated June 19, 2008 issuing Order No. G-102-08 establishing the Regulatory Timetable                    |
| A-3 | Letter dated June 20, 2008 issuing Commission Information Request No. 1  |
| A-4 | Letter dated July 25, 2008 issuing Commission Information Request No. 2  |
| A-5 | Letter dated September 8, 2008 establishing a Second Round of Information Requests                             |
| A-6 | Letter dated September 12, 2008 issuing Commission Information Request No. 3                                   |
| A-7 | Letter dated September 18, 2008 and Order No. G-130-08 establishing a Written Hearing and Regulatory Timetable |
| A-8 | Letter dated October 22, 2008 issuing Information Request #1 to BC Hydro                                       |
| A-9 | Letter dated October 24, 2008 filing Information Request No. 1 to BCSEA  |

*APPLICANT DOCUMENTS*

- |     |  |
|-----|--|
| B-1 | Letter dated May 28, 2008 filing Energy Efficiency and Conservation Programs Application |
| B-2 | Letter dated July 11, 2008 filing response to the Commission's Information Request No. 1 |

<b>Exhibit No.</b>	<b>Description</b>
B-2-1	<b>CONFIDENTIAL</b> - Letter dated July 11, 2008 filing response to the Commission's Information Request No. 1, Questions 9.2 and 22.1
B-3	Letter dated August 15, 2008 filing response to the Commission's Information Request No. 2
B-4	<b>CONFIDENTIAL</b> - Letter dated August 15, 2008 filing response to the Commission's Information Request No. 2
B-5	Letter dated August 15, 2008 filing response to BC Hydro's Information Request No. 1
B-6	Letter dated August 15, 2008 filing response to BCOAPO's Information Request No. 1
B-7	Letter dated August 15, 2008 filing response to BC Sustainable Energy Assoc & Sierra Club of Canada Information Request No. 1
B-8	Letter dated August 15, 2008 filing response to the Commercial Energy Consumers Association of BC's Information Request No. 1
B-9	Letter dated August 15, 2008 filing response to the Ministry of Energy, Mines & Petroleum Resources' Information Request No. 1
B-10	Letter dated August 15, 2008 filing response to the Rental Owners & Managers Society of BC's Information Request No. 1
B-11	Letter dated August 27, 2008 filing comments on submissions from Intervenor and on the further procedural process
B-12	<b>WITHDRAWAL ORIGINAL B-11, AMENDED AND REPOSTED</b> - Letter dated October 6, 2008 filing response to the Commission's Information Request No. 3
B-13	<b>WITHDRAWAL ORIGINAL B-12, AMENDED AND REPOSTED</b> - Letter dated October 6, 2008 filing response to the BCOAPO's Information Request No. 2
B-14	<b>WITHDRAWAL ORIGINAL B-13, AMENDED AND REPOSTED</b> - Letter dated October 6, 2008 filing response to the BCSEA's Information Request No. 2
B-15	Letter dated October 24, 2008 issuing Information Request No. 1 to BC Hydro and Power Authority
B-16	Letter dated October 24, 2008 issuing Information Request No. 1 to BCSEA and SCBC

<b>Exhibit No.</b>	<b>Description</b>
<i>INTERVENOR DOCUMENTS</i>	
C1-1	<b>MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES (MEMPR)</b> – Letter dated June 10, 2008 from Duane Chapman, Senior Regulatory Advisor, requesting participation in the proceedings
C1-2	Letter dated July 24, 2008 filing MEMPR’s Information Request No. 1
C1-3	Letter dated August 27, 2008 filing comments on further procedural process
C1-4	Letter dated October 24, 2008 filing comment for consideration
C2-1	<b>BRITISH COLUMBIA HYDRO &amp; POWER AUTHORITY (BC HYDRO)</b> – Online web registration received June 10, 2008 filing request for Intervenor status
C2-2	Letter dated June 11, 2008 filing comments on the regulatory review process and timetable
C2-3	Letter dated July 25, 2008 filing Information Request No. 1 to Terasen
C2-4	Letter dated August 27, 2008 filing comments on further procedural process
C2-5	Letter dated September, 2008 filing request for an extension for filing Intervenor Evidence
C2-6	Letter dated October 14, 2008 filing BC Hydro’s Evidence
C2-7	Letter dated November 7, 2008 filing responses to the Commission’s and Terasen Utilities’ Information Request No. 1
C3-1	<b>RENTAL OWNERS AND MANAGERS SOCIETY OF BC (ROMS)</b> – Letter dated June 10, 2008 from Al Kemp, CEO, requesting Intervenor status
C3-2	Letter dated July 21, 2008 filing Information Request No. 1 to Terasen
C4-1	<b>BRITISH COLUMBIA OLD AGE PENSIONERS ORGANIZATION (BCOAPO)</b> - Letter dated June 11, 2008 request for Registered Intervenor status for Leigha Worth, Eugene Kung, and James Wightman of Econalysis Consulting
C4-2	Letter dated June 11, 2008 filing comments on procedural matters



<b>Exhibit No.</b>	<b>Description</b>
C4-3	Letter dated July 25, 2008 filing Information Request No. 1 to Terasen
C4-4	Letter dated August 27, 2008 filing comments on further procedural process
C4-5	Letter dated September 15, 2008 filing Information Request No. 2 to Terasen
C5-1	<b>BC SUSTAINABLE ENERGY ASSOCIATION (BCSEA) AND THE SIERRA CLUB OF CANADA (BRITISH COLUMBIA CHAPTER) (SCCBC)</b> - Letter dated June 11, 2008 request for Registered Intervenor status
C5-2	Letter dated July 25, 2008 filing Information Request No. 1 to Terasen
C5-3	Letter dated August 27, 2008 from William J. Andrews, legal counsel, filing comments on further procedural process
C5-4	Letter dated September 15, 2008 filing Information Request No. 2 to Terasen
C5-5	Letter dated October 14, 2008 filing BCSEA et al Evidence
C5-6	Letter dated October 16, 2008 filing Errata to Evidence (Exhibit C5-5)
C5-7	Letter dated November 7, 2008 filing response to the Commission's Information Request
C5-8	Letter dated November 7, 2008 filing response to Terasen's Information Request with worksheet
C6-1	<b>FORTISBC INC.</b> - Letter dated June 12, 2008 from Joyce Martin, filing request for Registered Intervenor status
C7-1	<b>PACIFIC NORTHERN GAS LTD. (PNG)</b> – Online web registration received June 18, 2008 from Craig Donohue filing request for Intervenor status
C8-1	<b>COMMERCIAL ENERGY CONSUMERS ASSOCIATION OF BC (CECBC)</b> - Letter dated June 18, 2008 from Christopher Weafer, Owen Bird, legal counsel, filing request for Registered Intervenor status and comments
C8-2	Letter dated July 25, 2008 filing Information Request No. 1 to Terasen
C8-3	Letter dated August 27, 2008 from Christopher Weafer, Owen Bird, legal counsel, filing comments on further procedural process

<b>Exhibit No.</b>	<b>Description</b>
C9-1	<b>DIRECT ENERGY MARKETING LIMITED (DEML)</b> - Online web registration dated June 25, 2008 from Chad Painchaud, filing request for Registered Intervenor status
<i>LETTERS OF COMMENT</i>	
E-1	<b>CANADIAN MORTGAGE AND HOUSING CORPORATION (CMHC – SCHL)</b> - Letter of Comment dated June 16, 2008, faxed from Lance Jakubec, Senior Research Consultant, in support of the application
E-2	<b>CITY GREEN SOLUTIONS</b> – Letter of Comment received June 17, 2008 from Peter Sundberg, Executive Director
E-3	<b>LIGHT HOUSE SUSTAINABLE BUILDING CENTRE</b> - Letter of Comment received June 17, 2008 from Helen Goodland
E-4	<b>CANADIAN HOME BUILDERS' ASSOCIATION (VICTORIA) (CHBA)</b> - Letter of Comment received June 18, 2008 from Casey Edge, Executive Officer
E-5	<b>HEARTH, PATIO &amp; BARBECUE ASSOCIATION OF CANADA (HPBAC)</b> - Letter of Comment received June 18, 2008 from Tony Gottschalk, Manager
E-6	<b>FRASER BASIN COUNCIL</b> – Letter of Comment received June 20, 2008 from Bob Purdy, Director, Corporate Development & Communications
E-7	<b>PACIFIC RESOURCE CONSERVATION SOCIETY</b> – Letter of Comment received June 24, 2008 from Darla Simpson, Executive Director
E-8	<b>CANADIAN HOME BUILDERS' ASSOCIATION (KAMLOOPS) (CHBA)</b> - Letter of Comment dated June 25, 2008 from Patsy Bourassa, Executive Officer
E-9	<b>URBAN DEVELOPMENT INSTITUTE – PACIFIC REGION (UDI)</b> - Letter of Comment dated July 3, 2008 from Jeff Fisher, Deputy Executive Director
E-10	<b>FRASER VALLEY HOME BUILDERS ASSOCIATION (FVHBA)</b> - Letter of Comment dated July 8, 2008 from Jan Field, Executive Officer
E-11	<b>CANADIAN MANUFACTURERS &amp; EXPORTERS – BC DIVISION</b> - Letter of Comment dated July 5, 2008 from Craig Williams, Vice President
E-12	<b>NATURAL RESOURCES CANADA</b> - Letter of Comment dated July 9, 2008 from John Cockburn, Director, Office of Energy Efficiency

<b>Exhibit No.</b>	<b>Description</b>
E-13	<b>CANADIAN HOME BUILDERS ASSOCIATION OF BC (CHBA BC)</b> - Letter of Comment dated July 8, 2008 from M.J. Whitemarch, Chief Executive Officer
E-14	<b>CITY OF NANAIMO</b> - Letter of Comment dated July 10, 2008 from Gary Korpan, Mayor
E-15	<b>CITY OF VICTORIA</b> - Letter of Comment dated July 15, 2008 from Alan Lowe, Mayor
E-16	<b>CITY OF LANGFORD</b> - Letter of Comment dated July 22, 2008 from Rob Buchan, Clerk-Administrator
E-17	<b>TOWN OF LADYSMITH</b> – Letter of Comment dated July 24, 2008 from Mayor Robert Hutchins
E-18	<b>CORPORATION OF THE VILLAGE OF CUMBERLAND</b> - Letter of Comment dated July 18, 2008 from Christine Makarowski, Corporate Services Manager
E-19	<b>THE CORPORATION OF THE CITY OF NORTH VANCOUVER</b> - Letter of Comment dated July 29, 2008 from Darrell Mussatto, Mayor
E-20	<b>THE CORPORATION OF THE DISTRICT OF WEST VANCOUVER</b> - Letter of Comment dated July 30, 2008 from Clay Nelson, Manager
E-21	<b>BROOK + ASSOCIATES INC.</b> - Letter of Comment dated July 2, 2008 from Blair Chisholm, Planning Manager
E-22	<b>CITY OF POWELL RIVER</b> - Letter of Comment dated July 30, 2008 from Mair Claxton, City Clerk
E-23	<b>CORPORATION OF DELTA</b> - Letter of Comment dated July 30, 2008 from Lois E. Jackson, Mayor
E-24	<b>BC CHAMBER OF COMMERCE</b> - Letter of Comment dated August 11, 2008 from John R. Winter, President & CEO
E-25	<b>CANADIAN GAS ASSOCIATION</b> - Letter of Comment dated August 14, 2008 from Michael Cleland, President & CEO
E-26	<b>CITY OF SURREY</b> - Letter of Comment dated August 11, 2008 from Dianne L. Watts, Mayor
E-27	<b>BUSINESS COUNCIL OF BRITISH COLUMBIA</b> - Letter of Comment dated August 15, 2008 from Virginia Greene, President & CEO

**BRITISH COLUMBIA  
UTILITIES COMMISSION**

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TELEPHONE: (604) 660-4700  
BC TOLL FREE: 1-800-663-1385  
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SIXTH FLOOR, 900 HOWE STREET, BOX 250  
VANCOUVER, B.C. V6Z 2N3 CANADA  
web site: <http://www.bcuc.com>



IN THE MATTER OF  
the Utilities Commission Act, R.S.B.C. 1996, Chapter 473

and

An Application by Terasen Gas (Vancouver Island) Inc.  
for Approval of 2010 and 2011 Revenue Requirements, Rates, Cost of Service, Rate Design and  
Revenue Deficiency Deferral Account Balance as at December 31, 2008

**BEFORE:**

A.W.K. Anderson, Panel Chair/Commissioner  
D.A. Cote, Commissioner  
M.R. Harle, Commissioner

November 26, 2009

**O R D E R**

**WHEREAS:**

- A. On June 29, 2009, Terasen Gas (Vancouver Island) Inc. ("TGVI") filed an application for approval of interim and permanent delivery rates effective January 1, 2010 (the "Application") pursuant to sections 59 to 61 and 89 of the *Utilities Commission Act* (the "Act") and section 2.1 of the Special Direction to the British Columbia Utilities Commission ("Commission") issued pursuant to Order in Council 1510 ("Special Direction"), requesting (a) no change in 2009 sales service rates and (b) a reduction in rates for firm transportation service, other than for those customers who have specified rates in their transportation service agreements, in the amount of 4.75 percent; and
- B. TGVI proposed that the rates established for 2010 should also remain in place for 2011; and
- C. TGVI also applied pursuant to sections 59 to 61 of the Act and section 2.10(a)(i) of the Special Direction for interim and permanent approval of TGVI's forecast cost of service for 2010 and 2011, subject to the need to recover any Accumulated Revenue Deficiency in the Revenue Deficiency Deferral Account after December 31, 2009 and any changes in TGVI's return on equity; and
- D. TGVI also applied pursuant to section 2.10(f) of the Special Direction for approval of the December 31, 2008 year-end balance in the Revenue Deficiency Deferral Account in the amount of \$7,149,210, and for approval of other items identified in the Special Direction; and
- E. TGVI sought other approvals in the Application, including orders pursuant to sections 59 to 61 of the Act, approving Tariff changes effective January 1, 2010 for Compression and Refueling and Transportation Services for Natural Gas Vehicles, and economic models for evaluating biogas projects and alternative energy extensions for geo-exchange, solar thermal and district energy systems to complement its core natural gas business; and
- F. TGVI proposed a written hearing process to address the Application but was open to a negotiated settlement process ("NSP"); and

**BRITISH COLUMBIA  
UTILITIES COMMISSION**

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- G. On July 2, 2009, the Commission Panel issued Order G-84-09, which provided for a Workshop on July 13, 2009 and a first Procedural Conference on July 15, 2009 to hear submissions on the appropriate regulatory process and TGV's proposed preliminary regulatory timetable attached to that order; and
- H. In accordance with Order G-84-09, TGV held a Workshop to review the Application on Monday, July 13, 2009; and
- I. Procedural Conference No. 1 was held on Wednesday, July 15, 2009 at which the Commission Panel heard submissions regarding the Application process and inclusion of Alternative Energy Solution proposals within the process; and
- J. The Commission Panel considered the Submissions received at Procedural Conference No. 1, and concluded that a Regulatory Timetable establishing a second Procedural Conference following TGV's responses to the second round of Information Requests was required. It was also determined that proposed Alternative Energy Solutions included in TGV's Applications would be reviewed as part of the Revenue Requirements proceedings, that information requests consistent with TGI would be cross referenced to those requests, and that interim rates and the Revenue Surplus Deferral Account were not approved at that time and would be reviewed at the second procedural conference; and
- K. Procedural Conference No. 2 was held on Friday, September 25, 2009 at which the Commission Panel heard further submissions regarding the process of the Application, location of the proceedings and other matters that would assist the Commission's efficient review of the Application. Primary issues raised were whether a separate Certificate of Public Convenience and Necessity ("CPCN") review was required for the Alternative Energy Solutions proposed in the Application and whether the regulatory process should be in the form of an oral or written hearing or NSP; and
- L. Intervenor did not request a separate CPCN process for the Alternative Energy Solutions and all Intervenor supported an NSP for the review of the Application. The Intervenor submitted that in the event the NSP does not successfully resolve all issues, an Oral Public Hearing should be subsequently ordered by the Commission Panel. TGV requested that if an Oral Public Hearing is established that it be limited in scope; and
- M. TGV proposed a delay in its application for interim rate approval until the end of November. If a Commission decision has been issued on the Terasen Gas allowed return on equity and capital structure and this Application (the "Applications") by the end of November, then it will apply for approval of permanent rates effective January 1, 2010. If a Commission decision has not been issued on the Applications by the end of November, then TGV will apply for interim rates effective January 1, 2010; and
- N. By Order G-120-09 the Commission Panel established a negotiated settlement process for the review of the Application commencing on October 29, 2009; and
- O. On November 13, 2009, the Negotiated Settlement Agreement ("NSA"), together with the Letters of Support received from the participants in the NSP ("Settlement Package"), was made public and circulated to the Commission Panel; and
- P. The Settlement Package was also distributed to Registered Intervenor who did not participate in the NSP ("Other Intervenor"). The Other Intervenor were requested to provide their comments on the Settlement Package to the Commission by November 20, 2009. The Commission Panel received no comments from Other Intervenor regarding the Settlement Package; and

**BRITISH COLUMBIA  
UTILITIES COMMISSION**

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- Q. The Commission Panel, having reviewed the proposed NSA and the comments related thereto and noting the support of all parties to the Proposed Settlement, in which only sections 7.1 (a) and (b) are severable, subject to the provisions of section 7.2, considers that approval is warranted.

**NOW THEREFORE** pursuant to sections 59 to 61 and 89 of the Act and the Special Direction issued pursuant to Order in Council 1510 the Commission orders as follows:

1. The Negotiated Settlement Agreement attached as Appendix A to this Order is approved.
2. TGVl is to file an amended Summary of Rates and Bill Comparison schedules based on the Negotiated Settlement Agreement.
3. The Commission will accept, subject to timely filing by TGVl, amended permanent Gas Tariff Rate Schedules in accordance with the terms of this Order. TGVl is to provide notice of the permanent rates to customers via a bill message, to be reviewed in advance by Commission Staff to confirm compliance with this Order.

**DATED** at the City of Vancouver, In the Province of British Columbia, this 26<sup>th</sup> day of November 2009.

BY ORDER

*Original signed by:*

A.W.K. Anderson  
Panel Chair/Commissioner

Attachment



ERICA HAMILTON  
COMMISSION SECRETARY  
Commission. Secretary@bcuc.com  
web site: <http://www.bcuc.com>

SIXTH FLOOR, 900 HOWE STREET, BOX 250  
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BC TOLL FREE: 1-800-663-1385  
FACSIMILE: (604) 660-1102

Log No. 29924

VIA EMAIL

November 13, 2009

Registered Intervenor  
(TGVI-2010-11RR-RI)

Dear Registered Intervenor:

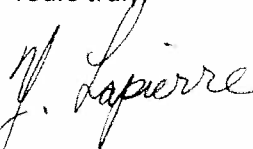
Re: Terasen Gas (Vancouver Island) Inc.  
2010-2011 Revenue Requirements and Rate Design Application  
Negotiated Settlement

Enclosed with this letter is the proposed settlement package for Terasen Gas (Vancouver Island) Inc.'s 2010-2011 Revenue Requirements and Rate Design Application.

This settlement package is now public and is being submitted to the Commission and all Intervenor. Also enclosed are Letters of Comment received to date from the participants in the negotiated settlement process.

Prior to consideration by the Commission, Intervenor who did not participate in the settlement negotiations are requested to provide to the Commission with their comments on the settlement package by Friday, November 20, 2009. Thereafter, the Commission will consider the settlement package. A public hearing may not be required unless there is significant opposition to the proposed settlement.

Yours truly,

  
for Erica M. Hamilton

PWN/yl

Attachments

cc: Mr. Tom Loski  
Chief Regulatory Officer  
Terasen Gas Inc.  
(Via Email: [regulatory.affairs@terasengas.com](mailto:regulatory.affairs@terasengas.com))

November 13, 2009

British Columbia Utilities Commission  
Sixth Floor, 900 Howe Street  
Vancouver, B.C.  
V6Z 2N3

Attention: Mr. Philip Nakoneshny, Director, Rates and Finance

Dear Mr. Nakoneshny:

**Re: Terasen Gas (Vancouver Island) Inc. ("TGVI")**  
**2010 and 2011 Revenue Requirements and Rate Design Application**  
**Negotiated Settlement Agreement**

---

On June 29, 2009, TGVI filed its 2010 and 2011 Revenue Requirements Application, Rates, Cost of Service, Rate Design and Revenue Deficiency Deferral Account Balance as at December 31, 2008 which was amended by filings on July 23 and September 22, 2009 (the "Application").

In accordance with Commission Order No. G-84-09 issued on July 2, 2009, a Workshop was held on July 13, 2009 for a review of the Application, a Procedural Conference was held on July 15, 2009, and TGVI responded to two rounds of Information Requests. In accordance with Commission Order No. G-90-09 issued on July 20, 2009, a second Procedural Conference was held on September 25, 2009 and on October 2, 2009, the Commission issued Order G-120-09 establishing a Negotiated Settlement Process ("NSP") for the Application. In accordance with Order No. G-120-09, the NSP commenced on Tuesday, November 3, 2009 and concluded on Thursday, November 5, 2009.

TGVI has reviewed the attached settlement documents, including the Negotiated Settlement Agreement and associated financial schedules (collectively the "Negotiated Settlement") arising from the NSP. TGVI recognizes the Negotiated Settlement as being the product of good faith compromises among parties with diverse interests of the issues raised by the Application. In fulfilling their role pursuant to the Commissions NSP Guidelines, Commission Staff made additional information available to the parties which they believed was in the public interest. The parties considered all such information in reaching the compromise Settlement Agreement and Terasen Gas considers the resulting Negotiated Settlement to be fair, just and reasonable. As the Negotiated Settlement represents compromises among the parties and an overall balance of interests, TGVI stresses that the Negotiated Settlement



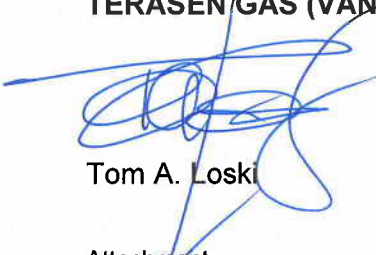
should be considered as a package, with no part being severed unless otherwise stated in the Agreement. On that basis, TGVI accepts the Negotiated Settlement.

TGVI would like to express sincere thanks to Commission Staff and Intervenor representatives for their active participation in achieving this Negotiated Settlement Agreement on the Application. TGVI also wishes to thank the NSP facilitator, Mr. Paul Cassidy, for his leadership, guidance and assistance to all parties throughout the NSP process.

If there are any questions regarding the attached, please contact the undersigned.

Yours very truly,

**TERASEN GAS (VANCOUVER ISLAND) INC.**



Tom A. Loski

Attachment

cc (e-mail only): Parties to the NSP

**CONFIDENTIAL**  
**NEGOTIATED SETTLEMENT AGREEMENT**  
**TERASEN GAS (VANCOUVER ISLAND) INC.**  
**DATED THURSDAY, NOVEMBER 5**

IN THE MATTER OF  
the Utilities Commission Act, R.S.B.C. 1996, Chapter 473  
and

An Application by Terasen Gas (Vancouver Island) Inc.  
for Approval of 2010 and 2011 Revenue Requirements, Rates, Cost of Service, Rate  
Design and Revenue Deficiency Deferral Account Balance as at December 31, 2008  
Negotiated Settlement Process

WHEREAS:

- A. On June 29, 2009, Terasen Gas (Vancouver Island) Inc. ("TGVI") filed its 2010 and 2011 Revenue Requirements Application, Rates, Cost of Service, Rate Design and Revenue Deficiency Deferral Account Balance as at December 31, 2008 which was amended by filings on July 23 and September 22, 2009 (the "Application"); and
- B. Amongst other things, the Application sought:
1. An order pursuant to sections 59 to 61 of the *Utilities Commission Act* (the "Act"), section 2.1 of the Vancouver Island Natural Gas Pipeline Special Direction ("Special Direction"), approving permanent rates for Core Market customers, effective January 1, 2010. As set out in Part III, Section B, Tab 3 of the Application, compared to 2009 rates, the service rates for which TGVI seeks approval are the same as 2009 sales service rates; and
  2. An order pursuant to sections 59 to 61 of the Act and section 2.1 of the Special Direction, approving permanent rates for transportation customers, other than those transportation customers who have specified rates in their transportation service agreements. As set out in Part III, Section B, Tab 3 of the Application, the rates for which TGVI seeks approval are:
    - a. A reduction in rates for firm transportation service in the amount of 5.18% (as compared to 2009), effective January 1, 2010; and
    - b. A reduction in rates for summer interruptible transportation service in the amount of 5.18% (as compared to 2009), effective January 1, 2010; and
    - c. Winter interruptible rates of \$1.384/GJ effective January 1, 2010 and of \$1.401/GJ effective January 1, 2011; and
  3. These rates are subject to (a) the need to recover any Accumulated Revenue Deficiency in the RDDA after December 31, 2009 as explained in Part III, Section B, Tab 2 and (b) changes in TGVI's allowed return on equity as described in Part III, Section C, Tab 10; and

**CONFIDENTIAL**  
**NEGOTIATED SETTLEMENT AGREEMENT**  
**TERASEN GAS (VANCOUVER ISLAND) INC.**  
**DATED THURSDAY, NOVEMBER 5**

4. An order pursuant to section 2.10(a)(i) of the Special Direction approving TGV's forecast Cost of Service for 2010 and 2011, as set out in Part III, Section C, Tab 2 of the Application, but subject to (a) the need to recover any Accumulated Revenue Deficiency in the RDDA after December 31, 2009 as explained in Part III, Section B, Tab 2 and (b) changes in TGV's allowed return on equity as described in Part III, Section C, Tab 10; and
5. An order pursuant to sections 59 to 61 of the Act approving the schedule of demand and commodity charges as set out in Schedule A of Tariff Supplement No. 4 (Storage and Delivery Agreement between TGI and TGV), as set out in Part III, Section B, Tab 3 of the Application.
6. An order pursuant to sections 59 to 61 of the Act approving the creation of the Rate Stabilization Deferral Account ("RSDA"), effective January 1, 2010, for the purposes of capturing any annual revenue surplus in 2010 and 2011, with any balance at the end of 2011 to be returned to Core Market customers beginning January 1, 2012 in the manner described in Part III, Section D, Tab 1.
7. An order pursuant to sections 59 to 61 of the Act approving the creation of the 2009 Revenue Surplus Account for the purposes of capturing any 2009 revenue surplus in excess of the amount needed to eliminate the debit balance in the RDDA, and its proposed allocation to customers and amortization as set out in Part III, Section D, Tab 1 of the Application.
8. An order pursuant to section 2.10(a)(i) of the Special Direction approving its forecast capital expenditures for 2010 and 2011, as set out in Part III, Section C, Tab 9 of the Application.
9. An order pursuant to section 2.10(a)(ii) of the Special Direction approving its forecast Revenue for 2010 and 2011, based on its proposed rates, as set out in Part III, Section D, Tab 1 of the Application.
10. An order approving the forecast gross O&M expenditures for the forecast period 2010 and 2011, as determined through and supported by Part III, Section C, Tab 6 of the Application of \$32,104,700 and \$33,650,000 respectively, and to fix those amounts for the purposes of determination of RDDA and/or RSDA balances at the end of each year.
11. An order pursuant to section 2.10 (f) of the Special Direction approving the December 31, 2008 year end balance in the RDDA of \$7,149,210, as set out in Part III, Section B, Tab 2 of the Application.
12. An order pursuant to section 44.2 of the Act approving an expenditure schedule for the continuation in 2011 of TGV's residential and commercial Energy Efficiency and Conservation ("EEC") funding, as well as new EEC funding for 2010 and 2011 for innovative technologies; and

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13. New tariff offerings and economic tests for Compression and Refuelling and Transportation Services for Natural Gas Vehicles ("NGV"), geo-exchange, solar thermal and district energy systems and a pilot program for Biogas; and
- C. A complete listing of the relief sought by TGVl in the Application was included in Section E (pages 436-443)<sup>1</sup> of the Application; and
- D. In accordance with Commission Order No. G-84-09 issued on July 2, 2009, a Workshop was held on July 13, 2009 for a review of the Application, a procedural conference was held on July 15, 2009, and TGVl responded to two rounds of Information Requests; and
- E. In accordance with Commission Order No. G-90-09 issued on July 20, 2009, a second procedural conference was held on September 25, 2009; and
- F. On October 2, 2009, the Commission issued Order G-120-09 establishing a Negotiated Settlement Process ("NSP") for the Application; and
- G. The Parties to the NSP were TGVl, British Columbia Old Age Pensioners et al. ("BCOAPO"), Commercial Energy Consumers Association of British Columbia ("CEC") and British Columbia Hydro and Power Authority ("BC Hydro") (collectively referred to in this Agreement as the "Parties"); and
- H. At the outset of the NSP on November 3, 2009, Commission Staff provided the Parties with a document prepared by the Commission Panel titled "Issues of Particular Concern to the Commission Panel", a copy of which is appended as Appendix 1 to this Agreement; and
- I. The NSP was held on November 3-5, 2009; and
- J. The Parties have negotiated in good faith to achieve a compromise settlement, reflected in this Agreement, of the issues raised by the Application, and further consider the Agreement reached to be fair, just and reasonable; and
- K. This Agreement consists of four sections:
- Part I includes general provisions;
- Part II includes the items agreed to that differ from what was requested in the Application;
- Part III includes the items agreed to that remain as proposed by TGVl in the Application; and
- Part IV includes revised financial schedules reflecting all items set out in the Agreement.

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<sup>1</sup> Pages 436 and 437 of the Application were amended on July 23, 2009 and pages 438 to 443 were amended on September 22, 2009.

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**NOW THEREFORE THE PARTIES AGREE AS FOLLOWS**

**PART I – GENERAL**

**1. Agreement a Product of Compromise**

The Parties recognize and emphasize that this Agreement is the product of compromise on the part of all Parties, yielding an overall package that the Parties consider to be fair, just and reasonable. The Parties agree that any compromises resulting from this Agreement are without prejudice to the Parties' ability to take different positions after 2011 and without prejudice to the Parties right to intervene in any applications contemplated in or resulting from this Agreement.

**2. Whole Agreement**

The Parties agree that, unless otherwise stated in this Agreement, portions of this Agreement cannot be removed or changed by the Commission without nullifying the whole Agreement.

**3. TGVI to Manage Business**

The Parties agree that TGVI will have the discretion to manage its business and determine how best to allocate the overall O&M and Capital expenditures stipulated in this Agreement.

**4. Final IFRS Rate-regulated Activity Standard**

The Parties acknowledge that this Agreement is predicated on the Final IFRS Rate-regulated Activity Standard permitting the financial accounting treatment contemplated in this Agreement in the manner outlined in the current Exposure Draft on Rate-regulated Activities. The Parties agree that if, in TGVI's opinion, the Final IFRS Rate-regulated Activity Standard differs from the current Exposure Draft on Rate-regulated Activities so as not to permit the financial accounting treatment contemplated in this Negotiated Settlement Agreement, which among other things anticipates the recognition of regulatory assets and liabilities for external reporting purposes, then TGVI is at liberty to apply to the Commission during the period of this Agreement for a determination of that issue, and to seek changes in the regulatory treatment contemplated in this Agreement to accord with the Final IFRS Rate-regulated Activity Standard, with the resulting impacts flowed through into rates commencing in 2011.

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**PART II – AGREED CHANGES FROM THE APPLICATION**

**5. Use Per Customer Rates**

The Parties agree that the use per customer rates will be as set out in the Application.

**6. Energy Efficiency and Conservation (“EEC”) Funding for 2010**

The Parties agree as follows in respect of the EEC funding sought by TGV I for 2010:

- (a) TGV I will reallocate from residential and commercial EEC programs an additional \$0.4 million from the amount approved for 2010 in the EEC Decision<sup>2</sup> to low income and rental housing programs. This brings the total for low income and rental housing programs to \$0.6 million for 2010 (currently at \$0.2 million).
- (b) EEC funding for innovative technologies will be \$0.478 million for 2010, which is the amount requested by TGV I in the Application.
- (c) All agreed to EEC expenditures will be considered and evaluated within the existing portfolio, and be subject to the same financial treatment, as per the Commission’s EEC Decision dated April 16, 2009 (Application, page 438, Item 15). However, Innovative Technology programs will be managed by TGV I as a separate segment of the overall portfolio to have a weighted average Total Resource Cost (“TRC”) of 1.0 or more. TGV I will consult with stakeholders on the practical application of the weighted average TRC through the EEC Advisory Committee.

**7. EEC Funding for 2011**

7.1 The Parties agree as follows in respect of the EEC funding sought by TGV I for 2011:

- (a) EEC funding for residential and commercial programs for 2011 will be \$4.726 million, which is the amount requested by TGV I in the Application.
- (b) TGV I will reallocate from 2011 residential and commercial EEC funding (\$4.726 million for 2011) an additional \$0.4 million to low income and rental housing programs. This brings the total for low income and rental housing programs to \$0.6 million for 2011.
- (c) EEC funding for innovative technologies will be \$0.956 million for 2011, which is the amount requested by TGV I in the Application.

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<sup>2</sup> Decision and Order No. G-36-09 dated April 16, 2009 in the TGI-TGV I Energy Efficiency and Conservation Application.

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- (d) All agreed to EEC expenditures will be considered and evaluated within the existing portfolio, and be subject to the same financial treatment, as per the Commission's EEC Decision dated April 16, 2009 (Application, page 438, Item 15). However, Innovative Technology programs will be managed by TGVI as a separate segment of the overall portfolio to have a weighted average TRC of 1.0 or more. TGVI will consult with stakeholders on the practical application of the weighted average TRC through the EEC Advisory Committee.
- (e) TGVI will report to the Commission on innovative technology programs as part of TGVI's annual report on EEC activities required under the EEC Decision.

The Parties offer the following rationale for the agreed upon 2011 EEC funding.

All Parties agree that it is important to maintain EEC funding levels in 2011 to allow customers to have continued access to EEC programs and incentives. The residential and commercial EEC programs relating to the \$4.726 million funding in 2011 on a portfolio basis in aggregate have a TRC of one or more. This means that, from a resource perspective and on a portfolio basis, these programs are expected to yield favourable results for customers. The predictability and continuity of these programs on a sustained basis is critical to their overall success.

Issue No. 1 in the Commission Panel's "Issues of Particular Concern to the Commission Panel" stated:

"EEC Program – TGVI is to provide results of programs approved by the EEC Decision and expectations for new programs before the Commission Panel will approve additional EEC program funding."

There are practical difficulties associated with the approach identified by the Commission Panel. They include the following:

- As per the EEC Decision (Order No. G-36-09), TGVI will be reporting 2009 activities and results by no later than March 31, 2010. This report will also outline the forecasted activities and programs for 2010. Recognizing the timing of the recent EEC Decision and its current implementation in the Fall of 2009, the EEC Report for 2009 results will give the Commission and stakeholders another check point to validate the level of spend for 2011. However, there is expected to be very little additional information on the results of programs available in March 2010 than exists presently and is included in the evidentiary record of this proceeding. TGVI's EEC programs only completed start up phase in the Fall of 2009. It typically takes longer than 6-8 months to achieve momentum with EEC programs. There will be no information available in March 2010 on results for programs relating to innovative technologies initiated in 2010 as a result of this Agreement. The information that the Commission Panel appears to desire will be more likely included in TGVI's 2010 results report to be filed in March 2011.

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- Employees responsible for the programs at TGVI, whose salaries are funded from EEC funding, will face the prospect of losing their jobs in 2011. This could lead to employee retention issues. Employee turnover issues may disrupt the program implementation progress and potentially be more costly if EEC activity is ceased and later resumed.
- Programs will need to begin winding down in advance of 2011 if the 2011 funding is not approved. For example, programs will need to have an end date of December 31, 2010 which may not yield positive results since programs will be winding up in the middle of the heating season.

7.2 The Parties agree that the Commission may sever Section 7.1 (a) and (b) above from this Agreement, with the remainder of this Agreement remaining in force and effect. If the Commission severs Section 7.1 (a) and (b), then the Parties agree that the following provisions take effect:

- (a) The Residential and Commercial EEC programs totaling \$4.726 million in 2011 will be removed from the EEC expenditure forecast and the revenue requirements for 2011. (If 7.2 takes effect, the financial schedules in Part IV of this Agreement and the cost of service/revenue requirements resulting from this Agreement will be revised to reflect this).
- (b) The Parties agree that the first annual report on EEC Activities, which was due to be filed on March 31, 2010 pursuant to Order No. G-36-09, will instead be filed on or before June 30, 2010. Concurrent with that report, TGVI will file an application with the anticipation of a decision within 120 days after filing. The application will include requests for:
  - i. approval of the above EEC funding for 2011;
  - ii. approval of the same financial treatment approved in the EEC Decision; and
  - iii. approval for the continuation of the portfolio approach and assessment methodology as approved in the EEC Decision.

## **8. Alternative Energy Solutions**

Alternative Energy Solutions ("AES") means Geo-exchange, Solar-thermal and District Energy Systems as those terms are described in the Application.

The forecast costs of pursuing AES projects in the TGVI service area were included in the Shared Services cost pool, which is allocated pursuant to the Shared Services Agreement among TGI, TGVI and TGW. The costs related to AES projects that would otherwise have been allocated to TGVI have been allocated to TGI's New Energy Solutions Deferral Account pursuant to the Settlement Agreement for the TGI 2010 and 2011 Revenue Requirements. Accordingly, TGVI withdraws its requests for relief in the Application relating to AES. The Parties acknowledge that TGI will be pursuing AES projects within the TGVI



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service area and agree that the costs incurred by TGI to provide AES will not be recovered in TGI's natural gas service rates. Any direct costs, sales and marketing O&M and other development costs incurred by TGI in assisting TGI in pursuit of AES will be directly charged to the TGI New Energy Solutions Deferral Account of TGI by timesheets or other direct charge.

**9. Natural Gas for Vehicles ("NGV")**

The Commission Issue No. 2 in the Commission Panel's "Issues of Particular Concern to the Commission Panel" stated:

"Natural Gas Vehicles ("NGV") – if NGV is to proceed why should the natural gas ratepayer fund this initiative rather than Terasen's non-regulated businesses or the competitive market?"

The Parties agree:

- (a) The new NGV Service Rate Schedule (as set out in the Application Appendix J-4) – the NGV Service Rate Schedule should be approved as filed; and
- (b) NGV Grants will be accounted for on a net-of-tax basis in a deferral account and amortized over a five year term (the same treatment as under TGI Rate Schedule 6 (as set out in the Application, Part III, Section C, Tab 3, page 224); and
- (c) The marketing costs in support of NGV that are included in the Application are appropriately included in the 2010 and 2011 cost of service.
- (d) Upon acceptance of this Agreement by the Commission, TGI withdraws its request in the Application for the following:
  - i. Compression and Refueling Service Rate Schedule; and
  - ii. the Compression Service ("CS") Test; and
  - iii. NGV non-rate base deferral account for Compression Equipment Costs and Expenses.

The Parties acknowledge that these requests are being withdrawn by TGI to facilitate a settlement on other issues presented in the Application. The Parties agree that TGI's withdrawal of its requests regarding NGV is without prejudice to TGI's right to bring forward similar requests in 2010 or 2011 or otherwise in the future. The Parties acknowledge that TGI intends to develop this area of business and that TGI anticipates it will bring forward applications on NGV projects to the Commission on a case-by-case basis during the term of this Agreement and in future years. The Parties agree that TGI is at liberty to do so.

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**10. Biogas**

Issue No. 3 in the Commission Panel's "Issues of Particular Concern to the Commission Panel" stated:

"Biogas – could be reviewed by a CPCN which demonstrates market uptake of customers that are willing to pay the full cost."

The Parties agree that, upon acceptance of this Agreement by the Commission, TGVl withdraws its requests in this Application related to Biogas. The Parties acknowledge that these requests are being withdrawn to facilitate a settlement on other issues presented in this Application. The Parties agree that TGVl will bring forward an application (the "Biogas Application") during the test period that will:

- (a) Address the economic assessment model; and
- (b) Provide Biogas rates (including green rate, transportation rate, etc.); and
- (c) Provide for recovery of costs associated with providing Biogas service.

TGVl may include in the Biogas Application any Biogas Projects under development at that time. TGVl is, however, not precluded from applying for Commission approval in respect of individual Biogas Projects at any time, either prior to the Biogas Application or afterwards.

**11. CPCN Threshold**

Issue No. 6 in the Commission Panel's "Issues of Particular Concern to the Commission Panel" stated:

"CPCN threshold – why should the threshold increase from \$5 million."

The Parties accordingly agree that the CPCN threshold will be \$5 million for 2010 and 2011. TGVl's Category C Capital Expenditures forecast for the forecast period will be revised to reflect this change (please see item 13 below).

**12. Category A Capital**

TGVl had utilized an incorrect inflation rate in the Application when calculating the forecast capital expenditures for Distribution Mains (BCUC IR 1.120.5). The Parties agree to use the correct inflation rate, resulting in a decrease to the Category A Capital Expenditures of \$188 thousand in 2010 and \$154 thousand in 2011, and an associated decrease in the Revenue Requirement in each of those years, from the amounts set out in the Application.

**13. Category C Capital**

As a consequence of the CPCN threshold being established at \$5 million for 2010 and 2011 (see item 11 above), TGVl will file a CPCN application for the Victoria Regional Office project identified in TGVl's Application. The Category C Capital will consequently be

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reduced by \$5.2 million in 2010 and a further \$3.3 million (totaling \$8.5 million) in 2011. TGVl will seek deferral treatment for 2011 of the capital costs associated with those projects at the time of filing the CPCN Applications.

The Parties agree that Category C Capital will additionally be reduced by a total of \$0.5 million in each of 2010 and 2011. The revised Category C Capital Expenditures, reflecting the removal of the Victoria Regional Office capital expenditures and the \$0.5 million IT Capital reduction, are now \$4.4 million in 2010 and \$4.1 million in 2011.

**14. Gross O&M (to be recovered from gas customers)**

The Parties agree that the proposed gross O&M recoverable from gas customers is reduced by \$0.874 million in 2010 and \$0.947 million in 2011, resulting in gross O&M in 2010 of \$31.231 million and gross O&M of 2011 of \$ 32.702 million. The Parties agree to fix the Gross O&M amounts for the purposes of determination of RDDA and/or RSDA balances at the end of each year. The changes as compared to the Application include the following three components:

1. Reduced Shared Services costs from TGI in the amount of \$0.339 million in 2010 and \$0.491 million in 2011 as discussed in Item 15 below; and
2. Reduced Corporate Services cost from Terasen Inc. in the amount of \$0.535 million in 2010 and \$0.540 million in 2011, as discussed in Item 15 below.
3. TGVl inadvertently omitted to include the fixed costs associated with electric Demand charges for general operations of the LNG facility including liquefaction, vapourization, and boil-off compression. The Parties agree that these incremental costs, totalling \$83 thousand (\$37 thousand for additional electricity and \$46 thousand for additional fuel), will be included in the 2011 gross O&M amounts (BCUC IR 1.101.9).

**15. Shared Services/Corporate Services**

The Parties agree that the amount of Shared Services costs allocated to TGVl from TGI should be reduced by \$0.339 million in 2010 and \$0.491 million in 2011 as a result of the outcome of the concurrent TGI RRA.

The Parties agree that the amount of Corporate Services costs allocated to TGVl from Terasen Inc. should be reduced by \$0.535 million in 2010 and \$0.540 million in 2011. As a result of these Corporate Services reductions, and as contemplated in the TGI 2010-2011 RRA Settlement Agreement, the amount of Corporate Services allocated to TGI from Terasen Inc. will increase by a corresponding amount in each year to ensure recovery of all of the combined Corporate Services.

The Parties agree that the current Shared Services Agreement between TGVl and TGI will be discontinued, and acknowledge that TGI will be providing shared services to TGI.

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**16. Depreciation Study**

The Parties agree that the depreciation rates specified in the Gannett Fleming study included the Application under Appendix H-2 for Parts I-III, and in the Supplemental filing dated July 8, 2009 for Parts IV and V, will be implemented effective January 1, 2010, with the exception of:

- (a) incorporating the correct updated rates from the depreciation study results in a change in the rate for asset class 475 from 1.62 per cent to 1.94 per cent, and a change in the rate for asset class 477 from 4.92 per cent to 4.60 per cent (BCUC IR 1.146.3); and
- (b) the component of those rates that represent recovery of negative salvage (see item 17 below).

Adjusting for the Distribution Asset Classes, negative salvage, and overheads capitalized and capital expenditures changes yields total depreciation expense of \$21.8 million in 2010 and \$26.0 million in 2011, of which approximately \$1.2 million results from the updated Gannett Fleming depreciation study.

The Parties agree that TGVl will undertake an updated depreciation study to be included as part of TGVl's next Revenue Requirements Application. This study will address the methodology and rates for net negative salvage to be included in cost of service for future periods. TGVl will work with Commission staff and a depreciation rate specialist in determining the requirements of the study.

**17. Negative Salvage Values**

On an annual basis, TGVl includes a provision for estimated net negative salvage value (removal costs less proceeds) in its depreciation rates. This treatment, which was approved as recently as 2004, along with an estimate of the salvage amount to be included in depreciation rates recognizes that net negative salvage value is a cost of providing service using the asset and should be recovered from customers over the useful life of the asset. An alternative treatment is to recover the net negative salvage values at the time they are incurred resulting in future customers paying for the removal costs, which TGVl views as inappropriate. The inclusion of a provision for estimated net negative salvage value in depreciation rates is a practice that has been followed by TGVl historically, and with this RRA TGVl had proposed continuation of this treatment. This treatment is consistent with the BCUC Uniform System of Accounts and is generally followed by other investor-owned utilities in British Columbia and across Canada.

The Parties agree that for the purposes of the two year period covered by this Agreement, the provision for net negative salvage (net removal costs) will be removed from the depreciation estimates. Instead, an estimate of the amount of net removal costs to be incurred in each of the years 2010 and 2011 (\$0.343 million and \$0.344 million) will be included in the cost of service and recovered from customers in each of those years. Any variances between the actual amount of net removal costs realized and the estimated amounts included in cost of service will be recorded in a new deferral account created for this purpose that will be called the "Removal Cost Deferral Account". The amount

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accumulated in the Removal Cost Deferral Account over the two year period of this Agreement will be recovered from (or returned to) customers in 2012.

TGVI continues to be of the position that removal costs should be recovered over the service life of the asset and not at the time the removal costs are actually incurred. TGVI will work with Commission staff and a depreciation rate specialist in determining both the methodology and estimates for the removal costs and include the documentation to support the rates in its next depreciation study filed as part of its next Revenue Requirement Application.

The Parties agree that TGVI will update its financial schedules to increase the opening balance of the Accumulated Amortization of Contributions in Aid of Construction and correspondingly decrease the opening balance of Accumulated Depreciation by \$13.275 million (BCUC IR 2.37.1.1) with no effect on rate base or cost of service.

**18. Unrecovered Losses**

Issue No. 7 in the Commission Panel's "Issues of Particular Concern to the Commission Panel" stated:

"Unrealized losses in rate base – should some of these losses be to the shareholder? Parties should present a separate settlement package."

Unrealized (unrecovered) losses relate to Unrecovered Depreciation on assets used 100 per cent for the provision of utility service to ratepayers (BCUC IR 1.112.1).

The Parties agree that the treatment for unrecovered losses as proposed in the Application is acceptable for the 2010 and 2011 period covered by this Agreement. TGVI will work with Commission staff and a depreciation rate specialist in determining both the methodology and estimates for the unrecovered losses and include the documentation to support the rates in its next depreciation study filed as part of its next Revenue Requirement Application.

**19. Overheads Capitalized**

The Parties agree to a change in the overheads capitalized rate to 14 per cent of Gross O&M for 2010 and 2011.

**20. International Financial Reporting Standards ("IFRS") 2010 Impact**

Issue No. 4 in the Commission Panel's "Issues of Particular Concern to the Commission Panel" stated:

"International Financial Reporting Standards ("IFRS") – could have no IFRS impact in 2010."

The Parties agree to defer the 2010 revenue requirement impact of IFRS, resulting from Items 25 (b), (c), (d) and (e) in this Agreement, to be reflected in revenue requirements in 2011 up to a maximum of \$2.0 million. Amounts, if any, over \$2.0 million would be deferred

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and reflected in revenue requirements after 2011 based on the amortization approved by the Commission at that time.

**21. Allocation of 2009 Revenue Surplus Account (“RSA”) Balance (Application page 322 Item (7)(b))**

The Commission approved the creation of a 2009 Revenue Surplus Account in Order No. G-84-09. TGV I currently forecasts that the RDDA balance will reach zero in 2009 and that a surplus will be recorded in the 2009 RSA. The actual balance in the 2009 RSA will not be known until the Commission approves the 2009 year end balance in the RDDA, pursuant to section 2.10(f) of the Special Direction.

Issue No. 8 in the Commission Panel’s “Issues of Particular Concern to the Commission Panel” stated:

“Rate Design – should BC Hydro receive any refund for the expected 2009 RDDA surplus?”

The Parties have considered the issue raised by the Commission Panel. The Parties agree, for the purposes of achieving overall Agreement, that the answer to Commission Panel Issue No. 8 is, “Yes”, and that the forecast balance in the 2009 RSA of \$2.962 million will be amortized equally over the forecast years 2010 and 2011 to all customers, other than the VIGJV and TGI Squamish Service Area (TGI Squamish), as follows:

- (a) \$2.677 million to Core Market
- (b) \$0.246 million to BC Hydro
- (c) \$0.039 million to TGW

Any variance between the forecast and actual 2009 RSA balance will be captured in the RSDA described below.

**22. Rate Stabilization Deferral Account (“RSDA”) (Application page 323 Item (7)(c))**

Variances between forecast cost of service and actual cost of service, other than O&M, are items that will be “trued up to actual” as per the Special Direction. Gross O&M will be as stated in Item 14, and not “trued up to actual” (i.e. variances from forecast O&M specified in Item 14 will be an at-risk item for the shareholder). The allowed rate of return on Equity will be adjusted to that approved by the Commission during the period of the settlement and will not be trued up to actual. For clarity, this means that approved rate of return on equity percentage will apply to the actual rate base consistent with the methodology employed since 2003 for TGV I.

The Parties agree that TGV I will establish a RSDA to capture:

- (a) differences in 2010 and 2011 between:

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- i. the net revenues received; and
- ii. the actual, "trued-up", cost of service, excluding O&M variances from forecast stated in Item 14; and

(b) any Accumulated Revenue Deficiency in the RDDA after December 31, 2009.

The Parties agree that any balance in the RSDA will be amortized into the cost of service after 2011. However, the Parties agree that the following issues will be deferred to a future proceeding:

- (a) how any balance in the RSDA will be allocated among customer classes; and
- (b) the period over which any balance in the RSDA will be amortized into the cost of service.

**RATE DESIGN**

**23. Rate Design**

The Vancouver Island Natural Gas Pipeline Agreement contemplates the Provincial Government Royalty Revenues to TGVI ceasing at the end of 2011. The Parties agree that given the pending loss of Royalty Revenues from the Provincial Government and the strategies to deal with the potential rate shock associated with that circumstance, including potential amalgamation, that it would be appropriate to defer a full scale rate design at this time.

The Parties have differing views on the appropriate rate design. The Parties did not agree on an appropriate rate design, and did not agree on:

- (a) Various cost allocation principles;
- (b) Revenue to cost ratios; and
- (c) The treatment of interruptible transportation revenues.

Instead, the Parties agree that this Negotiated Settlement Agreement is without prejudice to any position Parties may take in the future. The Parties agree that no precedent is set by this Agreement.

**24. Rate Proposals**

The Parties agree that the proposed core market rate freeze for the two year test period is accepted. The Parties agree that the rates for each customer class is set out in Schedule 1 under Part IV of this Agreement.

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Issue No. 5 in the Commission Panel's "Issues of Particular Concern to the Commission Panel" stated:

"2010 Rate Changes – in the event that a 2010 rate reduction were to occur as a result of negotiations, the current rates should remain unchanged and place the revenue surplus into a deferral account to apply against 2011 and future rate increases with a phase in amortization that strives for rate stability."

The Parties agree that Commission Panel Issue No. 5 is addressed for core market customers.

The Parties agree that the rates for transportation customers, effective January 1, 2010, other than those that have specified rates set out in their contract (VIGJV and TGI Squamish), are as set out below.

(a) BC Hydro

- i. Firm Transportation Rate \$0.830 per GJ
- ii. Summer Interruptible Rate \$0.830 per GJ
- iii. Winter Interruptible \$1.330 per GJ

(b) TG Whistler

- i. Firm Transportation Rate \$0.930 per GJ

These transport rates are based on TGV's current allowed return on equity ("ROE") of 9.17 per cent and subject to changes flowing from the Commission's decision in TGV's concurrent ROE and Capital Structure Application<sup>3</sup>, or as adjusted from time to time by the Commission. Nothing in this Agreement precludes TGV from applying to the Commission in 2010 or 2011 for changes to its allowed ROE and capital structure.

The Parties agree to the following formula to reflect changes in the allowed ROE in the transportation rates, other than those that have specified rates set out in their contract (VIGJV and TGI Squamish). Every 1 basis points difference in the approved ROE as compared to the current ROE of 9.17 per cent will cause the firm and interruptible rates to change in the same direction by 0.034 cents per GJ rounded to the nearest tenth of a cent.

**PART III – REQUESTS UNCHANGED FROM THE APPLICATION**

The Parties agree to the following items set out in this section, which are consistent with the proposals in TGV's Application.

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<sup>3</sup> Filed jointly by the Terasen Utilities [TGI, TGV. and Terasen Gas (Whistler) Inc.] on May 15, 2009.



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**25. Accounting Policy Changes as per Application Part III, Section E - Approvals Sought - to be effective January 1, 2010**

The Parties agree to the following accounting policy changes, as set out in TGVI's Application:

- (a) Training and Feasibility Study Costs to be treated as O&M expense, rather than capital (Application Page 438 and 439, Item 18).
- (b) Capitalization of Major Inspection and Overhaul Costs, including the creation of new Asset Classes (Application Page 438 and 439, Item 18).
- (c) Capitalization of the Current Service portion of Pensions and OPEBs expense that is applicable to capital projects (Application Page 438 and 439, Item 18).
- (d) Capitalization of Depreciation on Assets used in Construction (Application Page 438 and 439, Item 18).
- (e) All capital expenditures, including CPCNs, to be included in plant in service (and rate base) in the month following the available-for-use date, with depreciation starting at that time (Application Page 438 and 439, Item 18).
- (f) Adoption of the effective interest method for calculating interest expense on long-term debt (Application Page 438 and 439, Item 18).

**26. Various Accounting Related Proposals as per Application Part III, Section E - Approvals Sought effective January 1, 2010**

The Parties agree to the following accounting related changes, as set out in TGVI's Application:

- (a) Adoption of the Cash Working Capital Lead/Lag Days as set out in the Lead/Lag study (Application page 438, Item 16d).
- (b) The treatment of Customer Security Deposits as part of the unfunded debt, instead of as a component of working capital (Application Page 438 and 439 Item 18).
- (c) The inclusion of the reserve for bad debts as a component of working capital (Application Page 438 and 439 Item 18).
- (d) Consolidated Core Market Administration Expenses (for TGI, TGVI and TGW), including allocation percentages (Application page 438, Item 16e).

**27. Tariff Change Proposals as per Application Part III, Section E - Approvals Sought, Item 19**

The Parties agree to the following Tariff changes, as set out in TGVI's Application:

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- (a) Revised Fee New Customer Application fee from \$85 to \$25
- (b) Revised dishonoured cheque charge from \$10 to \$20
- (c) Revised Fee Meter Testing fee from \$50 to \$60
- (d) Removed special meter reading charge
- (e) Removed move meter from inside to outside premises at consumer's request charge
- (f) Removed resetting of meter and regulator charge
- (g) Removed where services performed at cost charge
- (h) Changes to the Standard Terms and Conditions as set out in Part III, Section C, Tab 12 and Appendix J-2 of the Application.

**28. Deferral Account Proposals as per Application Part III, Section E - Approvals Sought, Item 17**

The Parties agree to the continuation, modification or adoption of the following deferral accounts as set out in TGV's Application:

- (a) Deferral Accounts - No Change:
  - i. Gas Cost Variance Account (Application page 316, Item (1)).
  - ii. Insurance variance (Application page 318, Item (3) (a)).
  - iii. Pension & OPEB variance (Application page 318, Item (3) (b)).
  - iv. Olympic Security costs (Application page 318, Item (3) (d)).
  - v. IFRS conversion costs (Application page 318, Item (3) (e)).
  - vi. PCEC Start Up Costs (Application page 319 Item (5)(a)).
  - vii. Accounts Amortized in 2010 (Application page 321, Item (6) (c)).
  - viii. RDDA (Application Page 322 Item (7)(a)).
- (b) Deferral Accounts - New:
  - i. BCUC Levies variance (Application page 318, Item (3) (c)).
  - ii. Costs of applications (CCE, ROE, RRA) (Application page 319, Item (4)).
  - iii. IFRS Transitional Deferral Account (Application page 319, Item (5) (b)).

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- iv. Pension and OPEB funding differences (Application page 320, Item (5) (c)).
- v. Gains and Losses on Asset Disposition (Application page 320, Item (5) (d)).

**29. RDDA Balance as at December 31, 2008**

The Parties agree pursuant to section 2.10 (f) of the Special Direction that the December 31, 2008 year end balance in the RDDA is \$7,149,210, as set out in Part III, Section B, Tab 2 of the Application. (Application page 437, Item 12)

**30. Cost of Service**

The Parties agree pursuant to section 2.10(a)(i) of the Special Direction that TGVl's forecast Cost of Service for 2010 and 2011 will be as set out in Schedule 14, in Part IV of this Agreement, but subject to (a) the need to recover any Accumulated Revenue Deficiency in the RDDA after December 31, 2009 as explained in Part III, Section B, Tab 2 and (b) changes in TGVl's allowed return on equity. (Application page 436, Item 4).

**31. Capital**

The Parties agree pursuant to section 2.10(a)(i) of the Special Direction that TGVl's forecast capital expenditures for 2010 and 2011 will be as set out in Schedule 42, in Part IV of this Agreement. (Application page 437, Item 9)

**32. Revenue**

The Parties agree pursuant to section 2.10(a)(i) of the Special Direction that TGVl's revenues will be as per Schedule 14, in Part IV of this Agreement.

**33. Customer Segmentation**

The Parties agree to accept the customer segmentation as filed in the Application.

**34. Mt. Hayes LNG Storage – Storage and Delivery Agreement**

The Parties agree to accept Schedule A of Tariff Supplement No. 4 (Storage and Delivery Agreement between TGI and TGVl), as set out in Part III, Section B, Tab 3 of the Application.

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**PART IV – REVISED FINANCIAL SCHEDULES**

The revised Financial Schedules follow.

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## TERASEN GAS (VANCOUVER ISLAND) INC.

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Tab 13

Schedule 1

## CORE MARKET AND TRANSPORTATION RATES

EFFECTIVE JANUARY 1, 2010

In \$/GJ

Core Market Rate Class	Approved Rate (in \$/GJ)		Approved Rate (in \$/GJ)		Approved Rate (in \$/GJ)	
	2009		2010		2011	
	Basic Charge	Variable Charge	Basic Charge	Variable Charge	Basic Charge	Variable Charge
RGS	\$ 10.500	\$ 14.325	\$ 10.500	\$ 14.325	\$ 10.500	\$ 14.325
AGS	\$ 40.000	\$ 12.373	\$ 40.000	\$ 12.373	\$ 40.000	\$ 12.373
SCS-1	\$ 9.450	\$ 16.940	\$ 9.450	\$ 16.940	\$ 9.450	\$ 16.940
SCS-2	\$ 33.530	\$ 16.455	\$ 33.530	\$ 16.455	\$ 33.530	\$ 16.455
LCS-1	\$ 61.000	\$ 13.353	\$ 61.000	\$ 13.353	\$ 61.000	\$ 13.353
LCS-2	\$ 97.820	\$ 12.311	\$ 97.820	\$ 12.311	\$ 97.820	\$ 12.311
LCS-3	\$ 201.510	\$ 12.015	\$ 201.510	\$ 12.015	\$ 201.510	\$ 12.015
HLF	\$ 250.000	\$ 8.697	\$ 250.000	\$ 8.697	\$ 250.000	\$ 8.697
ILF	\$ 250.000	\$ 10.097	\$ 250.000	\$ 10.097	\$ 250.000	\$ 10.097

Transportation Customers	Approved Rate (in \$/GJ)	Approved Rate (in \$/GJ)	Approved Rate (in \$/GJ)
	2009	2010	2011
BC Hydro - Firm Rate	\$ 0.912	\$ 0.830	\$ 0.830
BC Hydro - Winter IT Rate	\$ 1.557	\$ 1.330	\$ 1.330
TGW	\$ 1.026	\$ 0.930	\$ 0.930

**Note:**

1. The rates for Vancouver Island Gas Joint Venture ("VIGJV") and TGI Squamish are set as per their respective transportation service agreements.

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Section C  
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Schedule 2

UTILITY INCOME AND EARNED RETURN  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Particulars	2009					Reference
		2009 APPROVED	Approved Rates	Surplus	Cost of Service Rates	Change	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	ENERGY VOLUMES (TJ)						
2	Sales	12,636	12,264	-	12,264	(372)	Schedule 15
3	Transportation	21,692	22,946	-	22,946	1,254	Schedule 15
		<u>34,328</u>	<u>35,210</u>	<u>-</u>	<u>35,210</u>	<u>882</u>	
4	UTILITY REVENUE						
5	Sales - Existing Rates	\$ 184,795	\$ 179,501	\$ -	\$ 179,501	\$ (5,294)	Schedule 18
6	- Increase / (Decrease)		-	(14,443)	(14,443)	(14,443)	
7	Transportation - Existing Rates	20,126	22,194	-	22,194	2,069	Schedule 18
8	- Increase / (Decrease)			-	-	-	
9	<b>Total Revenue</b>	<u>204,921</u>	<u>201,695</u>	<u>(14,443)</u>	<u>187,252</u>	<u>(17,668)</u>	
10	Royalty Credit	(48,701)	(28,095)	-	(28,095)	20,606	
11	GCVA Amortization	3,045	4,162	-	4,162	1,117	Schedule 58
12	GCVA Additions	-	5,781	-	5,781	5,781	
13	Cost of Gas	129,512	99,314	-	99,314	(30,198)	Schedule 21
14	RACOG Including GCVA Impacts	<u>83,856</u>	<u>81,162</u>		<u>81,162</u>	<u>(2,694)</u>	
15	<b>Gross Margin</b>	<u>121,064</u>	<u>120,533</u>	<u>(14,443)</u>	<u>106,090</u>	<u>(14,975)</u>	
16	Operation and Maintenance (allowed)	26,178	26,178	-	26,178	(0)	
17	Transportation Expenses	4,374	3,977	-	3,977	(397)	
18	Operating Leases	828	828	-	828	-	
19	Property Taxes	8,362	8,449	-	8,449	87	Schedule 26
20	Depreciation and Amortization	\$32,230	23,017	-	23,017	(9,213)	Schedule 27
21	Removal Costs (Depreciation)	-	-	-	-	-	
22	IFRS Transitional Deferral	-	-	-	-	-	
23	Other Operating Revenue	<u>(1,062)</u>	<u>(893)</u>	<u>-</u>	<u>(893)</u>	<u>169</u>	Schedule 22
24		<u>70,911</u>	<u>61,556</u>	<u>-</u>	<u>61,556</u>	<u>(9,355)</u>	
25	Utility Income Before Income Taxes	50,153	58,977	(14,443)	44,534	(5,619)	
26	Income Taxes	11,905	13,178	(4,331)	8,847	(3,058)	Schedule 30
27	<b>EARNED RETURN</b>	<u>\$ 40,115</u>	<u>\$ 47,666</u>	<u>\$ (10,112)</u>	<u>\$ 37,554</u>	<u>\$ (2,561)</u>	
28	VINGPA Grind	(1,867)	(1,867)	-	(1,867)	-	Schedule 30
27	<b>EARNED RETURN After VINGPA Adjustment</b>	<u>\$ 38,248</u>	<u>\$ 45,799</u>	<u>\$ (10,112)</u>	<u>\$ 35,687</u>	<u>\$ (2,561)</u>	
28	<b>UTILITY RATE BASE</b>	<u>\$ 539,525</u>	<u>\$ 540,195</u>	<u>\$ (407)</u>	<u>\$ 539,788</u>	<u>\$ 264</u>	Schedule 8
29	<b>RATE OF RETURN ON UTILITY RATE BASE</b>						
30	Before VINGPA Adjustment	<u>7.11%</u>	<u>8.82%</u>		<u>6.96%</u>	<u>-0.15%</u>	
31	After VINGPA Adjustment	<u>7.09%</u>	<u>8.48%</u>		<u>6.61%</u>	<u>-0.48%</u>	
32	<b>EARNED RETURN</b>	<u>\$ 40,115</u>	<u>\$ 47,666</u>	<u>\$ (10,112)</u>	<u>\$ 37,554</u>	<u>\$ (2,561)</u>	Schedule 68
33	VINGPA Adjustment	<u>(1,867)</u>	<u>(1,867)</u>	<u>-</u>	<u>(1,867)</u>	<u>-</u>	
34	<b>EARNED RETURN After VINGPA Adjustment</b>	<u>\$ 38,248</u>	<u>\$ 45,799</u>	<u>\$ (10,112)</u>	<u>\$ 35,687</u>	<u>\$ (2,561)</u>	x-ref Schedule 5



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Section C  
Tab 13  
Schedule 3

UTILITY INCOME AND EARNED RETURN  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars	2010					Reference
		2009 PROJECTION	Approved Rates	Surplus	Cost of Service Rates	Change	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	ENERGY VOLUMES (TJ)						
2	Sales	12,264	12,241	-	12,241	(23)	Schedule 16
3	Transportation	22,946	22,309	-	22,309	(637)	Schedule 16
		<u>35,210</u>	<u>34,550</u>	<u>-</u>	<u>34,550</u>	<u>(660)</u>	
4	UTILITY REVENUE						
5	Sales - Existing Rates	\$ 179,501	\$ 179,445	\$ -	\$ 179,445	\$ (56)	Schedule 19
6	- Increase / (Decrease)	(14,443)	-	(42,605)	(42,605)	(28,162)	
7	Transportation - Existing Rates	22,194	20,669	-	20,669	(1,525)	Schedule 19
8	- Increase / (Decrease)	-	-	-	-	-	
9	<b>Total Revenue</b>	<u>187,252</u>	<u>200,114</u>	<u>(42,605)</u>	<u>157,509</u>	<u>(29,743)</u>	
10	Royalty Credit	(28,095)	(35,832)	-	(35,832)	(7,737)	
11	GCVA Amortization	4,162	(4,047)	-	(4,047)		Schedule 59
12	GCVA Additions	5,781	-	-	-	(5,781)	
13	Cost of Gas Sold	99,314	98,628	-	98,628	(686)	Schedule 21
14	RACOG Including GCVA Impacts	<u>81,162</u>	<u>58,750</u>		<u>58,750</u>	<u>(22,413)</u>	
15	<b>Gross Margin</b>	<u>106,090</u>	<u>141,364</u>	<u>(42,605)</u>	<u>98,759</u>	<u>(29,057)</u>	
16	Operation and Maintenance	26,178	26,858	-	26,858	680	Schedule 23
17	Transportation Expenses	3,977	4,015	-	4,015	38	
18	Operating Leases	828	-	-	-	(828)	
19	Property Taxes	8,449	9,119	-	9,119	670	Schedule 26
20	Depreciation and Amortization	23,017	19,202	-	19,202	(3,815)	Schedule 28
21	Removal Costs (Depreciation)	-	343	-	343	343	
22	IFRS Transitional Deferral	-	1,400	-	1,400	1,400	
23	Other Operating Revenue	<u>(893)</u>	<u>(717)</u>	<u>-</u>	<u>(717)</u>	<u>176</u>	Schedule 22
24		<u>61,556</u>	<u>60,220</u>	<u>-</u>	<u>60,220</u>	<u>(1,336)</u>	
25	Utility Income Before Income Taxes	44,534	81,144	(42,606)	38,538	(5,996)	
26	Income Taxes	<u>8,847</u>	<u>13,661</u>	<u>(12,140)</u>	<u>1,521</u>	<u>(7,326)</u>	Schedule 31
27	<b>EARNED RETURN</b>	<u>\$ 37,554</u>	<u>\$ 69,350</u>	<u>\$ (30,466)</u>	<u>\$ 38,884</u>	<u>\$ 1,330</u>	
28	VINGPA Grind	(1,867)	(1,867)	-	(1,867)	-	Schedule 31
27	<b>EARNED RETURN After VINGPA Adjustment</b>	<u>\$ 35,687</u>	<u>\$ 67,483</u>	<u>\$ (30,466)</u>	<u>\$ 37,017</u>	<u>\$ 1,330</u>	
28	<b>UTILITY RATE BASE</b>	<u>\$ 539,788</u>	<u>\$ 554,763</u>	<u>\$ (750)</u>	<u>\$ 554,013</u>	<u>\$ 14,224</u>	Schedule 9
29	<b>RATE OF RETURN ON UTILITY RATE BASE</b>						
30	Before VINGPA Adjustment	<u>6.96%</u>	<u>12.50%</u>		<u>7.02%</u>	<u>0.06%</u>	
31	After VINGPA Adjustment	<u>6.61%</u>	<u>12.16%</u>		<u>6.68%</u>	<u>0.07%</u>	
32	<b>EARNED RETURN</b>	<u>\$ 37,554</u>	<u>\$ 69,350</u>	<u>\$ (30,466)</u>	<u>\$ 38,884</u>	<u>\$ 1,330</u>	Schedule 69
33	VINGPA Adjustment	<u>(1,867)</u>	<u>(1,867)</u>	<u>-</u>	<u>(1,867)</u>	<u>-</u>	
34	<b>EARNED RETURN After VINGPA Adjustment</b>	<u>\$ 35,687</u>	<u>\$ 67,483</u>	<u>\$ (30,466)</u>	<u>\$ 37,017</u>	<u>\$ 1,330</u>	x-ref Schedule 6

TERASEN GAS (VANCOUVER ISLAND) INC.

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Section C  
Tab 13  
Schedule 4

UTILITY INCOME AND EARNED RETURN  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars	2011					Reference
		2010 FORECAST	Approved Rates	Surplus	Cost of Service Rates	Change	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	ENERGY VOLUMES (TJ)						
2	Sales	12,241	12,433	-	12,433	192	Schedule 17
3	Transportation	22,309	22,017	-	22,017	(292)	Schedule 17
		<u>34,550</u>	<u>34,450</u>	<u>-</u>	<u>34,450</u>	<u>(100)</u>	
4	UTILITY REVENUE						
5	Sales - Existing Rates	\$ 179,445	\$ 182,402	\$ -	\$ 182,402	\$ 2,957	Schedule 20
6	- Increase / (Decrease)	(42,605)	-	(24,603)	(24,603)	18,002	
7	Transportation - Existing Rates	20,669	20,500	-	20,500	(169)	Schedule 20
8	- Increase / (Decrease)	-	-	-	-	-	
9	<b>Total Revenue</b>	<u>157,509</u>	<u>202,902</u>	<u>(24,603)</u>	<u>178,299</u>	<u>20,790</u>	
10	Royalty Credit	(35,832)	(40,091)	-	(40,091)	(4,260)	
11	GCVA Amortization	(4,047)	-	-	-	-	Schedule 60
12	GCVA Additions	-	-	-	-	-	
13	Cost of Gas Sold (Including Gas Loss)	98,628	107,311	-	107,311	8,683	Schedule 21
14	RACOG Including GCVA Impacts	<u>58,750</u>	<u>67,220</u>	<u>-</u>	<u>67,220</u>	<u>8,470</u>	
15	<b>Gross Margin</b>	<u>98,759</u>	<u>135,682</u>	<u>(24,603)</u>	<u>111,079</u>	<u>12,107</u>	
16	Operation and Maintenance	26,858	28,136	-	28,136	1,277	Schedule 23
17	Transportation Expenses	4,015	4,122	-	4,122	107	
18	Operating Leases	-	-	-	-	-	
19	Property Taxes	9,119	9,564	-	9,564	445	Schedule 26
20	Depreciation and Amortization	19,202	25,232	-	25,232	6,030	Schedule 29
21	Removal Costs (Depreciation)	343	344	-	344	1	
22	IFRS Transitional Deferral	1,400	(1,400)	-	(1,400)	(2,800)	
23	Other Operating Revenue	<u>(717)</u>	<u>(9,752)</u>	<u>-</u>	<u>(9,752)</u>	<u>(9,035)</u>	Schedule 22
24		<u>60,220</u>	<u>56,246</u>	<u>-</u>	<u>56,246</u>	<u>(3,975)</u>	
25	Utility Income Before Income Taxes	38,538	79,437	(24,604)	54,833	16,295	
26	Income Taxes	<u>1,521</u>	<u>10,352</u>	<u>(6,518)</u>	<u>3,834</u>	<u>2,313</u>	Schedule 32
27	<b>EARNED RETURN</b>	<u>\$ 38,884</u>	<u>\$ 70,952</u>	<u>\$ (18,086)</u>	<u>\$ 52,866</u>	<u>\$ 13,982</u>	
28	VINGPA Grind	(1,867)	(1,867)	-	(1,867)	-	Schedule 32
27	<b>EARNED RETURN After VINGPA Adjustment</b>	<u>\$ 37,017</u>	<u>\$ 69,085</u>	<u>\$ (18,086)</u>	<u>\$ 50,999</u>	<u>\$ 13,982</u>	
28	<b>UTILITY RATE BASE</b>	<u>\$ 554,013</u>	<u>\$ 729,375</u>	<u>\$ (381)</u>	<u>\$ 728,994</u>	<u>\$ 174,982</u>	Schedule 10
29	<b>RATE OF RETURN ON UTILITY RATE BASE</b>						
30	Before VINGPA Adjustment	<u>7.02%</u>	<u>9.73%</u>		<u>7.25%</u>	<u>0.23%</u>	
31	After VINGPA Adjustment	<u>6.68%</u>	<u>9.47%</u>		<u>7.00%</u>	<u>0.31%</u>	
32	<b>EARNED RETURN</b>	<u>\$ 38,884</u>	<u>\$ 70,952</u>	<u>\$ (18,086)</u>	<u>\$ 52,866</u>	<u>\$ 13,982</u>	Schedule 70
33	VINGPA Adjustment	<u>(1,867)</u>	<u>(1,867)</u>	<u>-</u>	<u>(1,867)</u>	<u>-</u>	
34	<b>EARNED RETURN After VINGPA Adjustment</b>	<u>\$ 37,017</u>	<u>\$ 69,085</u>	<u>\$ (18,086)</u>	<u>\$ 50,999</u>	<u>\$ 13,982</u>	x-ref Schedule 7

TERASEN GAS (VANCOUVER ISLAND) INC.

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Section C  
Tab 13  
Schedule 5

INCOME TAXES  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Particulars (1)	2009 APPROVED (2)	Approved Rates (3)	2009 -----Cost of Service Rates----- Required Revenue (4)		Total (5)	Change (6)	Reference (7)
1	CALCULATION OF INCOME TAXES							
2	Earned Return After VINGPA Adjustment	\$36,756	\$45,799	(\$10,112)		\$35,687	(\$1,069)	Schedule 2
3	Deduct - Interest on Debt	(20,325)	(17,759)	4		(17,755)	2,570	
4	Add - O&M Savings	2,127	2,435	-		2,435	308	
5	Add- Non-Tax Ded. Expense (Net)	15,609	6,015	-		6,015	(9,595)	Schedule 33
6	Accounting Income After Tax	34,167	36,489	(10,108)		26,382	(7,786)	
7	Add (Deduct) - Timing Differences	(6,388)	(5,740)	-		(5,740)	648	Schedule 33
8	Taxable Income After Tax	<u>\$27,779</u>	<u>\$30,750</u>	<u>(\$10,108)</u>		<u>\$20,642</u>	<u>(\$7,137)</u>	
9		30.000%	30.000%	30.000%		30.000%	0.000%	
10	1 - Current Income Tax Rate	70.000%	70.000%	70.000%		70.000%	0.000%	
11	Taxable Income	<u>\$39,685</u>	<u>\$43,928</u>	<u>(\$14,439)</u>		<u>\$29,489</u>	<u>(\$10,196)</u>	
12	<b>Total Income Tax</b>	<u>\$ 11,905</u>	<u>\$ 13,178</u>	<u>\$ (4,332)</u>		<u>\$ 8,847</u>	<u>\$ (3,058)</u>	x-ref Schedule 2

TERASEN GAS (VANCOUVER ISLAND) INC.

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Section C

Tab 13

Schedule 6

INCOME TAXES  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars (1)	2009 PROJECTION (2)	Approved Rates (3)	2010 -----Cost of Service Rates-----		Change (6)	Reference (7)
				Required Revenue (4)	Total (5)		
1	CALCULATION OF INCOME TAXES						
2	Earned Return After VINGPA Adjustment	\$35,687	\$67,484	(\$30,467)	\$37,017	\$1,330	Schedule 3
3	Deduct - Interest on Debt	(17,755)	(18,574)	11	(18,563)	(808)	Schedule 12
4	Add - O&M Savings	2,435	-	-	-	(2,435)	
5	Add- Non-Tax Ded. Expense (Net)	6,015	(6,593)	-	(6,593)	(12,608)	Schedule 34
6	Accounting Income After Tax	26,382	42,316	(30,455)	11,860	(14,521)	
7	Add (Deduct) - Timing Differences	(5,740)	(8,044)	-	(8,044)	(2,304)	Schedule 34
8	Taxable Income After Tax	<u>\$20,642</u>	<u>\$34,272</u>	<u>(\$30,455)</u>	<u>\$3,816</u>	<u>(\$16,826)</u>	
9		30.000%	28.500%	28.500%	28.500%	-1.500%	
10	1 - Current Income Tax Rate	70.000%	71.500%	71.500%	71.500%	1.500%	
11	Taxable Income	<u>\$29,489</u>	<u>\$47,933</u>	<u>(\$42,595)</u>	<u>\$5,338</u>	<u>(\$24,151)</u>	
12	<b>Total Income Tax</b>	<u>\$ 8,847</u>	<u>\$ 13,661</u>	<u>\$ (12,140)</u>	<u>\$ 1,521</u>	<u>\$ (7,326)</u>	x-ref Schedule 3

TERASEN GAS (VANCOUVER ISLAND) INC.

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Schedule 7

INCOME TAXES  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars (1)	2010 FORECAST (2)	2011 Approved Rates (3)	2011 -----Cost of Service Rates----- Required Revenue (4)		Total (5)	Change (6)	Reference (7)
1	CALCULATION OF INCOME TAXES							
2	Earned Return After VINGPA Adjustment	\$37,017	\$69,086	(\$18,087)		\$50,999	\$13,982	Schedule 4
3	Deduct - Interest on Debt	(18,563)	(26,136)	10		(26,126)	(7,563)	Schedule 13
4	Add - O&M Savings	-	-	-		-	-	
5	Add- Non-Tax Ded. Expense (Net)	(6,593)	(686)	-		(686)	5,908	Schedule 35
6	Accounting Income After Tax	11,860	42,264	(18,077)		24,187	12,327	
7	Add (Deduct) - Timing Differences	(8,044)	(13,552)	-		(13,552)	(5,509)	Schedule 35
8	Taxable Income After Tax	<u>\$3,816</u>	<u>\$28,712</u>	<u>(\$18,077)</u>		<u>\$10,635</u>	<u>\$6,818</u>	
9		28.500%	26.500%	26.500%		26.500%	-2.000%	
10	1 - Current Income Tax Rate	71.500%	73.500%	73.500%		73.500%	2.000%	
11	Taxable Income	<u>\$5,338</u>	<u>\$39,064</u>	<u>(\$24,595)</u>		<u>\$14,469</u>	<u>\$340,924</u>	
12	<b>Total Income Tax</b>	<u>\$ 1,521</u>	<u>\$ 10,352</u>	<u>\$ (6,518)</u>		<u>\$ 3,834</u>	<u>\$ 2,313</u>	x-ref Schedule 4

TERASEN GAS (VANCOUVER ISLAND) INC.

Nov. 5 2009 NSP Agreement

Section C

Tab 13

Schedule 8

UTILITY RATE BASE  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Particulars (1)	2009 APPROVED (2)	2009		Cost of Service Rates (5)	Change (6)	Reference (7)
			Approved Rates (3)	Adjustments (4)			
1	Gas Plant in Service, Beginning	\$ 737,301	\$ 733,157	\$ -	\$ 733,157	\$ (4,144)	Schedule 44
2	Opening Balance Adjustment*	-	208,237	-	208,237	208,237	
3	Gas Plant in Service, Ending	785,862	1,012,319	-	1,012,319	226,458	Schedule 44
4	Accumulated Depreciation Beginning - Plant	(178,559)	(178,029)	-	(178,029)	530	Schedule 50
5	Opening Balance Adjustment*	-	(45,847)	-	(45,847)	(45,847)	
6	Accumulated Depreciation Ending - Plant	(196,352)	(245,154)	-	(245,154)	(48,802)	Schedule 50
7	CIAC, Beginning	(60,835)	(60,835)	-	(60,835)	(0)	Schedule 55
8	Opening Balance Adjustment*	-	(208,237)	-	(208,237)	(208,237)	
9	CIAC, Ending	(53,475)	(278,861)	-	(278,861)	(225,386)	Schedule 55
10	Accumulated Amortization Beginning - CIAC	1,990	1,990	-	1,990	(0)	Schedule 55
11	Opening Balance Adjustment*	-	45,847	-	45,847	45,847	
12	Accumulated Amortization Ending - CIAC	-	50,380	-	50,380	50,380	Schedule 55
13	Net Plant in Service, Mid-Year	<u>\$ 517,966</u>	<u>\$ 517,483</u>	<u>\$ -</u>	<u>\$ 517,483</u>	<u>\$ (482)</u>	
14	Adjustment to 13-Month Average	817	6,489	-	6,489	5,672	
15	Allocated Common Plant to TGW, Mid-Year	(104)	(104)	-	(104)	0	
16	Work in Progress, No AFUDC	1,812	3,652	-	3,652	1,840	
17	Unamortized Deferred Charges	6,246	3,689	-	3,689	(2,557)	Schedule 58
18	Cash Working Capital	(2,100)	(2,589)	(407)	(2,996)	(895)	Schedule 61
19	Other Working Capital (incl. Construction Advances)	14,889	11,575	-	11,575	(3,313)	Schedule 61
20	Future Income Taxes Regulatory Asset	-	58,802	-	58,802	58,802	Schedule 67
21	Future Income Taxes Liability	-	(58,802)	-	(58,802)	(58,802)	Schedule 67
22	<b>Utility Rate Base</b>	<u>\$ 539,525</u>	<u>\$ 540,195</u>	<u>\$ (407)</u>	<u>\$ 539,788</u>	<u>\$ 264</u>	

\*Adjustment to remove CIAC from Gas Plant in Service, and Accumulated Amortization of CIAC from Accumulated Depreciation

TERASEN GAS (VANCOUVER ISLAND) INC.

Nov. 5 2009 NSP Agreement

Section C

UTILITY RATE BASE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

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Schedule 9

Line No.	Particulars (1)	2009 PROJECTION (2)	2010		Cost of Service Rates (5)	Change (6)	Reference (7)
			Approved Rates (3)	Adjustments (4)			
1	Gas Plant in Service, Beginning	\$ 733,157	\$ 1,012,319	\$ -	\$ 1,012,319	\$ 279,162	Schedule 46
2	Opening Balance Adjustment	208,237	-	-	-	(208,237)	
3	Gas Plant in Service, Ending	1,012,319	1,036,234	-	1,036,234	23,915	Schedule 46
4	Accumulated Depreciation Beginning - Plant	(178,029)	(245,154)	-	(245,154)	(67,125)	Schedule 52
5	Opening Balance Adjustment*	(45,847)	(1,379)	-	(1,379)	44,468	
6	Accumulated Depreciation Ending - Plant	(245,154)	(270,987)	-	(270,987)	(25,833)	Schedule 52
7	CIAC, Beginning	(60,835)	(278,861)	-	(278,861)	(218,026)	Schedule 56
8	Opening Balance Adjustment	(208,237)	-	-	-	208,237	
9	CIAC, Ending	(278,861)	(275,728)	-	(275,728)	3,133	Schedule 56
10	Accumulated Amortization Beginning - CIAC	1,990	50,380	-	50,380	48,390	Schedule 56
11	Opening Balance Adjustment	45,847	-	-	-	(45,847)	
12	Accumulated Amortization Ending - CIAC	50,380	54,795	-	54,795	4,415	Schedule 56
13	Net Plant in Service, Mid-Year	<u>\$ 517,483</u>	<u>\$ 540,809</u>	<u>\$ -</u>	<u>\$ 540,809</u>	<u>\$ 23,326</u>	
14	Adjustment to 13-Month Average	6,489	-	-	-	(6,489)	
15	Allocated Common Plant to TGW, Mid-Year	(104)	-	-	-	104	
16	Work in Progress, No AFUDC	3,652	3,608	-	3,608	(44)	
17	Unamortized Deferred Charges	3,689	495	-	495	(3,194)	Schedule 59
18	Cash Working Capital	(2,996)	318	(750)	(432)	2,563	Schedule 62
19	Other Working Capital (incl. Construction Advances)	11,575	9,533	-	9,533	(2,043)	Schedule 62
20	Future Income Taxes Regulatory Asset	58,802	60,101	-	60,101	1,298	Schedule 67
21	Future Income Taxes Liability	(58,802)	(60,101)	-	(60,101)	(1,298)	Schedule 67
22	<b>Utility Rate Base</b>	<u>\$ 539,788</u>	<u>\$ 554,763</u>	<u>\$ (750)</u>	<u>\$ 554,013</u>	<u>\$ 14,224</u>	

\*Adjustment relates to transfer of accumulated loss on General Plant to IFRS Transitional Adjustments deferral account

TERASEN GAS (VANCOUVER ISLAND) INC.

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Section C

UTILITY RATE BASE

Tab 13

FOR THE YEAR ENDING DECEMBER 31, 2011

Schedule 10

(\$000s)

Line No.	Particulars (1)	2010 FORECAST (2)	2011		Cost of Service Rates (5)	Change (6)	Reference (7)
			Approved Rates (3)	Adjustments (4)			
1	Gas Plant in Service, Beginning	\$ 1,012,319	\$ 1,036,234	\$ -	\$ 1,036,234	\$ 23,915	Schedule 48
2	Opening Balance Adjustment	-	-	-	-	-	
3	Gas Plant in Service, Ending	1,036,234	1,274,815	-	1,274,815	238,581	Schedule 48
4	Accumulated Depreciation Beginning - Plant	(245,154)	(270,987)	-	(270,987)	(25,833)	Schedule 54
5	Opening Balance Adjustment	(1,379)	-	-	-	1,379	
6	Accumulated Depreciation Ending - Plant	(270,987)	(299,264)	-	(299,264)	(28,277)	Schedule 54
7	CIAC, Beginning	(278,861)	(275,728)	-	(275,728)	3,133	Schedule 57
8	Opening Balance Adjustment	-	-	-	-	-	
9	CIAC, Ending	(275,728)	(276,176)	-	(276,176)	(448)	Schedule 57
10	Accumulated Amortization Beginning - CIAC	50,380	54,795	-	54,795	4,415	Schedule 57
11	Opening Balance Adjustment	-	-	-	-	-	
12	Accumulated Amortization Ending - CIAC	54,795	59,218	-	59,218	4,423	Schedule 57
13	Net Plant in Service, Mid-Year	<u>\$ 540,809</u>	<u>\$ 651,454</u>	<u>\$ -</u>	<u>\$ 651,454</u>	<u>\$ 110,644</u>	
						0	
14	Adjustment to 13-Month Average	-	56,712	-	56,712	56,712	
15	Allocated Common Plant to TGW, Mid-Year	-	-	-	-	-	
16	Work in Progress, No AFUDC	3,608	3,608	-	3,608	-	
17	Unamortized Deferred Charges	495	4,908	-	4,908	4,413	Schedule 60
18	Cash Working Capital	(432)	516	(381)	135	567	Schedule 63
19	Other Working Capital (incl. Construction Advances)	9,533	12,178	-	12,178	2,645	Schedule 63
20	Future Income Taxes Regulatory Asset	60,101	63,889	-	63,889	3,788	Schedule 67
21	Future Income Taxes Liability	(60,101)	(63,889)	-	(63,889)	(3,788)	Schedule 67
22	<b>Utility Rate Base</b>	<u>\$ 554,013</u>	<u>\$ 729,375</u>	<u>\$ (381)</u>	<u>\$ 728,994</u>	<u>\$ 174,982</u>	



TERASEN GAS (VANCOUVER ISLAND) INC.

Nov. 5 2009 NSP Agreement

Section C  
Tab 13  
Schedule 11

RETURN ON CAPITAL  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Particulars (1)	Reference (2)	Capitalization Amount (3)	Amount (4)	% (5)	Embedded Cost (6)	Cost Component (7)	Earned Return (8)	
1	APPROVED RATES								
2	Long-Term Debt			\$260,940	48.300%	5.956%	2.880%	15,541	x-ref Schedule 5
3	Unfunded Debt			63,177	11.700%	1.500%	0.180%	948	x-ref Schedule 5
4	Common Equity			<u>216,078</u>	<u>40.000%</u>	<u>13.841%</u>	<u>5.536%</u>	<u>29,907</u>	
5	Before Sub Debt Interest	Schedule 39		<u>\$540,195</u>	<u>100.000%</u>		<u>8.596%</u>	<u>\$46,396</u>	
6	Sub Debt Interest							<u>1,270</u>	x-ref Schedule 5
7	Total						<u>8.824%</u>	<u>\$47,666</u>	
8	2009 COST OF SERVICE RATES - PROJECTION								
9	Long-Term Debt			\$260,940	48.340%	5.956%	2.880%	15,541	x-ref Schedule 5
10	Unfunded Debt		\$63,177						
11	Adjustment, Revised Rates		(244)	62,933	11.660%	1.500%	0.170%	944	x-ref Schedule 5
13	Common Equity			<u>215,915</u>	<u>40.000%</u>	<u>9.170%</u>	<u>3.670%</u>	<u>19,799</u>	
14	Before Sub Debt Interest	Schedule 39		<u>\$539,788</u>	<u>100.000%</u>		<u>6.720%</u>	<u>36,284</u>	x-ref Schedule 5
15	Sub Debt Interest							<u>1,270</u>	
16							<u>6.957%</u>	<u>37,554</u>	x-ref Schedule 2, 5, 14

TERASEN GAS (VANCOUVER ISLAND) INC.  
  
RETURN ON CAPITAL  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Nov. 5 2009 NSP Agreement      Section C  
Tab 13  
Schedule 12

Line No.	Particulars	Reference	----- Capitalization -----		Embedded Cost	Cost Component	Earned Return	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	APPROVED RATES							
2	Long-Term Debt			\$289,659	52.210%	5.950%	3.110%	17,233 x-ref Schedule 6
3	Unfunded Debt			43,199	7.790%	2.500%	0.190%	1,080 x-ref Schedule 6
4	Common Equity			<u>221,905</u>	<u>40.000%</u>	<u>22.882%</u>	<u>9.153%</u>	<u>50,776</u>
5		Schedule 40		<u>\$554,763</u>	<u>100.000%</u>		<u>12.453%</u>	<u>\$69,089</u>
6								261 x-ref Schedule 6
7							<u>12.501%</u>	<u>\$69,350</u>
8	2010 COST OF SERVICE RATES							
9	Long-Term Debt			\$289,659	52.280%	5.950%	3.110%	17,233 x-ref Schedule 6
10	Unfunded Debt		\$43,199					
11	Adjustment, Revised Rates		(450)	42,749	7.720%	2.500%	0.190%	1,069 x-ref Schedule 6
13	Common Equity			<u>221,605</u>	<u>40.000%</u>	<u>9.170%</u>	<u>3.670%</u>	<u>20,321</u>
14		Schedule 40		<u>\$554,013</u>	<u>100.000%</u>		<u>6.970%</u>	<u>38,623</u> x-ref Schedule 6
15								261
16							<u>7.019%</u>	<u>38,884</u> x-ref Schedule 3, 6, 14

TERASEN GAS (VANCOUVER ISLAND) INC.  
  
RETURN ON CAPITAL  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Nov. 5 2009 NSP Agreement

Section C  
Tab 13  
Schedule 13

Line No.	Particulars	Reference	----- Capitalization -----		Embedded Cost	Cost Component	Earned Return	
	(1)	(2)	(3)	Amount	%	(6)	(7)	(8)
1	APPROVED RATES							
2	Long-Term Debt			\$390,731	53.570%	6.119%	3.278%	23,909 x-ref Schedule 7
3	Unfunded Debt			46,894	6.430%	4.750%	0.305%	2,227 x-ref Schedule 7
4	Common Equity			<u>291,750</u>	<u>40.000%</u>	15.361%	<u>6.145%</u>	<u>44,816</u>
5		Schedule 41						
6								
7				<u>\$729,375</u>	<u>100.000%</u>		<u>9.728%</u>	<u>\$70,953</u>
8	2011 COST OF SERVICE RATES							
9	Long-Term Debt			\$390,731	53.600%	6.119%	3.280%	23,909 x-ref Schedule 7
10	Unfunded Debt		\$46,894					
11	Adjustment, Revised Rates		(229)	46,665	6.400%	4.750%	0.304%	2,217 x-ref Schedule 7
13	Common Equity			<u>291,598</u>	<u>40.000%</u>	9.170%	<u>3.668%</u>	<u>26,740</u>
14		Schedule 41						
15								
16				<u>\$728,994</u>	<u>100.000%</u>		<u>7.252%</u>	<u>52,866</u> x-ref Schedule 4, 7, 14

UTILITY INCOME AND EARNED RETURN  
FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011  
(\$000s)

**APPENDIX A**  
**to Order G-140-09**  
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Tab 14  
Schedule 14

Line No.	Particulars	2009			2010			2011			Reference
		Approved Rates	Surplus	Cost of Service Rates	Approved Rates	Surplus	Cost of Service Rates	Approved Rates	Surplus	Cost of Service Rates	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	ENERGY VOLUMES (TJ)										
2	Sales	12,264	-	12,264	12,241	-	12,241	12,433	-	12,433	Schedules 15, 16, 17
3	Transportation	22,946	-	22,946	22,309	-	22,309	22,017	-	22,017	Schedules 15, 16, 17
4		<u>35,210</u>	<u>-</u>	<u>35,210</u>	<u>34,550</u>	<u>-</u>	<u>34,550</u>	<u>34,450</u>	<u>-</u>	<u>34,450</u>	
5	Average Rate per GJ										
6	Sales	\$14.636		\$13.459	\$14.659		\$11.179	\$14.671		\$12.692	
7	Transportation	\$0.967		\$0.967	\$0.926		\$0.926	\$0.931		\$0.931	
8	Average	\$5.728		\$5.318	\$5.792		\$4.559	\$5.890		\$5.176	
9	Sales - Present Rates	\$179,501	\$0	\$179,501	\$179,445	\$0	\$179,445	\$182,402	\$0	\$182,402	Schedules 18, 19, 20
10	- Increase / (Decrease)	-	(14,443)	(14,443)	-	(42,605)	(42,605)	-	(24,603)	(24,603)	
11	Transportation - Present Rates	22,194	-	22,194	20,669	-	20,669	20,500	-	20,500	Schedules 18, 19, 20
12	- Increase / (Decrease)	-	-	-	-	-	-	-	-	-	
13	Total Revenue	<u>201,695</u>	<u>(14,443)</u>	<u>187,252</u>	<u>200,114</u>	<u>(42,606)</u>	<u>157,508</u>	<u>202,902</u>	<u>(24,603)</u>	<u>178,299</u>	
14	Royalty Credit	(28,095)	-	(28,095)	(35,832)	-	(35,832)	(40,091)	-	(40,091)	
15	GCVA Amortization	4,162		4,162	(4,047)		(4,047)	-	-	-	
16	GCVA Additions	5,781	-	5,781	-	-	-	-	-	-	
17	Cost of Gas	<u>99,314</u>	<u>-</u>	<u>99,314</u>	<u>98,628</u>	<u>-</u>	<u>98,628</u>	<u>107,311</u>	<u>-</u>	<u>107,311</u>	Schedule 21
18	RACOG Including GCVA Impacts	<u>81,162</u>	<u>-</u>	<u>81,162</u>	<u>58,750</u>	<u>-</u>	<u>58,750</u>	<u>67,220</u>	<u>-</u>	<u>67,220</u>	
19	Gross Margin	<u>120,533</u>	<u>(14,443)</u>	<u>106,090</u>	<u>141,364</u>	<u>(42,606)</u>	<u>98,758</u>	<u>135,682</u>	<u>(24,603)</u>	<u>111,079</u>	
20	Operation and Maintenance	26,178	-	26,178	26,858	-	26,858	28,136	-	28,136	
21	Transportation Expenses	3,977	-	3,977	4,015	-	4,015	4,122	-	4,122	
22	Operating Leases	828	-	828	-	-	-	-	-	-	
23	Property and Sundry Taxes	8,449	-	8,449	9,119	-	9,119	9,564	-	9,564	Schedule 26
24	Depreciation and Amortization	23,017	-	23,017	19,202	-	19,202	25,232	-	25,232	Schedules 27, 28, 29
25	Removal Costs (Depreciation)	-	-	-	343	-	343	344	-	344	
26	IFRS Transitional Deferral	-	-	-	1,400	-	1,400	(1,400)	-	(1,400)	
27	Other Operating Revenue	<u>(893)</u>	<u>-</u>	<u>(893)</u>	<u>(717)</u>	<u>-</u>	<u>(717)</u>	<u>(9,752)</u>	<u>-</u>	<u>(9,752)</u>	Schedule 22
28		<u>61,556</u>	<u>-</u>	<u>61,556</u>	<u>60,220</u>	<u>0</u>	<u>60,220</u>	<u>56,246</u>	<u>-</u>	<u>56,246</u>	
29	Utility Income Before Income Taxes	58,977	(14,443)	44,534	81,144	(42,606)	38,538	79,437	(24,604)	54,833	
30	Income Taxes	<u>13,178</u>	<u>(4,331)</u>	<u>8,847</u>	<u>13,661</u>	<u>(12,140)</u>	<u>1,521</u>	<u>10,352</u>	<u>(6,518)</u>	<u>3,834</u>	Schedules 30, 31, 32
33	EARNED RETURN after VINGPA Adjustment	<u>45,799</u>	<u>(\$10,112)</u>	<u>\$35,687</u>	<u>\$67,483</u>	<u>(\$30,466)</u>	<u>\$37,017</u>	<u>\$69,085</u>	<u>(\$18,086)</u>	<u>\$50,999</u>	
34	UTILITY RATE BASE	<u>\$540,195</u>	<u>(\$407)</u>	<u>\$539,788</u>	<u>\$554,763</u>	<u>(\$750)</u>	<u>\$554,013</u>	<u>\$729,375</u>	<u>(\$381)</u>	<u>\$728,994</u>	Schedules 39, 40, 41
35	RATE OF RETURN ON UTILITY RATE BASE										
36	Before VINGPA Adjustment	<u>8.82%</u>		<u>6.96%</u>	<u>12.50%</u>		<u>7.02%</u>	<u>9.73%</u>		<u>7.25%</u>	
37	After VINGPA Adjustment	<u>8.48%</u>		<u>6.61%</u>	<u>12.16%</u>		<u>6.68%</u>	<u>9.47%</u>		<u>7.00%</u>	
38	EARNED RETURN	47,666	(10,112)	37,554	69,350	(30,466)	38,884	70,952	(18,086)	52,866	
39	VINGPA Adjustment	<u>(1,867)</u>	<u>-</u>	<u>(1,867)</u>	<u>(1,867)</u>	<u>-</u>	<u>(1,867)</u>	<u>(1,867)</u>	<u>-</u>	<u>(1,867)</u>	
40	EARNED RETURN after VINGPA Adjustment	<u>45,799</u>	<u>(10,112)</u>	<u>35,687</u>	<u>67,483</u>	<u>(30,466)</u>	<u>37,017</u>	<u>69,085</u>	<u>(18,086)</u>	<u>50,999</u>	

TERASEN GAS (VANCOUVER ISLAND) INC.

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Schedule 15

GAS SALES AND TRANSPORTATION VOLUMES  
FOR THE YEAR ENDING DECEMBER 31, 2009

Line No.	Particulars (1)	2009 Terajoules				Change (6)	Reference (7)
		2009 APPROVED (2)	Core and Non-Core (3)	Special Rates (4)	Total (5)		
1	Core						
2	RGS	5,116.8	4,859.0	0.0	4,859.0	(257.8)	
3	AGS	1,150.8	1,129.6		1,129.6	(21.2)	
4	SCS1	361.1	446.5		446.5	85.4	
5	SCS2	548.9	501.4		501.4	(47.5)	
6	LCS1	1,362.4	1,344.4		1,344.4	(18.0)	
7	LCS2	1,265.1	1,314.9		1,314.9	49.8	
8	LCS3	2,535.6	2,421.9		2,421.9	(113.7)	
9	Residential & Commercial sub-total	<u>12,340.7</u>	<u>12,017.7</u>	<u>0.0</u>	<u>12,017.7</u>	<u>(323.0)</u>	
10	HLF	175.5	129.2		129.2	(46.3)	
11	ILF	119.7	117.1		117.1	(2.6)	
12	Total Core	<u>12,635.9</u>	<u>12,264.0</u>	<u>0.0</u>	<u>12,264.0</u>	<u>(371.9)</u>	x-ref Schedule 2, 14
13	Transportation Service						
14	BCH	16,425.0	16,567.9	0.0	16,567.9	142.9	
15	TGW	1,919.6	1,875.5	0.0	1,875.5	(44.1)	
16	VIGJV	2,920.0	0.0	4,098.0	4,098.0	1,178.0	
17	TG Squamish	427.8	0.0	404.7	404.7	(23.1)	
18	Total Transportation Service	<u>21,692.4</u>	<u>18,443.4</u>	<u>4,502.7</u>	<u>22,946.1</u>	<u>1,253.7</u>	x-ref Schedule 2, 14
19	<b>TOTAL SALES AND TRANSPORTATION SERVICES</b>	<u><u>34,328.2</u></u>	<u><u>30,707.4</u></u>	<u><u>4,502.7</u></u>	<u><u>35,210.1</u></u>	<u><u>881.9</u></u>	

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Schedule 16

GAS SALES AND TRANSPORTATION VOLUMES  
FOR THE YEAR ENDING DECEMBER 31, 2010

Line No.	Particulars (1)	2009 PROJECTION (2)	2010 Terajoules			Change (6)	Reference (7)
			Core and Non-Core (3)	Special Rates (4)	Total (5)		
1	Core						
2	RGS	4,859.0	4,891.8	0.0	4,891.8	32.8	
3	AGS	1,129.6	1,110.3		1,110.3	(19.3)	
4	SCS1	446.5	406.2		406.2	(40.3)	
5	SCS2	501.4	483.7		483.7	(17.7)	
6	LCS1	1,344.4	1,329.4		1,329.4	(15.0)	
7	LCS2	1,314.9	1,383.5		1,383.5	68.6	
8	LCS3	2,421.9	2,383.5		2,383.5	(38.4)	
9	Residential & Commercial sub-total	12,017.7	11,988.4	0.0	11,988.4	(29.3)	
10	HLF	129.2	132.4		132.4	3.2	
11	ILF	117.1	120.5		120.5	3.4	
12	Total Core	12,264.0	12,241.3	0.0	12,241.3	(22.7)	x-ref Schedule 3, 14
13	Transportation Service						
14	BCH	16,567.9	18,250.0	0.0	18,250.0	1,682.1	
15	TGW	1,875.5	725.2	0.0	725.2	(1,150.3)	
16	VIGJV	4,098.0	0.0	2,920.0	2,920.0	(1,178.0)	
17	TG Squamish	404.7	0.0	413.4	413.4	8.7	
18	Total Transportation Service	22,946.1	18,975.2	3,333.4	22,308.6	(637.5)	x-ref Schedule 3, 14
19	<b>TOTAL SALES AND TRANSPORTATION SERVICES</b>	35,210.1	31,216.5	3,333.4	34,549.9	(660.2)	

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Schedule 17

GAS SALES AND TRANSPORTATION VOLUMES  
FOR THE YEAR ENDING DECEMBER 31, 2011

Line No.	Particulars	2010 FORECAST	2011 Terajoules			Change	Reference
			Core and Non-Core	Special Rates	Total		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Core						
2	RGS	4,891.8	5,015.3	0.0	5,015.3	123.5	
3	AGS	1,110.3	1,116.6		1,116.6	6.3	
4	SCS1	406.2	414.4		414.4	8.2	
5	SCS2	483.7	485.2		485.2	1.5	
6	LCS1	1,329.4	1,334.2		1,334.2	4.8	
7	LCS2	1,383.5	1,396.8		1,396.8	13.3	
8	LCS3	2,383.5	2,417.2		2,417.2	33.7	
9	Residential & Commercial sub-total	11,988.4	12,179.7	0.0	12,179.7	191.3	
10	HLF	132.4	132.4		132.4	0.0	
11	ILF	120.5	120.5		120.5	0.0	
12	Total Core	12,241.3	12,432.6	0.0	12,432.6	191.3	x-ref Schedule 4, 14
13	Transportation Service						
14	BCH	18,250.0	17,945.0	0.0	17,945.0	(305.0)	
15	TGW	725.2	729.9	0.0	729.9	4.7	
16	VIGJV	2,920.0	0.0	2,920.0	2,920.0	0.0	
17	TG Squamish	413.4	0.0	422.3	422.3	8.9	
18	Total Transportation Service	22,308.6	18,674.9	3,342.3	22,017.2	(291.4)	x-ref Schedule 4, 14
19	<b>TOTAL SALES AND TRANSPORTATION SERVICES</b>	<b>34,549.9</b>	<b>31,107.5</b>	<b>3,342.3</b>	<b>34,449.8</b>	<b>(100.1)</b>	

TERASEN GAS (VANCOUVER ISLAND) INC.

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Tab 13  
Schedule 18

REVENUE  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Particulars	2009 Gas Sales Revenue At Approved Rates					Reference
		2009 APPROVED	Core and Transportation	Special Rates	Total	Change	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	<b>Core Sales</b>						
2	RGS	\$84,300	\$80,487	\$0	\$80,487	(\$3,813)	
3	AGS	14,644	14,399		14,399	(245)	
4	SCS1	6,627	8,113		8,113	1,486	
5	SCS2	9,738	8,826		8,826	(912)	
6	LCS1	19,264	18,902		18,902	(362)	
7	LCS2	16,203	16,740		16,740	537	
8	LCS3	30,811	29,410		29,410	(1,401)	
9	Residential & Commercial sub-total	181,588	176,878	-	176,878	(4,710)	
10	HLF	1,975	1,417	-	1,417	(557)	
11	ILF	1,233	1,206		1,206	(26)	
		3,207	2,624	-	2,624	(584)	
12	Total Core Sales	184,795	179,501	-	179,501	(5,294)	x-ref Schedules 2, 14
13	Transportation Service						
14	BCH	\$14,980	16,189	-	16,189	1,209	
15	TGW	1,970	1,739	-	1,739	(230)	
16	VIGJV	2,727	-	3,841	3,841	1,114	
17	TG Squamish	449	-	425	425	(24)	
18	Total Core and Transportation Service	20,126	17,928	4,266	22,194	2,069	x-ref Schedules 2, 14
19	TOTAL SALES AND TRANSPORTATION SERVICE	\$204,921	\$197,430	\$4,266	\$201,696	(\$3,225)	x-ref Schedules 65



TERASEN GAS (VANCOUVER ISLAND) INC.

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Section C

Tab 13

Schedule 19

REVENUE

FOR THE YEAR ENDING DECEMBER 31, 2010

(\$000s)

Line No.	Particulars	2010 Gas Sales Revenue At Approved Rates				Change	Reference	\$'s per GJ (effective rates)
		2009 PROJECTION	Core and Transportation	Special Rates	Total			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	<b>Core Sales</b>							
2	RGS	\$80,487	\$81,286	\$0	\$81,286	\$799		\$16.617
3	AGS	14,399	14,160		14,160	(239)		12.753
4	SCS1	8,113	7,461		7,461	(651)		18.369
5	SCS2	8,826	8,518		8,518	(307)		17.611
6	LCS1	18,902	18,744		18,744	(159)		14.099
7	LCS2	16,740	17,646		17,646	905		12.754
8	LCS3	29,410	28,931		28,931	(479)		12.138
9	Residential & Commercial sub-total	176,878	176,746	-	176,746	(132)		
10	HLF	1,417	1,459	-	1,459	41		11.018
11	ILF	1,206	1,241	-	1,241	34		10.296
		2,624	2,699	-	2,699	76		
12	Total Core Sales	179,501	179,445	-	179,445	(56)	x-ref Schedules 3, 14	
13	Transportation Service							
14	BCH	16,189	15,148	-	15,148	(1,041)		0.830
15	TGW	1,739	2,359	-	2,359	620		3.253
16	VIGJV	3,841	-	2,728	2,728	(1,113)		0.934
17	TG Squamish	425	-	434	434	9		1.050
18	Total Core and Transportation Service	22,194	17,507	3,162	20,669	(1,525)	x-ref Schedules 3, 14	
19	TOTAL SALES AND TRANSPORTATION SERVICE	\$201,696	\$196,952	\$3,162	\$200,114	(\$1,581)	x-ref Schedules 65	

TERASEN GAS (VANCOUVER ISLAND) INC.

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Section C  
 Tab 13  
 Schedule 20

REVENUE  
 FOR THE YEAR ENDING DECEMBER 31, 2011  
 (\$000s)

Line No.	Particulars	2011 Gas Sales Revenue At Approved Rates					Reference	\$'s per GJ (effective rates)
		2010 FORECAST	Core and Transportation	Special Rates	Total	Change		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	<b>Core Sales</b>							
2	RGS	\$81,286	\$83,340	\$0	\$83,340	\$2,053		\$16.617
3	AGS	14,160	14,240		14,240	80		12.753
4	SCS1	7,461	7,612		7,612	151		18.370
5	SCS2	8,518	8,546		8,546	28		17.614
6	LCS1	18,744	18,812		18,812	68		14.100
7	LCS2	17,646	17,814		17,814	169		12.754
8	LCS3	28,931	29,337		29,337	407		12.137
9	Residential & Commercial sub-total	176,746	179,703	-	179,703	2,957		
10	HLF	1,459	1,459	-	1,459	-		11.018
11	ILF	1,241	1,241	-	1,241	-		10.296
		2,699	2,699	-	2,699	-		
12	Total Core Sales	179,445	182,402	-	182,402	2,957	x-ref Schedules 4, 14	
13	Transportation Service							
14	BCH	15,148	14,894	-	14,894	(253)		0.830
15	TGW	2,359	2,386	-	2,386	27		3.269
16	VIGJV	2,728	-	2,776	2,776	48		0.951
17	TG Squamish	434	-	443	443	9		1.050
18	Total Core and Transportation Service	20,669	17,281	3,219	20,500	(169)	x-ref Schedules 4, 14	
19	TOTAL SALES AND TRANSPORTATION SERVICE	\$200,114	\$199,683	\$3,219	\$202,902	\$2,788	x-ref Schedules 65	

TERASEN GAS (VANCOUVER ISLAND) INC.

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Section C

COST OF GAS  
 FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011  
 (\$000s)

Tab 13  
 Schedule 21

Line No.	Particulars	2009 Gas Costs			2010 Gas Costs			2011 Gas Costs		
		Core and Non-Core	Special Rates	Total	Core and Non-Core	Special Rates	Total	Core and Non-Core	Special Rates	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	<b>Core</b>									
2	RGS	39,348	\$0	\$39,348	\$39,414	\$0	\$39,414	43,289	\$0	\$43,289
3	AGS	9,147		9,147	8,946		8,946	9,638		9,638
4	SCS1	3,616		3,616	3,272		3,272	3,577		3,577
5	SCS2	4,061		4,061	3,897		3,897	4,188		4,188
6	LCS1	10,887		10,887	10,711		10,711	11,516		11,516
7	LCS2	10,648		10,648	11,147		11,147	12,056		12,056
8	LCS3	19,613		19,613	19,204		19,204	20,864		20,864
9	Residential & Commercial sub-total	97,320	-	97,320	96,591	-	96,591	105,128	-	105,128
10	HLF	1,046		1,046	1,066		1,066	1,143		1,143
11	ILF	948		948	971		971	1,040		1,040
12	Industrial Subtotal	1,994	-	1,994	2,037	-	2,037	2,183	-	2,183
13	Total Core	99,314	-	99,314	98,628	-	98,628	107,311	-	107,311
14	Unit Cost of Gas before Royalty Credit and GCVA	\$8.098		\$8.098	\$8.057		\$8.057	\$8.631		\$8.631

x-ref Schedules 2, 3, 4, 14

TERASEN GAS (VANCOUVER ISLAND) INC.

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 Schedule 22

OTHER OPERATING REVENUE  
 FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011  
 (\$000s)

Line No.	Particulars (1)	2009 (2)	2010 (3)	2011 (4)	Reference (5)
1	<b>Other Operating Revenue</b>				
2	Late Payment Charge	\$368	\$340	\$345	
3	Connection Charge	519	370	380	
4	NSF Returned Cheque Charges	4	5	5	
5	Other Recoveries	2	2	2	
6	LNG Mitigation Revenue	0	0	9,020	
7	Total Other Operating Revenue	<u>\$893</u>	<u>\$717</u>	<u>\$9,752</u>	x-ref Schedules 2, 3, 4, 14, 65

TERASEN GAS (VANCOUVER ISLAND) INC.

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Section C

Tab 13

OPERATION & MAINTENANCE EXPENSES - RESOURCE VIEW

Schedule 23

(\$000)

Line No.	Particulars	PROJECTION 2009 (3)	FORECAST 2010 (4)	FORECAST 2011 (5)	
	(1)				
1	M&E Costs	\$ 3,996	\$ 4,225	\$ 3,868	
2	COPE Costs	63	109	110	
3	IBEW Costs	4,425	4,486	5,451	
4	<b>Labour Costs</b>	<b>8,484</b>	<b>8,819</b>	<b>9,429</b>	
5	Vehicle Costs	610	667	722	
6	Employee Expenses	522	567	587	
7	Materials and Supplies	956	1,338	1,395	
8	Computer Costs	379	302	231	
9	Fees and Administration Costs	8,868	11,387	11,911	
10	Contractor Costs	8,049	7,076	7,125	
11	Facilities	2,114	2,169	2,416	
12	Recoveries & Revenue	(962)	(1,093)	(1,115)	
13	<b>Non-Labour Costs</b>	<b>20,537</b>	<b>22,412</b>	<b>23,273</b>	
14	<b>Total Gross O&amp;M Expenses</b>	<b>29,021</b>	<b>31,231</b>	<b>32,702</b>	
15	Allocation to Terasen Gas Whistler	(245)	-	-	
16	<b>Total Gross O&amp;M Expenses net of allocation to TGW</b>	<b>28,776</b>	<b>31,231</b>	<b>32,702</b>	
17	Less: Capitalized Overhead	(5,033)	(4,372)	(4,567)	
18	<b>Total O&amp;M Expenses</b>	<b>\$ 23,743</b>	<b>\$ 26,858</b>	<b>\$ 28,136</b>	x-ref Schedules 3, 4, 14

Note: 2009 numbers are projected actual as opposed to approved

TERASEN GAS (VANCOUVER ISLAND) INC.

Nov. 5 2009 NSP Agreement

Section C

Tab 13

Schedule 24

OPERATION & MAINTENANCE EXPENSES - ACTIVITY VIEW

(\$000s)

Line No.	Particulars	Reference	PROJECTION 2009	FORECAST 2010	FORECAST 2011
	(1)	(2)	(3)	(4)	(5)
1	<i>Operating</i>				
2	Distribution Supervision	100-11	\$ 1,741	\$ 1,909	\$ 1,951
3	Distribution Supervision Total	100-10	1,741	1,909	1,951
4	Operation Centre - Distribution	100-21	(0)	507	526
5	Preventative Maintenance - Distribution	100-23	228	222	172
6	Distribution Operations - General	100-24	868	766	795
7	Meter Exchange	100-25	(0)	-	-
8	Emergency Management	100-26	1,285	1,217	1,266
9	Distribution Operations Total	100-20	2,380	2,712	2,759
10	Distribution Corrective - Meters	100-31	286	161	169
11	Distribution Corrective - Propane	100-32	-	-	-
12	Distribution Corrective - Leak Repair	100-33	151	135	139
13	Distribution Corrective - Stations	100-34	36	42	40
14	Distribution Corrective - General	100-35	124	72	75
15	Distribution Maintenance Total	100-30	597	409	422
16	<b>Distribution Total</b>	<b>100</b>	<b>4,719</b>	<b>5,030</b>	<b>5,132</b>
17	Pipeline Operation - Operations	200-21	2,013	1,439	1,346
18	Right of Way	200-22	157	172	175
19	Compression - Operations	200-23	942	1,074	1,004
20	Gas Control	200-24	-	-	-
21	Transmission - Operation	200-20	3,112	2,685	2,525
22	Pipeline Operation - Maintenance	200-31	511	589	610
23	Compression - Maintenance	200-33	1,322	614	671
24	Transmission - Maintenance	200-30	1,833	1,202	1,281
25	<b>Transmission Total</b>	<b>200</b>	<b>4,945</b>	<b>3,887</b>	<b>3,806</b>
26	<b>Mt. Hayes</b>	300-11	-	<b>395</b>	<b>1,685</b>
27	<b>LNG Total</b>	<b>300</b>	-	<b>395</b>	<b>1,685</b>
26	Measurement Operations	400-11	461	468	527
27	Measurement - Operation	400-10	461	468	527
28	Measurement Maintenance	400-21	591	603	603
29	Measurement - Maintenance	400-20	591	603	603
30	<b>Measurement</b>	<b>400</b>	<b>1,053</b>	<b>1,071</b>	<b>1,130</b>
31	Facilities Management	500-10	1,487	1,521	1,596
32	Operations Engineering	500-30	270	305	310
33	System Integrity	500-50	154	206	210
34	<b>General Operations Total</b>	<b>500</b>	<b>1,912</b>	<b>2,031</b>	<b>2,116</b>
35	<b>Total Operating</b>		<b>12,628</b>	<b>12,414</b>	<b>13,869</b>

TERASEN GAS (VANCOUVER ISLAND) INC.

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Section C

Tab 13

OPERATION & MAINTENANCE EXPENSES - ACTIVITY VIEW (CONT'D)

Schedule 25

(\$000s)

Line No.	Particulars	Reference	PROJECTION 2009	FORECAST 2010	FORECAST 2011
	(1)	(2)	(3)	(4)	(5)
1	<i>General &amp; Administration</i>				
2	Corporate & Marketing Communications	600-30	497	0	0
3	<b>Marketing Total</b>	<b>600</b>	<b>497</b>	<b>0</b>	<b>0</b>
4	Customer Care - Supervision	700-10	-	-	-
5	Customer Contact - ABSU contract	700-20	5,133	5,277	5,480
6	Bad Debt Management and Administration	700-30	482	259	276
7	Customer Management & Sales	700-40	1,087	1,140	1,168
8	<b>Customer Care Total</b>	<b>700</b>	<b>6,702</b>	<b>6,676</b>	<b>6,923</b>
9	Application Management	800-20	584	433	438
10	<b>Business &amp; IT Services Total</b>	<b>800</b>	<b>584</b>	<b>433</b>	<b>438</b>
11	Corporate Administration	900-10	7,310	10,076	10,345
12	Public Affairs	900-30	177	270	270
13	Human Resource	900-50	-	-	-
14	Other Post Employment Benefit	900-60	1,123	1,362	858
15	<b>Administration &amp; General Total</b>	<b>900</b>	<b>8,610</b>	<b>11,708</b>	<b>11,473</b>
16	<b>Total General &amp; Administration</b>		<b>16,393</b>	<b>18,817</b>	<b>18,834</b>
17	<b>Total Gross O&amp;M Expenses</b>		<b>29,021</b>	<b>31,231</b>	<b>32,702</b>
18	Allocation to Terasen Gas Whistler		(245)	-	-
19	<b>Total Gross O&amp;M Expenses net of allocation to TGW</b>		<b>28,776</b>	<b>31,231</b>	<b>32,702</b>
20	Less: Capitalized Overhead		(5,033)	(4,372)	(4,567)
21	<b>Total O&amp;M Expenses</b>		<b>\$ 23,743</b>	<b>\$ 26,858</b>	<b>\$ 28,136</b>

x-ref Schedules 3, 4, 14

Note: 2009 numbers are projected actual as opposed to approved

PROPERTY AND SUNDRY TAXES  
FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011  
(\$000s)

**APPENDIX A**  
**to Order G-140-09**  
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Line No.	Particulars (1)	2009 Expenses (3)	2010 Expenses (4)	2011 Expenses (5)	
1	Property Taxes				
2	1% in Lieu of General Municipal Tax	\$1,522	\$1,652	\$1,655	
3	General, School and Other	<u>6,927</u>	<u>7,468</u>	<u>7,909</u>	
4	Total	<u><u>\$8,449</u></u>	<u><u>\$9,119</u></u>	<u><u>\$9,564</u></u>	x-ref Schedules 2, 3, 4, 14



TERASEN GAS (VANCOUVER ISLAND) INC.

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Schedule 27

DEPRECIATION AND AMORTIZATION EXPENSES  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Particulars (1)	2009 APPROVED (2)	2009 Projection (3)	Change (4)	Reference (5)
1	<b><u>Depreciation Provision</u></b>				
2	Total Depreciation Expense	\$19,242	\$23,798	\$4,556	Schedule 50
4	Less: Depreciation Expense Allocated to TGW	(22)	(22)	-	
5	Less: Amortization of Contributions in Aid of Construction	1,990	(2,545)	(4,535)	Schedule 55
6		<u>21,210</u>	<u>21,231</u>	<u>21</u>	
7	<b><u>Amortization Expense</u></b>				
8	Amortization of Deferred Charges	\$4,790	\$5,949	\$1,158	Schedule 58
9	Amortization of RDDA	9,275	-	(9,275)	
10	Amortization Expense Including GCVA	<u>14,065</u>	<u>5,949</u>	<u>(8,117)</u>	
11	Less: GCVA (Cost of Gas Item)	(3,045)	(4,162)	(\$1,117)	Schedule 58
12	Adjusted Total Amortization Expense	<u>11,020</u>	<u>1,787</u>	<u>(9,234)</u>	
13	TOTAL	<u>\$32,230</u>	<u>\$23,017</u>	<u>(\$9,213)</u>	x-ref Schedules 2, 14. 33

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Schedule 28

DEPRECIATION AND AMORTIZATION EXPENSES  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars (1)	2009 PROJECTION (2)	2010 Forecast (3)	Change (4)	Reference (5)
1	<b><u>Depreciation Provision</u></b>				
2	Total Depreciation Expense	\$23,798	\$26,231	\$2,432	Schedule 52
4	Less: Depreciation Expense Allocated to TGW	(22)	-	(22)	
5	Less: Amortization of Contributions in Aid of Construction	(2,545)	(4,415)	(1,870)	Schedule 56
6		<u>21,231</u>	<u>21,816</u>	<u>562</u>	
7	<b><u>Amortization Expense</u></b>				
8	Amortization of Deferred Charges	\$5,949	(\$5,179)	(\$11,128)	Schedule 59
9	Amortization of 2009 Revenue Surplus	-	(1,481)	(1,481)	Schedule 59
10		<u>5,949</u>	<u>(6,660)</u>	<u>(12,609)</u>	
11	Less: GCVA (Cost of Gas Item)	(4,162)	4,047	8,209	Schedule 59
12	Adjusted Total Amortization Expense	<u>1,787</u>	<u>(2,614)</u>	<u>(4,400)</u>	
13	TOTAL	<u>\$23,017</u>	<u>\$19,202</u>	<u>(\$3,816)</u>	x-ref Schedules 3, 14, 34

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Schedule 29

DEPRECIATION AND AMORTIZATION EXPENSES  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars (1)	2010 FORECAST (2)	2011 Forecast (3)	Change (4)	Reference (5)
1	<b><u>Depreciation Provision</u></b>				
2	Total Depreciation Expense	\$26,231	\$30,409	\$4,179	Schedule 54
4	Less: Depreciation Expense Allocated to TGW	-	-	-	
5	Less: Amortization of Contributions in Aid of Construction	(4,415)	(4,423)	(8)	Schedule 57
6		<u>21,816</u>	<u>25,986</u>	<u>4,171</u>	
7	<b><u>Amortization Expense</u></b>				
8	Amortization of Deferred Charges	(\$5,179)	\$727	\$5,907	Schedule 60
9	Amortization of 2009 Revenue Surplus	(1,481)	(1,481)	-	Schedule 60
10		<u>(6,660)</u>	<u>(754)</u>	<u>5,907</u>	
11	Less: GCVA (Cost of Gas Item)	4,047	-	(4,047)	Schedule 60
12	Adjusted Total Amortization Expense	<u>(2,614)</u>	<u>(754)</u>	<u>1,860</u>	
13	TOTAL	<u>\$19,202</u>	<u>\$25,232</u>	<u>6,030</u>	x-ref Schedules 4, 14, 35

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Schedule 30

INCOME TAXES  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

		2009					
Line No.	Particulars	2009 APPROVED	Approved Rates	Cost of Service Rates	Total	Change	Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	CALCULATION OF INCOME TAXES						
2	Earned Return After VINGPA Adjustment	\$36,756	\$45,799	(\$10,112)	\$35,687	(\$1,069)	Schedule 2
3	Deduct - Interest on Debt	(20,325)	(17,759)	4	(17,755)	2,570	
4	Add - O&M Savings	2,127	2,435	-	2,435	308	
5	Add- Non-Tax Ded. Expense (Net)	15,609	6,015	-	6,015	(9,595)	Schedule 33
6	Accounting Income After Tax	34,167	36,489	(10,108)	26,382	(7,786)	
7	Add (Deduct) - Timing Differences	(6,388)	(5,740)	-	(5,740)	648	Schedule 33
8	Taxable Income After Tax	\$27,779	\$30,750	(\$10,108)	20,642	(\$7,137)	
9		30.000%	30.000%	30.000%	30.000%	0.000%	
10	1 - Current Income Tax Rate	70.000%	70.000%	70.000%	70.000%	0.000%	
11	Taxable Income	\$39,685	\$43,928	(\$14,439)	\$29,489	(\$10,196)	
12	Income Tax - Current	\$11,905	\$13,178	(\$4,331)	\$8,847	(\$3,058)	
13	Income Tax - Deferred	-	-	-	-	-	
12	Total Income Tax	\$11,905	\$13,178	(\$4,331)	\$8,847	\$26,331	x-ref Schedules 2, 14

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Schedule 31

INCOME TAXES  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars	2009 PROJECTION (1)	2010			Change (6)	Reference (7)
			Approved Rates (3)	Cost of Service Rates (4)	Total (5)		
1	CALCULATION OF INCOME TAXES						
2	Earned Return After VINGPA Adjustment	\$35,687	\$67,483	(\$30,466)	\$37,017	\$1,330	Schedule 3
3	Deduct - Interest on Debt	(17,755)	(18,574)	11	(18,563)	(808)	
4	Add - O&M Savings	2,435	-	-	-	(2,435)	
5	Add- Non-Tax Ded. Expense (Net)	6,015	(6,593)	-	(6,593)	(12,608)	Schedule 34
6	Accounting Income After Tax	26,382	42,316	(30,455)	11,860	(14,521)	
7	Add (Deduct) - Timing Differences	(5,740)	(8,044)	-	(8,044)	(2,304)	Schedule 34
8	Taxable Income After Tax	<u>\$20,642</u>	<u>\$34,272</u>	<u>(\$30,455)</u>	<u>3,816</u>	<u>(\$16,826)</u>	
9		30.000%	28.500%	28.500%	28.500%	-1.500%	
10	1 - Current Income Tax Rate	70.000%	71.500%	71.500%	71.500%	1.500%	
11	Taxable Income	<u>\$29,489</u>	<u>\$47,933</u>	<u>(\$42,595)</u>	<u>\$5,338</u>	<u>(\$24,151)</u>	
12	Income Tax - Current	\$8,847	\$13,661	(\$12,140)	\$1,521	(\$7,326)	
13	Income Tax - Deferred	-	-	-	-	-	
12	<b>Total Income Tax</b>	<u>\$8,847</u>	<u>\$13,661</u>	<u>(\$12,140)</u>	<u>\$1,521</u>	<u>(\$7,326)</u>	x-ref Schedules 3, 14

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Schedule 32

INCOME TAXES  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars	2011				Change	Reference
		2010 FORECAST	Approved Rates	Cost of Service Rates	Total		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	CALCULATION OF INCOME TAXES						
2	Earned Return After VINGPA Adjustment	\$37,017	\$69,085	(\$18,086)	\$50,999	\$13,982	Schedule 4
3	Deduct - Interest on Debt	(18,563)	(26,136)	10	(26,126)	(7,563)	
4	Add - O&M Savings	-	-	-	-	-	
5	Add- Non-Tax Ded. Expense (Net)	(6,593)	(686)	-	(686)	5,908	Schedule 35
6	Accounting Income After Tax	11,860	42,263	(18,076)	24,187	12,327	
7	Add (Deduct) - Timing Differences	(8,044)	(13,552)	-	(13,552)	(5,509)	Schedule 35
8	Taxable Income After Tax	<u>\$3,816</u>	<u>\$28,711</u>	<u>(\$18,076)</u>	<u>\$10,635</u>	<u>\$6,818</u>	
9		28.500%	26.500%	26.500%	26.500%	-2.000%	
10	1 - Current Income Tax Rate	71.500%	73.500%	73.500%	73.500%	2.000%	
11	Taxable Income	<u>\$5,338</u>	<u>\$39,062</u>	<u>(\$24,593)</u>	<u>\$14,469</u>	<u>\$340,924</u>	
12	Income Tax - Current	\$1,521	\$10,351	(\$6,517)	\$3,834	\$2,313	
13	Income Tax - Deferred	-	-	-	-	-	
12	<b>Total Income Tax</b>	<u>\$1,521</u>	<u>\$10,351</u>	<u>(\$6,517)</u>	<u>\$3,834</u>	<u>\$2,313</u>	x-ref Schedules 4, 14

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Schedule 33

**NON-TAX DEDUCTIBLE EXPENSES (NET) AND TIMING DIFFERENCE ADJUSTMENTS**  
**FOR THE YEAR ENDING DECEMBER 31, 2009**  
**(\$000s)**

Line No.	Particulars	2009 APPROVED (2)	2009 Projection (3)	Change (4)	Reference (5)
	(1)				
<b>1</b>	<b>ITEMS OF A PERMANENT NATURE</b>				
2	Amortization of Deferred Charges	\$15,557	5,949	(\$9,609)	Schedule 27
3	Non-tax Deductible Expenses	52	66	14	
4	Total Permanent Differences	<u>\$15,609</u>	<u>6,015</u>	<u>(\$9,595)</u>	x-ref Schedule 5, 30
<b>5</b>	<b>TIMING DIFFERENCE ADJUSTMENTS</b>				
6	Depreciation	\$19,242	\$23,798	\$4,556	Schedule 27
7	Amortization of Debt Issue Expenses	2,161	26	(\$2,135)	
8	Transmission Pipeline Inspection Costs	-	-	\$0	
9	Debt Issue Costs	(606)	(548)	58	
10	Capital Cost Allowance	(22,805)	(23,741)	(936)	Schedule 36
11	Cumulative Eligible Capital Allowance	(375)	(398)	(23)	
12	Taxable Capital Gain	-	2,859	2,859	
13	Pension & OPEB Expense Booked	2,237	2,237	-	
14	Pension & OPEB Contributions	(1,579)	(1,888)	(309)	
15	Overheads Capitalized Expensed for Tax Purposes	(1,887)	(3,460)	(1,573)	
16	Capitalized Interest	(4,766)	-	4,766	
17	Amortization/Re-amortization of Contributions in Aid of Construction	1,990	(2,545)	(4,535)	Schedule 55
18	CCA Rate Change of 2007 & 2008	-	(624)	(624)	
19	2008 Overheads Capitalized Rate Change	<u>-</u>	<u>(1,455)</u>	<u>(1,455)</u>	
20	Total Timing Differences	<u>(\$6,388)</u>	<u>(\$5,740)</u>	<u>\$648</u>	x-ref Schedule 5, 30

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 Schedule 34

**NON-TAX DEDUCTIBLE EXPENSES (NET) AND TIMING DIFFERENCE ADJUSTMENTS**  
**FOR THE YEAR ENDING DECEMBER 31, 2010**  
 (\$000s)

Line No.	Particulars	2009 PROJECTION	2010 Forecast	Change	Reference
	(1)	(2)	(3)	(4)	(5)
<b>1</b>	<b>ITEMS OF A PERMANENT NATURE INCREASING TAXABLE INCOME</b>				
2	Amortization of Deferred Charges	\$5,949	(6,660)	(\$12,609)	Schedule 28
3	Non-tax Deductible Expenses	66	67	1	
4	Total Permanent Differences	<u>\$6,015</u>	<u>(\$6,593)</u>	<u>(\$12,608)</u>	x-ref Schedule 6, 31
<b>5</b>	<b>TIMING DIFFERENCE ADJUSTMENTS</b>				
6	Depreciation	\$23,798	\$26,231	\$2,433	Schedule 28
7	Amortization of Debt Issue Expenses	26	36	10	
8	Transmission Pipeline Inspection Costs	-	(590)	(590)	
9	Debt Issue Costs	(548)	(534)	14	
10	Capital Cost Allowance	(23,741)	(29,986)	(6,245)	Schedule 37
11	Cumulative Eligible Capital Allowance	(398)	(375)	23	
12	Taxable Capital Gain	2,859	856	(2,003)	
13	Pension & OPEB Expense Booked	2,237	2,345	109	
14	Pension & OPEB Contributions	(1,888)	(1,612)	276	
15	Overheads Capitalized Expensed for Tax Purposes	(3,460)	-	3,460	
16	Capitalized Interest	-	-	-	
17	Amortization of Contributions in Aid of Construction	(2,545)	(4,415)	(1,870)	Schedule 56
18	CCA Rate Change of 2007 & 2008	(624)	-	624	
19	2008 Overheads Capitalized Rate Change	<u>(1,455)</u>	<u>-</u>	<u>1,455</u>	
20	Total Timing Differences	<u>(\$5,740)</u>	<u>(\$8,044)</u>	<u>(\$2,304)</u>	x-ref Schedule 6, 31



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Schedule 35

**NON-TAX DEDUCTIBLE EXPENSES (NET) AND TIMING DIFFERENCE ADJUSTMENTS**  
**FOR THE YEAR ENDING DECEMBER 31, 2011**  
(\$000s)

Line No.	Particulars	2010 FORECAST	2011 Forecast	Change	Reference
	(1)	(2)	(3)	(4)	(5)
<b>1</b>	<b>ITEMS OF A PERMANENT NATURE INCREASING TAXABLE INCOME</b>				
2	Amortization of Deferred Charges	(\$6,660)	(754)	\$5,907	Schedule 29
3	Non-tax Deductible Expenses	67	68	1	
4	Total Permanent Differences	<u>(\$6,593)</u>	<u>(\$686)</u>	<u>\$5,908</u>	x-ref Schedule 7, 32
<b>5</b>	<b>TIMING DIFFERENCE ADJUSTMENTS</b>				
6	Depreciation	\$26,231	\$30,409	4178	Schedule 29
7	Amortization of Debt Issue Expenses	36	42	6	
8	Transmission Pipeline Inspection Costs	(590)	(460)	130	
9	Debt Issue Costs	(534)	(862)	(328)	
10	Capital Cost Allowance	(29,986)	(38,743)	(8,757)	Schedule 38
11	Cumulative Eligible Capital Allowance	(375)	(352)	23	
12	Taxable Capital Gain	856	60	(797)	
13	Pension & OPEB Expense Booked	2,345	2,438	93	
14	Pension & OPEB Contributions	(1,612)	(1,661)	(49)	
15	Overheads Capitalized Expensed for Tax Purposes	-	-	-	
16	Capitalized Interest	-	-	-	
17	Amortization of Contributions in Aid of Construction	(4,415)	(4,423)	(8)	Schedule 57
18	CCA Rate Change of 2007 & 2008	-	-	-	
19	2008 Overheads Capitalized Rate Change	-	-	-	
20	Total Timing Differences	<u>(\$8,044)</u>	<u>(\$13,552)</u>	<u>(\$5,509)</u>	x-ref Schedule 7, 32

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Schedule 36

CAPITAL COST ALLOWANCE  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Class	CCA Rate %	12/31/2008 UCC Balance	Adjustments	2009 Net Additions	2009 CCA	12/31/2009 UCC Balance	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
1	1	4%	\$307,018	\$0	\$0	(\$12,281)	\$294,737	
2	1.3	6%	\$4,728	(70)	269	(288)	4,639	
3	2	6%	\$7,570	-	-	(454)	7,116	
4	3	5%	\$150	-	-	(8)	142	
5	6	10%	\$7	-	-	(1)	6	
6	7	15%	\$15,874	235	3,752	(2,698)	17,163	
7	8	20%	\$8,153	(19)	683	(1,695)	7,122	
8	9	25%	\$0	-	-	-	-	
9	10	30%	\$2,034	(25)	630	(697)	1,942	
10	12	100%	\$520	(20)	1,988	(1,494)	994	
11	13	17%	\$137	-	40	(39)	138	
12	14	5%	\$350	-	-	(25)	325	
13	14	20%	(\$0)	-	-	-	-	
14	38	30%	\$246	(3)	148	(95)	296	
15	45	45%	\$235	-	-	(106)	129	
16	47	8%	\$0	-	-	-	-	
17	49	8%	\$5,888	89	28,207	(1,606)	32,578	
18	50	55%	\$418	(58)	-	(198)	162	
19	51	6%	\$26,529	1,205	13,052	(2,056)	38,730	
20		Total	<u>\$379,857</u>	<u>\$1,334</u>	<u>\$48,769</u>	<u>(\$23,741)</u>	<u>\$406,219</u>	x-ref Schedule 33

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Schedule 37

CAPITAL COST ALLOWANCE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Class (1)	CCA Rate % (2)	12/31/2009 UCC Balance (3)	Adjustments (4)	2010 Net Additions (5)	2010 CCA (6)	12/31/2010 UCC Balance (7)	
1	1	4%	\$294,737	\$0	\$0	(\$11,789)	\$282,948	
2	1.3	6%	4,639	1	210	(285)	4,565	
3	2	6%	7,116	-	-	(427)	6,689	
4	3	5%	142	1	-	(7)	136	
5	6	10%	6	-	-	(1)	5	
6	7	15%	17,163	1	1,984	(2,723)	16,425	
7	8	20%	7,122	-	893	(1,514)	6,501	
8	10	25%	-	-	-	-	-	
9	12	30%	1,942	(1)	630	(677)	1,894	
10	13	100%	994	-	1,500	(1,744)	750	
11	14	17%	138	-	30	(28)	140	
12	17	5%	325	-	-	(25)	300	
13	38	20%	-	-	-	-	-	
14	39	30%	296	-	186	(117)	365	
15	45	45%	129	-	-	(58)	71	
16	47	8%	-	-	79,145	(4,957)	74,188	
17	49	8%	32,578	-	3,639	(2,752)	33,465	
18	50	55%	162	-	-	(89)	73	
19	51	6%	38,730	-	15,649	(2,793)	51,586	
20		Total	<u>\$406,219</u>	<u>\$2</u>	<u>\$103,866</u>	<u>(\$29,986)</u>	<u>\$480,101</u>	x-ref Schedule 34

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CAPITAL COST ALLOWANCE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Class	CCA Rate %	12/31/2010 UCC Balance	Adjustments	2011 Net Additions	2011 CCA	12/31/2011 UCC Balance	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
1	1	4%	\$282,948	\$0	\$0	(\$11,318)	\$271,630	
2	1.3	6%	4,565	-	4,980	(423)	9,122	
3	2	6%	6,689	-	-	(401)	6,288	
4	3	5%	136	-	-	(7)	129	
5	6	10%	5	1	-	(1)	5	
6	7	15%	16,425	(1)	10,449	(3,247)	23,626	
7	8	20%	6,501	-	888	(1,389)	6,000	
8	10	25%	-	-	-	-	-	
9	12	30%	1,894	1	560	(652)	1,803	
10	13	100%	750	-	1,500	(1,500)	750	
11	14	17%	140	(1)	40	(31)	148	
12	17	5%	300	-	-	(25)	275	
13	38	20%	-	-	-	-	-	
14	39	30%	365	-	154	(133)	386	
15	45	45%	71	-	-	(32)	39	
16	47	8%	74,188	1	97,626	(12,599)	159,216	
17	49	8%	33,465	-	16,565	(3,340)	46,690	
18	50	55%	73	-	-	(40)	33	
19	51	6%	51,586	(1)	17,007	(3,605)	64,987	
20		Total	<u>\$480,101</u>	<u>\$0</u>	<u>\$149,769</u>	<u>(\$38,743)</u>	<u>\$591,127</u>	x-ref Schedule 35

TERASEN GAS (VANCOUVER ISLAND) INC.

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Schedule 39

UTILITY RATE BASE  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Particulars	2009				Change	Reference
		2009 APPROVED	Approved Rates	Adjustments	Cost of Service Rates		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Gas Plant in Service, Beginning	\$737,301	\$733,157	\$0	\$733,157	(\$4,144)	Schedule 44
2	Adjustment*		208,237	0	208,237	208,237	
3	Gas Plant in Service, Ending	785,862	1,012,319	0	1,012,319	226,458	Schedule 44
4	Accumulated Depreciation Beginning - Plant	(178,559)	(178,029)	0	(178,029)	530	Schedule 50
5	Adjustment*		(45,847)	0	(45,847)	(45,847)	
6	Accumulated Depreciation Ending - Plant	(196,352)	(245,154)	0	(245,154)	(48,802)	Schedule 50
7	CIAC, Beginning	(60,835)	(60,835)	0	(60,835)	(0)	Schedule 55
8	Adjustment*		(208,237)	0	(208,237)	(208,237)	
9	CIAC, Ending	(53,475)	(278,861)	0	(278,861)	(225,386)	Schedule 55
10	Accumulated Amortization Beginning - CIAC	1,990	1,990	0	1,990	(0)	Schedule 55
11	Adjustment*		45,847	0	45,847	45,847	
12	Accumulated Amortization Ending - CIAC	0	50,380	0	50,380	50,380	Schedule 55
13	Net Plant in Service, Mid-Year	<u>\$517,966</u>	<u>\$517,483</u>	<u>\$0</u>	<u>\$517,483</u>	<u>(\$482)</u>	
14	Adjustment to 13-Month Average	817	6,489	0	6,489	5,672	
15	Allocated Common Plant to TGW, Mid-Year	(104)	(104)	0	(104)	0	
16	Work in Progress, No AFUDC	1,812	3,652	0	3,652	1,840	
17	Unamortized Deferred Charges	6,246	3,689	0	3,689	(2,557)	Schedule 58
18	Cash Working Capital	(2,100)	(2,589)	(407)	(2,996)	(895)	Schedule 61
19	Other Working Capital (incl. Construction Advances)	14,889	11,575	0	11,575	(3,313)	Schedule 61
20	Future Income Taxes Regulatory Asset		58,802	0	58,802	58,802	Schedule 67
21	Future Income Taxes Liability		(58,802)	0	(58,802)	(58,802)	Schedule 67
22	<b>Utility Rate Base</b>	<u>\$539,525</u>	<u>\$540,195</u>	<u>(\$407)</u>	<u>\$539,788</u>	<u>\$264</u>	x-ref Schedule 68

\*Adjustment to remove CIAC from Gas Plant in Service, and Accumulated Amortization of CIAC from Accumulated Depreciation

TERASEN GAS (VANCOUVER ISLAND) INC.  
  
UTILITY RATE BASE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
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Line No.	Particulars	2009 PROJECTION	2010		Cost of Service Rates	Change	Reference
			Approved Rates	Adjustments			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Gas Plant in Service, Beginning	\$733,157	\$1,012,319	\$0	\$1,012,319	\$279,162	Schedule 46
2	Adjustment	208,237					
3	Gas Plant in Service, Ending	1,012,319	1,036,234	0	1,036,234	23,915	
4	Accumulated Depreciation Beginning - Plant	(178,029)	(245,154)	0	(245,154)	(67,125)	Schedule 52
5	Adjustment*	(45,847)	(1,379)		(1,379)		
6	Accumulated Depreciation Ending - Plant	(245,154)	(270,987)	0	(270,987)	(25,833)	
7	CIAC, Beginning	(60,835)	(278,861)	0	(278,861)	(218,026)	Schedule 56
8	Adjustment	(208,237)					
9	CIAC, Ending	(278,861)	(275,728)	0	(275,728)	3,133	
10	Accumulated Amortization Beginning - CIAC	1,990	50,380	0	50,380	48,390	Schedule 56
11	Adjustment	45,847					
12	Accumulated Amortization Ending - CIAC	50,380	54,795	0	54,795	4,415	
13	Net Plant in Service, Mid-Year	<u>\$517,483</u>	<u>\$540,809</u>	<u>\$0</u>	<u>\$540,809</u>	<u>\$24,016</u>	
14	Adjustment to 13-Month Average	6,489	0	0	0	(6,489)	
15	Allocated Common Plant to TGW, Mid-Year	(104)	0	0	0	104	
16	Work in Progress, No AFUDC	3,652	3,608	0	3,608	(44)	
17	Unamortized Deferred Charges	3,689	495	0	495	(3,194)	Schedule 59
18	Cash Working Capital	(2,996)	318	(750)	(432)	2,563	Schedule 62
19	Other Working Capital (incl. Construction Advances)	11,575	9,533	0	9,533	(2,043)	Schedule 62
20	Future Income Taxes Regulatory Asset	58,802	60,101	0	60,101	1,298	Schedule 67
21	Future Income Taxes Liability	(58,802)	(60,101)	0	(60,101)	(1,298)	Schedule 67
22	<b>Utility Rate Base</b>	<u><u>\$539,788</u></u>	<u><u>\$554,763</u></u>	<u><u>(\$750)</u></u>	<u><u>\$554,013</u></u>	<u><u>\$14,914</u></u>	x-ref Schedule 69

\*Adjustment relates to transfer of accumulated loss on General Plant to IFRS Transitional Adjustments deferral account

TERASEN GAS (VANCOUVER ISLAND) INC.

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UTILITY RATE BASE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars	2010 FORECAST	2011		Cost of Service Rates	Change	Reference
			Approved Rates	Adjustments			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Gas Plant in Service, Beginning	\$1,012,319	\$1,036,234	\$0	\$1,036,234	\$23,915	Schedule 48
2	Adjustment	0					
3	Gas Plant in Service, Ending	1,036,234	1,274,815	0	1,274,815	238,581	
4	Accumulated Depreciation Beginning - Plant	(245,154)	(270,987)	0	(270,987)	(25,833)	Schedule 54
5	Adjustment	(1,379)					
6	Accumulated Depreciation Ending - Plant	(270,987)	(299,264)	0	(299,264)	(28,277)	
7	CIAC, Beginning	(278,861)	(275,728)	0	(275,728)	3,133	Schedule 57
8	Adjustment	0					
9	CIAC, Ending	(275,728)	(276,176)	0	(276,176)	(448)	
10	Accumulated Amortization Beginning - CIAC	50,380	54,795	0	54,795	4,415	Schedule 57
11	Adjustment	0					
12	Accumulated Amortization Ending - CIAC	54,795	59,218	0	59,218	4,423	
13	Net Plant in Service, Mid-Year	<u>\$540,809</u>	<u>\$651,454</u>	<u>\$0</u>	<u>\$651,454</u>	<u>\$109,955</u>	
14	Adjustment to 13-Month Average	0	56,712	0	56,712	56,712	
15	Allocated Common Plant to TGW, Mid-Year	0	0	0	0	0	
16	Work in Progress, No AFUDC	3,608	3,608	0	3,608	0	
17	Unamortized Deferred Charges	495	4,908	0	4,908	4,413	Schedule 60
18	Cash Working Capital	(432)	516	(381)	135	567	Schedule 63
19	Other Working Capital (incl. Construction Advances)	9,533	12,178	0	12,178	2,645	Schedule 63
20	Future Income Taxes Regulatory Asset	60,101	63,889	0	63,889	3,788	Schedule 67
21	Future Income Taxes Liability	(60,101)	(63,889)	0	(63,889)	(3,788)	Schedule 67
22	<b>Utility Rate Base</b>	<u>\$554,013</u>	<u>\$729,375</u>	<u>(\$381)</u>	<u>\$728,994</u>	<u>\$174,292</u>	x-ref Schedule 70

**TERASEN GAS (VANCOUVER ISLAND) INC.**

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Section C

Tab 13

Schedule 42

CAPITAL EXPENDITURES AND PLANT ADDITIONS  
FOR THE YEARS ENDING DECEMBER 31, 2009 - 2011  
(\$000)

Line No.	Particulars	Projected 2009	Forecast 2010	Forecast 2011
	(1)	(3)	(4)	(5)
1	<b>CAPITAL EXPENDITURES</b>			
2	Regular Capital Expenditures	\$24,036	\$21,669	\$25,827
3	<u>Special Projects - CPCN's</u>			
4	Squamish to Whistler Natural Gas Pipeline	\$ 5,386	\$ -	\$ -
5	Mt. Hayes LNG Facility	62,986	57,216	26,709
6	CIS CCE	840	5,580	6,490
7	Garbaly	-	5,200	3,300
8	Total CPCN's	\$ 69,212	\$ 67,996	\$ 36,499
9	TOTAL CAPITAL EXPENDITURES	\$ 93,247	\$ 89,665	\$ 62,326
10	<b>RECONCILIATION OF CAPITAL EXPENDITURES TO PLANT ADDITIONS</b>			
11	<u>Regular Capital</u>			
12	Base Capital Expenditures	\$ 24,036	\$ 21,669	\$ 25,827
13	Add - Opening WIP	6,305	6,305	6,305
14	Less - Closing WIP	(6,305)	(6,305)	(6,305)
15	Add - AFUDC	68	52	69
16	Add - Overhead Capitalized	5,033	4,372	4,567
		Schedule 44	Schedule 46	Schedule 48
17	TOTAL REGULAR CAPITAL ADDITIONS TO GAS PLANT IN SERVICE	\$ 29,136	\$ 26,093	\$ 30,463
18	<u>Special Projects - CPCN's</u>			
19	CPCN Expenditures	\$ 69,212	\$ 67,996	\$ 36,499
20	Add - Opening WIP	84,881	115,759	192,949
21	Less - Closing WIP	(115,759)	(192,949)	(22,868)
22	Add - AFUDC	5,633	9,194	4,068
23	TOTAL CPCN ADDITIONS TO GAS PLANT IN SERVICE	\$ 43,966	\$ 0	\$ 210,648
		Schedule 44	Schedule 46	Schedule 48



**GAS PLANT IN SERVICE CONTINUITY SCHEDULE**  
**FOR THE YEAR ENDING DECEMBER 31, 2009**  
**(\$000s)**

 Tab 13  
 Schedule 43

Line No.	Particulars (1)	Balance 12/31/2008 (2)	Opening Adjustments (3)	CPCN'S (4)	2009 Additions (5)	Retirements (6)	Transfers/ Recovery (7)	Balance 12/31/2009 (8)
<b>1</b>	<b>INTANGIBLE PLANT</b>							
2	401-00 Franchise and Consents	\$190	\$0	\$0	\$0	\$0	\$0	\$190
3	402-00 Utility Plant Acquisition Adjustment	-	-	-	-	-	-	-
4	402-00 Other Intangible Plant	1,194	-	-	-	-	-	1,194
5	441-00 Land Rights	-	-	-	-	-	-	-
6	461-00 Land Rights - Transmission	-	6,802	-	75	-	-	6,877
7	471-00 Land Rights - Distribution	-	1,830	-	85	-	-	1,915
8	461-00 Land Rights - Whistler	-	-	-	-	-	-	-
9	402-00 Application Software - 8 year life	-	14,947	-	2,000	(47)	-	16,900
10	402-00 Application Software - 5 year life	-	1,654	-	-	-	-	1,654
11	<b>TOTAL INTANGIBLE PLANT</b>	<b>1,384</b>	<b>25,233</b>	<b>-</b>	<b>2,160</b>	<b>(47)</b>	<b>-</b>	<b>28,730</b>
<b>12</b>	<b>MANUFACTURED GAS / LOCAL STORAGE</b>							
13	430 Manufact'd Gas - Land	-	-	-	-	-	-	-
14	432 Manufact'd Gas - Struct. & Improvements	-	-	-	-	-	-	-
15	433 Manufact'd Gas - Equipment	-	-	-	-	-	-	-
16	434 Manufact'd Gas - Gas Holders	-	-	-	-	-	-	-
17	436 Manufact'd Gas - Compressor Equipment	-	-	-	-	-	-	-
18	437 Manufact'd Gas - Measuring & Regulating Equipment	-	-	-	-	-	-	-
19	440/441 Land in Fee Simple and Land Rights	-	-	-	-	-	-	-
20	442 Structures & Improvements	-	-	-	-	-	-	-
21	443 Gas Holders - Storage	-	-	-	-	-	-	-
22	446 Compressor Equipment	-	-	-	-	-	-	-
23	447 Measuring & Regulating Equipment	-	-	-	-	-	-	-
24	448 Purification Equipment	-	-	-	-	-	-	-
25	- Piping	-	-	-	-	-	-	-
26	- Pre-treatment	-	-	-	-	-	-	-
27	- Liquefaction Equipment	-	-	-	-	-	-	-
28	- Send out Equipment	-	-	-	-	-	-	-
29	- Sub-station and Electric	-	-	-	-	-	-	-
30	- Control Room	-	-	-	-	-	-	-
31	449 Local Storage Equipment	-	-	-	-	-	-	-
32	<b>TOTAL MANUFACTURED GAS / LOCAL STORAGE</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>33</b>	<b>TRANSMISSION PLANT</b>							
34	460-00 Land in Fee Simple	2,842	-	-	-	-	-	2,842
35	461-00 Land Rights	6,802	(6,802)	-	-	-	-	-
36	462-00 Compressor Structures	10,446	819	-	-	-	-	11,265
37	463-00 Measuring Structures	6,449	1,257	-	-	-	-	7,706
38	464-00 Other Structures & Improvements	130	-	-	-	-	-	130
39	465-00 Mains	223,423	99,338	43,669	4,018	-	-	370,448
40	465-00 Mains - Inspection	-	-	-	-	-	-	-
41	466-00 Compressor Equipment	50,252	6,947	-	4,589	-	-	61,788
42	466-00 Compressor Equipment - Compressor Overhaul	-	-	-	-	-	-	-
43	466-00 Compressor Equipment - Gas Turbine Overhaul	-	-	-	-	-	-	-
44	467-00 Measuring & Regulating Equipment	10,735	3,698	297	127	-	-	14,857
45	467-10 Telemetering	-	-	-	-	-	-	-
46	468-00 Communication Structures & Equipment	2,376	890	-	-	-	-	3,266
47	469-00 Other Transmission Equipment	-	-	-	-	-	-	-
48	<b>TOTAL TRANSMISSION PLANT</b>	<b>313,455</b>	<b>106,147</b>	<b>43,966</b>	<b>8,734</b>	<b>-</b>	<b>-</b>	<b>472,302</b>

GAS PLANT IN SERVICE CONTINUITY SCHEDULE  
 FOR THE YEAR ENDING DECEMBER 31, 2009  
 (\$000s)

Tab 13  
 Schedule 44

Line No.	Particulars	Balance 12/31/2008	Opening Adjustments	CPCN'S	2009 Additions	Retirements	Transfers/ Recovery	Balance 12/31/2009	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
1	<b>DISTRIBUTION PLANT</b>								
2	470-00 Land in Fee Simple	\$799	\$0	\$0	\$83	\$0	\$0	\$882	
3	471-00 Land Rights	\$1,830	(\$1,830)	\$0	\$0	\$0	\$0	\$0	
4	472-00 Structures & Improvements	1,465	666	-	-	-	-	2,131	
5	473-00 Services	131,548	26,273	-	8,330	(417)	-	165,734	
6	474-00 House Regulators & Meter Installations	16,970	2,809	-	994	(50)	-	20,723	
7	475-00 Mains	208,940	61,534	-	5,773	(289)	-	275,958	
8	476-00 Compressor Equipment	-	-	-	-	-	-	-	
9	477-00 Measuring & Regulating Equipment	5,000	2,146	-	513	-	-	7,659	
10	477-00 Telemetering	-	-	-	-	-	-	-	
12	478-00 Meters	11,122	1,861	-	788	(39)	-	13,732	
13	479-00 Other Distribution Equipment	-	-	-	-	-	-	-	
14	TOTAL DISTRIBUTION PLANT	377,674	93,459	-	16,481	(795)	-	486,819	
15	<b>GENERAL PLANT &amp; EQUIPMENT</b>								
16	480-00 Land in Fee Simple	1,065	-	-	-	-	-	1,065	
17	481-00 Land Rights	-	-	-	-	-	-	-	
18	482-00 Structures & Improvements	-	-	-	-	-	-	-	
19	- Frame Buildings	4,343	-	-	260	-	-	4,603	
20	- Masonry Buildings	-	-	-	-	-	-	-	
21	- Leasehold Improvement	1,344	-	-	40	(964)	-	420	
22	483-00 Office Furniture and Equipment	-	-	-	-	-	-	-	
23	- Furniture & Equipment	2,424	-	-	97	-	-	2,521	
24	- Computer Hardware	2,265	-	-	-	-	-	2,265	
25	- Computer Software (Infrastructure)	15,907	(15,907)	-	-	-	-	-	
26	- Computer Software (Non-Infrastructure)	906	(695)	-	-	-	-	211	
27	484-00 Transportation Equipment	4,593	-	-	630	-	-	5,223	
28	485-00 Heavy Work Equipment	786	-	-	148	-	-	934	
29	486-00 Small Tools & Equipment	5,888	-	-	506	-	-	6,394	
30	487-00 Equipment on Customer's Premises	-	-	-	-	-	-	-	
31	- VRA Compressor Installation Costs	-	-	-	-	-	-	-	
32	488-00 Communications Equipment	-	-	-	-	-	-	-	
33	- Telephone	1,123	-	-	80	(371)	-	832	
34	- Radio	-	-	-	-	-	-	-	
35	489-00 Other General Equipment	-	-	-	-	-	-	-	
36	TOTAL GENERAL PLANT	40,644	(16,602)	-	1,761	(1,335)	-	24,468	
37	<b>UNCLASSIFIED PLANT</b>								
38	499 Plant Suspense	-	-	-	-	-	-	-	
39	TOTAL UNCLASSIFIED PLANT	-	-	-	-	-	-	-	
40	TOTAL	\$733,157	\$208,237	\$43,966	\$29,136	(\$2,177)	\$0	\$1,012,319	x-ref Schedules 8, 39, 42

GAS PLANT IN SERVICE CONTINUITY SCHEDULE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Tab 13  
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Line No.	Particulars	Balance 12/31/2009	CPCN'S	2010 Additions	Retirements	Transfers/ Recovery	Balance 12/31/2010
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	<b>INTANGIBLE PLANT</b>						
2	401-00 Franchise and Consents	\$190	\$0	\$0	\$0	\$0	\$190
3	402-00 Utility Plant Acquisition Adjustment	-	-	-	-	-	-
4	402-00 Other Intangible Plant	1,194	-	-	-	-	1,194
5	441-00 Land Rights	-	-	-	-	-	-
6	461-00 Land Rights - Transmission	6,877	-	77	-	-	6,954
7	471-00 Land Rights - Distribution	1,915	-	-	-	-	1,915
8	461-00 Land Rights - Whistler	-	-	-	-	-	-
9	402-00 Application Software - 8 year life	16,900	-	1,509	(91)	-	18,318
10	402-00 Application Software - 5 year life	1,654	-	-	-	-	1,654
11	TOTAL INTANGIBLE PLANT	28,730	-	1,586	(91)	-	30,225
12	<b>MANUFACTURED GAS / LOCAL STORAGE</b>						
13	430 Manufact'd Gas - Land	-	-	-	-	-	-
14	432 Manufact'd Gas - Struct. & Improvements	-	-	-	-	-	-
15	433 Manufact'd Gas - Equipment	-	-	-	-	-	-
16	434 Manufact'd Gas - Gas Holders	-	-	-	-	-	-
17	436 Manufact'd Gas - Compressor Equipment	-	-	-	-	-	-
18	437 Manufact'd Gas - Measuring & Regulating Equipment	-	-	-	-	-	-
19	440/441 Land in Fee Simple and Land Rights	-	-	-	-	-	-
20	442 Structures & Improvements	-	-	-	-	-	-
21	443 Gas Holders - Storage	-	-	-	-	-	-
22	446 Compressor Equipment	-	-	-	-	-	-
23	447 Measuring & Regulating Equipment	-	-	-	-	-	-
24	448 Purification Equipment	-	-	-	-	-	-
25	- Piping	-	-	-	-	-	-
26	- Pre-treatment	-	-	-	-	-	-
27	- Liquefaction Equipment	-	-	-	-	-	-
28	- Send out Equipment	-	-	-	-	-	-
29	- Sub-station and Electric	-	-	-	-	-	-
30	- Control Room	-	-	-	-	-	-
31	449 Local Storage Equipment	-	-	-	-	-	-
32	TOTAL MANUFACTURED GAS / LOCAL STORAGE	-	-	-	-	-	-
33	<b>TRANSMISSION PLANT</b>						
34	460-00 Land in Fee Simple	2,842	-	-	-	-	2,842
35	461-00 Land Rights	-	-	-	-	-	-
36	462-00 Compressor Structures	11,265	-	-	-	-	11,265
37	463-00 Measuring Structures	7,706	-	-	-	-	7,706
38	464-00 Other Structures & Improvements	130	-	-	-	-	130
39	465-00 Mains	370,448	-	3,527	-	(1,630)	372,345
40	465-00 Mains - Inspection	-	-	744	-	1,630	2,374
41	466-00 Compressor Equipment	61,788	-	731	-	(3,882)	58,637
42	466-00 Compressor Equipment - Compressor Overhaul	-	-	-	-	933	933
43	466-00 Compressor Equipment - Gas Turbine Overhaul	-	-	1,261	-	2,949	4,210
44	467-00 Measuring & Regulating Equipment	14,857	-	126	-	-	14,983
45	467-10 Telemetering	-	-	-	-	-	-
46	468-00 Communication Structures & Equipment	3,266	-	-	-	-	3,266
47	469-00 Other Transmission Equipment	-	-	-	-	-	-
48	TOTAL TRANSMISSION PLANT	472,302	-	6,389	-	-	478,691

GAS PLANT IN SERVICE CONTINUITY SCHEDULE  
 FOR THE YEAR ENDING DECEMBER 31, 2010  
 (\$000s)

Tab 13  
 Schedule 46

Line No.	Particulars	Balance 12/31/2009	CPCN'S	2010 Additions	Retirements	Transfers/ Recovery	Balance 12/31/2010	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
1	<b>DISTRIBUTION PLANT</b>							
2	470-00 Land in Fee Simple	\$882	\$0	\$0	\$0	\$0	\$882	
3	471-00 Land Rights	-	-	-	-	-	-	
4	472-00 Structures & Improvements	2,131	-	-	-	-	2,131	
5	473-00 Services	165,734	-	8,168	(408)	-	173,494	
6	474-00 House Regulators & Meter Installations	20,723	-	1,275	(64)	-	21,934	
7	475-00 Mains	275,958	-	5,247	(262)	-	280,943	
8	476-00 Compressor Equipment	-	-	-	-	-	-	
9	477-00 Measuring & Regulating Equipment	7,659	-	504	-	-	8,163	
10	477-00 Telemetry	-	-	-	-	-	-	
12	478-00 Meters	13,732	-	1,016	(51)	-	14,697	
13	479-00 Other Distribution Equipment	-	-	-	-	-	-	
14	TOTAL DISTRIBUTION PLANT	<u>486,819</u>	<u>-</u>	<u>16,210</u>	<u>(785)</u>	<u>-</u>	<u>502,244</u>	
15	<b>GENERAL PLANT &amp; EQUIPMENT</b>							
16	480-00 Land in Fee Simple	1,065	-	-	-	-	1,065	
17	481-00 Land Rights	-	-	-	-	-	-	
18	482-00 Structures & Improvements	-	-	-	-	-	-	
19	- Frame Buildings	4,603	-	167	-	-	4,770	
20	- Masonry Buildings	-	-	-	-	-	-	
21	- Leasehold Improvement	420	-	30	-	-	450	
22	483-00 Office Furniture and Equipment	-	-	-	-	-	-	
23	- Furniture & Equipment	2,521	-	94	(897)	-	1,718	
24	- Computer Hardware	2,265	-	-	(192)	-	2,073	
25	- Computer Software (Infrastructure)	-	-	-	-	-	-	
26	- Computer Software (Non-Infrastructure)	211	-	-	-	-	211	
27	484-00 Transportation Equipment	5,223	-	630	(52)	-	5,801	
28	485-00 Heavy Work Equipment	934	-	186	-	-	1,120	
29	486-00 Small Tools & Equipment	6,394	-	516	-	-	6,910	
30	487-00 Equipment on Customer's Premises	-	-	-	-	-	-	
31	- VRA Compressor Installation Costs	-	-	-	-	-	-	
32	488-00 Communications Equipment	-	-	-	-	-	-	
33	- Telephone	832	-	80	(160)	-	752	
34	- Radio	-	-	204	-	-	204	
35	489-00 Other General Equipment	-	-	-	-	-	-	
36	TOTAL GENERAL PLANT	<u>24,468</u>	<u>-</u>	<u>1,907</u>	<u>(1,301)</u>	<u>-</u>	<u>25,074</u>	
37	<b>UNCLASSIFIED PLANT</b>							
38	499 Plant Suspense	-	-	-	-	-	-	
39	TOTAL UNCLASSIFIED PLANT	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	
40	TOTAL	<u>\$1,012,319</u>	<u>\$0</u>	<u>\$26,092</u>	<u>(\$2,177)</u>	<u>\$0</u>	<u>\$1,036,234</u>	x-ref Schedules 9, 40, 42

GAS PLANT IN SERVICE CONTINUITY SCHEDULE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Tab 13  
Schedule 47

Line No.	Particulars (1)	Balance 12/31/2010 (2)	CPCN'S (3)	2011 Additions (4)	Retirements (5)	Transfers/ Recovery (6)	Balance 12/31/2011 (7)
<b>1</b>	<b>INTANGIBLE PLANT</b>						
2	401-00 Franchise and Consents	\$190	\$0	\$0	\$0	\$0	\$190
3	402-00 Utility Plant Acquisition Adjustment	-	-	-	-	-	-
4	402-00 Other Intangible Plant	1,194	-	-	-	-	1,194
5	441-00 Land Rights	-	140	-	-	-	140
6	461-00 Land Rights - Transmission	6,954	-	78	-	-	7,032
7	471-00 Land Rights - Distribution	1,915	-	-	-	-	1,915
8	461-00 Land Rights - Whistler	-	-	-	-	-	-
9	402-00 Application Software - 8 year life	18,318	-	1,509	(340)	-	19,487
10	402-00 Application Software - 5 year life	1,654	-	-	-	-	1,654
11	TOTAL INTANGIBLE PLANT	30,225	140	1,587	(340)	-	31,612
<b>12</b>	<b>MANUFACTURED GAS / LOCAL STORAGE</b>						
13	430 Manufact'd Gas - Land	-	-	-	-	-	-
14	432 Manufact'd Gas - Struct. & Improvements	-	-	-	-	-	-
15	433 Manufact'd Gas - Equipment	-	-	-	-	-	-
16	434 Manufact'd Gas - Gas Holders	-	-	-	-	-	-
17	436 Manufact'd Gas - Compressor Equipment	-	-	-	-	-	-
18	437 Manufact'd Gas - Measuring & Regulating Equipment	-	-	-	-	-	-
19	440/441 Land in Fee Simple and Land Rights	-	849	-	-	-	849
20	442 Structures & Improvements	-	24,479	-	-	-	24,479
21	443 Gas Holders - Storage	-	55,956	-	-	-	55,956
22	446 Compressor Equipment	-	-	-	-	-	-
23	447 Measuring & Regulating Equipment	-	-	-	-	-	-
24	448 Purification Equipment	-	-	-	-	-	-
25	- Piping	-	16,635	-	-	-	16,635
26	- Pre-treatment	-	7,461	-	-	-	7,461
27	- Liquefaction Equipment	-	26,113	-	-	-	26,113
28	- Send out Equipment	-	39,169	-	-	-	39,169
29	- Sub-station and Electric	-	12,564	-	-	-	12,564
30	- Control Room	-	9,326	-	-	-	9,326
31	449 Local Storage Equipment	-	13,056	-	-	-	13,056
32	TOTAL MANUFACTURED GAS / LOCAL STORAGE	-	205,608	-	-	-	205,608
<b>33</b>	<b>TRANSMISSION PLANT</b>						
34	460-00 Land in Fee Simple	2,842	-	-	-	-	2,842
35	461-00 Land Rights	-	-	-	-	-	-
36	462-00 Compressor Structures	11,265	-	-	-	-	11,265
37	463-00 Measuring Structures	7,706	-	-	-	-	7,706
38	464-00 Other Structures & Improvements	130	-	-	-	-	130
39	465-00 Mains	372,345	-	6,022	-	-	378,367
40	465-00 Mains - Inspection	2,374	-	560	-	-	2,934
41	466-00 Compressor Equipment	58,637	453	956	-	-	60,046
42	466-00 Compressor Equipment - Compressor Overhaul	933	-	731	-	-	1,664
43	466-00 Compressor Equipment - Gas Turbine Overhaul	4,210	-	1,218	-	-	5,428
44	467-00 Measuring & Regulating Equipment	14,983	4,447	122	-	-	19,552
45	467-10 Telemetering	-	-	-	-	-	-
46	468-00 Communication Structures & Equipment	3,266	-	-	-	-	3,266
47	469-00 Other Transmission Equipment	-	-	-	-	-	-
48	TOTAL TRANSMISSION PLANT	478,691	4,900	9,609	-	-	493,200

GAS PLANT IN SERVICE CONTINUITY SCHEDULE  
 FOR THE YEAR ENDING DECEMBER 31, 2011  
 (\$000s)

Tab 13  
 Schedule 48

Line No.	Particulars	Balance 12/31/2010	CPCN'S	2011 Additions	Retirements	Transfers/ Recovery	Balance 12/31/2011
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	<b>DISTRIBUTION PLANT</b>						
2	470-00 Land in Fee Simple	\$882	\$0	\$0	\$0	\$0	\$882
3	471-00 Land Rights	-	-	-	-	-	-
4	472-00 Structures & Improvements	2,131	-	-	-	-	2,131
5	473-00 Services	173,494	-	8,517	(426)	-	181,585
6	474-00 House Regulators & Meter Installations	21,934	-	1,259	(63)	-	23,130
7	475-00 Mains	280,943	-	6,422	(321)	-	287,044
8	476-00 Compressor Equipment	-	-	-	-	-	-
9	477-00 Measuring & Regulating Equipment	8,163	-	390	-	-	8,553
10	477-00 Telemetry	-	-	-	-	-	-
12	478-00 Meters	14,697	-	1,039	(52)	-	15,684
13	479-00 Other Distribution Equipment	-	-	-	-	-	-
14	TOTAL DISTRIBUTION PLANT	502,244	-	17,627	(862)	-	519,009
15	<b>GENERAL PLANT &amp; EQUIPMENT</b>						
16	480-00 Land in Fee Simple	1,065	-	-	-	-	1,065
17	481-00 Land Rights	-	-	-	-	-	-
18	482-00 Structures & Improvements	-	-	-	-	-	-
19	- Frame Buildings	4,770	-	-	-	-	4,770
20	- Masonry Buildings	-	-	-	-	-	-
21	- Leasehold Improvement	450	-	40	-	-	490
22	483-00 Office Furniture and Equipment	-	-	-	-	-	-
23	- Furniture & Equipment	1,718	-	101	(729)	-	1,090
24	- Computer Hardware	2,073	-	-	(175)	-	1,898
25	- Computer Software (Infrastructure)	-	-	-	-	-	-
26	- Computer Software (Non-Infrastructure)	211	-	-	-	-	211
27	484-00 Transportation Equipment	5,801	-	560	(162)	-	6,199
28	485-00 Heavy Work Equipment	1,120	-	154	(32)	-	1,242
29	486-00 Small Tools & Equipment	6,910	-	457	(210)	-	7,157
30	487-00 Equipment on Customer's Premises	-	-	-	-	-	-
31	- VRA Compressor Installation Costs	-	-	-	-	-	-
32	488-00 Communications Equipment	-	-	-	-	-	-
33	- Telephone	752	-	80	(22)	-	810
34	- Radio	204	-	250	-	-	454
35	489-00 Other General Equipment	-	-	-	-	-	-
36	TOTAL GENERAL PLANT	25,074	-	1,642	(1,330)	-	25,386
37	<b>UNCLASSIFIED PLANT</b>						
38	499 Plant Suspense	-	-	-	-	-	-
39	TOTAL UNCLASSIFIED PLANT	-	-	-	-	-	-
40	TOTAL	\$1,036,234	\$210,648	\$30,465	(\$2,532)	\$0	\$1,274,815 x-ref Schedules 10, 40, 42

TERASEN GAS (VANCOUVER ISLAND) INC.

DEPRECIATION AND AMORTIZATION CONTINUITY SCHEDULE  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Account	Jan.1 GPIS for Depreciation	Annual Depreciation Rate %	Provision					Accumulated		
				2009 (Cr.)	Adjust- ments	Retirements	Retirement Costs	Proceeds on Disposal	12/31/2008	Opening Adjustment	12/31/2009
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	<b>INTANGIBLE PLANT</b>										
2	401-00 Franchise and Consents	190	3.04%	\$6	\$0	\$0	\$0	\$0	\$56	\$0	\$62
3	402-00 Utility Plant Acquisition Adjustment	-	0.00%	-	-	-	-	-	-	-	-
4	402-00 Other Intangible Plant	1,194	6.21%	74	-	-	-	-	490	-	564
4	441-00 Land Rights	-	0.00%	-	-	-	-	-	-	-	-
5	461-00 Land Rights - Transmission	6,802	1.33%	90	-	-	-	-	-	1,100	1,190
6	471-00 Land Rights - Distribution	1,830	1.36%	25	-	-	-	-	-	236	261
8	461-00 Land Rights - Whistler	-	0.00%	-	-	-	-	-	-	-	-
9	402-00 Application Software - 8 year life	14,947	12.50%	1,868	-	(47)	-	-	-	4,449	6,270
10	402-00 Application Software - 5 year life	1,654	20.00%	331	-	-	-	-	-	213	544
11	TOTAL INTANGIBLE PLANT	26,617		2,394	-	(47)	-	-	546	5,998	8,891
12	<b>MANUFACTURED GAS / LOCAL STORAGE</b>										
13	430 Manufact'd Gas - Land	-	0.00%	-	-	-	-	-	-	-	-
14	432 Manufact'd Gas - Struct. & Improvements	-	0.00%	-	-	-	-	-	-	-	-
15	433 Manufact'd Gas - Equipment	-	0.00%	-	-	-	-	-	-	-	-
16	434 Manufact'd Gas - Gas Holders	-	0.00%	-	-	-	-	-	-	-	-
17	436 Manufact'd Gas - Compressor Equipment	-	0.00%	-	-	-	-	-	-	-	-
18	437 Manufact'd Gas - Measuring & Regulating Equipment	-	0.00%	-	-	-	-	-	-	-	-
19	440/441 Land in Fee Simple and Land Rights	-	0.00%	-	-	-	-	-	-	-	-
20	442 Structures & Improvements	-	0.00%	-	-	-	-	-	-	-	-
21	443 Gas Holders - Storage	-	0.00%	-	-	-	-	-	-	-	-
22	446 Compressor Equipment	-	0.00%	-	-	-	-	-	-	-	-
23	447 Measuring & Regulating Equipment	-	0.00%	-	-	-	-	-	-	-	-
24	448 Purification Equipment	-	0.00%	-	-	-	-	-	-	-	-
25	- Piping	-	0.00%	-	-	-	-	-	-	-	-
26	- Pre-treatment	-	0.00%	-	-	-	-	-	-	-	-
27	- Liquefaction Equipment	-	0.00%	-	-	-	-	-	-	-	-
28	- Send out Equipment	-	0.00%	-	-	-	-	-	-	-	-
29	- Sub-station and Electric	-	0.00%	-	-	-	-	-	-	-	-
30	- Control Room	-	0.00%	-	-	-	-	-	-	-	-
31	449 Local Storage Equipment	-	0.00%	-	-	-	-	-	-	-	-
32	TOTAL MANUFACTURED GAS / LOCAL STORAGE	-		-	-	-	-	-	-	-	-
33	<b>TRANSMISSION PLANT</b>										
34	460-00 Land in Fee Simple	2,842	0.00%	-	-	-	-	-	-	-	-
35	461-00 Land Rights	-	0.00%	-	-	-	-	-	1,100	(1,100)	-
36	462-00 Compressor Structures	11,265	3.77%	425	-	-	-	-	2,727	283	3,435
37	463-00 Measuring Structures	7,706	3.75%	289	-	-	-	-	2,058	234	2,581
38	464-00 Other Structures & Improvements	130	3.00%	4	-	-	-	-	13	-	17
39	465-00 Mains	322,761	1.97%	6,358	-	-	-	-	59,317	21,490	87,165
40	465-00 Mains - Inspection	-	0.00%	-	-	-	-	-	-	-	-
41	466-00 Compressor Equipment	57,199	3.50%	2,002	-	-	-	-	10,897	2,293	15,192
42	Compressor Equipment - Compressor Overhaul	-	0.00%	-	-	-	-	-	-	-	-
43	Compressor Equipment - Gas Turbine Overhaul	-	0.00%	-	-	-	-	-	-	-	-
44	467-00 Measuring & Regulating Equipment	14,433	3.11%	449	-	-	-	-	1,947	1,134	3,530
45	467-10 Telemetry	-	0.00%	-	-	-	-	-	-	-	-
46	468-00 Communication Structures & Equipment	3,266	6.45%	211	-	-	-	-	1,006	523	1,740
47	469-00 Other Transmission Equipment	-	0.00%	-	-	-	-	-	-	-	-
48	TOTAL TRANSMISSION PLANT	419,602		9,738	-	-	-	-	79,065	24,857	113,660

**APPENDIX A**

**to Order G-140-09**

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Nov. 5 2009 NSP Agreement Section C

Tab 13

Schedule 50

TERASEN GAS (VANCOUVER ISLAND) INC.

**DEPRECIATION AND AMORTIZATION CONTINUITY SCHEDULE  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)**

Line No.	Account (1)	CPCN + Jan.1 GPIS for Depreciation (2)	Annual Depreciation Rate % (3)	Provision					Accumulated		
				2009 (Cr.) (4)	Adjust- ments (5)	Retirements (6)	Retirement Costs (7)	Proceeds on Disposal (8)	12/31/2008 (9)	Opening Adjustment (10)	12/31/2009 (11)
1	<b>DISTRIBUTION PLANT</b>										
2	470 Land	\$799	0.00%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3	481-00 Land Rights	-	0.00%	-	-	-	-	-	236	(236)	-
4	-Frame Buildings	2,131	2.31%	49	-	-	-	-	634	189	872
5	473-00 Services	157,821	2.62%	4,135	-	(417)	(268)	-	24,334	6,109	33,893
6	474-00 House Regulator & Meter Installation	19,779	2.88%	570	-	(50)	(25)	-	4,154	807	5,456
7	475-00 Mains	270,474	1.89%	5,112	-	(289)	(50)	-	51,015	11,538	67,326
8	-All Other	-	0.00%	-	-	-	-	-	-	-	-
9	477-00 Measuring & Regulating	7,146	3.66%	262	-	-	-	-	1,881	680	2,823
10	477-10 Telemetry	-	0.00%	-	-	-	-	-	-	-	-
11	478 Meters	12,983	3.08%	400	-	(39)	-	-	3,030	567	3,958
12	479 Other Distribution Equipment	-	0.00%	-	-	-	-	-	-	-	-
13	TOTAL DISTRIBUTION PLANT	471,133		10,528	-	(795)	(343)	-	85,284	19,654	114,328
14	<b>GENERAL PLANT &amp; EQUIPMENT</b>										
15	480-00 Land in Fee Simple	1,065	0.00%	-	-	-	-	-	-	-	-
16	481-00 Land Rights	-	0.00%	-	-	-	-	-	-	-	-
17	482-00 Structures & Improvements	-	0.00%	-	-	-	-	-	-	-	-
18	- Frame Buildings	4,343	2.44%	106	-	-	-	-	926	-	1,032
19	- Masonry Buildings	-	0.00%	-	-	-	-	-	-	-	-
20	- Leasehold Improvement	1,344	6.07%	82	-	(964)	-	-	(194)	-	(1,076)
21	483-00 Office Furniture and Equipment	-	0.00%	-	-	-	-	-	-	-	-
22	- Furniture & Equipment	2,424	5.00%	121	-	-	-	-	1,742	-	1,863
23	- Computer Hardware	2,265	5.99%	136	-	-	-	-	782	-	918
24	- Computer Software (Infrastructure)	-	12.50%	-	-	-	-	-	4,661	(4,661)	-
25	- Computer Software (Non-Infrastructure)	211	20.00%	42	-	-	-	-	24	(1)	65
26	484-00 Transportation Equipment	4,593	5.03%	231	-	-	-	-	1,413	-	1,644
27	485-00 Heavy Work Equipment	786	5.34%	42	-	-	-	-	136	-	178
28	486-00 Small Tools & Equipment	5,888	4.85%	286	-	-	-	-	2,862	-	3,148
29	487-00 Equipment on Customer's Premises	-	0.00%	-	-	-	-	-	-	-	-
30	- VRA Compressor Installation Costs	-	0.00%	-	-	-	-	-	-	-	-
31	488-00 Communications Equipment	-	0.00%	-	-	-	-	-	-	-	-
32	- Telephone	1,123	8.21%	92	-	(371)	-	-	782	-	503
33	- Radio	-	0.00%	-	-	-	-	-	-	-	-
34	489-00 Other General Equipment	-	0.00%	-	-	-	-	-	-	-	-
35	TOTAL GENERAL PLANT	24,042		1,138	-	(1,335)	-	-	13,134	(4,662)	8,275
36	<b>UNCLASSIFIED PLANT</b>										
37	499 Plant Suspense	-	0.00%	-	-	-	-	-	-	-	-
38	TOTAL UNCLASSIFIED PLANT	-		-	-	-	-	-	-	-	-
39	TOTAL	941,394		23,798	-	(2,177)	(343)	-	178,029	45,847	245,154
40	Less: Vehicle Depreciation allocated to Capital Projects			-							x-ref Schedules 8, 39
41	Net Depreciation Expense			\$23,798	x-ref Schedule 27						100%



**APPENDIX A**

**to Order G-140-09**

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Nov. 5 2009 NSP Agreement Section C

Tab 13

Schedule 51

TERASEN GAS (VANCOUVER ISLAND) INC.

DEPRECIATION AND AMORTIZATION CONTINUITY SCHEDULE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Account	13 mo. Avg 2010 GPIS Balance for Depreciation	Annual Depreciation Rate %	Provision					Accumulated		
				2010 (Cr.)	Adjust- ments	Retirements	Retirement Costs	Proceeds on Disposal	12/31/2009	Opening Adjustment	12/31/2010
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(10)
1	<b>INTANGIBLE PLANT</b>										
2	401-00 Franchise and Consents	190	3.13%	\$6	\$0	\$0	\$0	\$0	\$62	\$0	68
3	402-00 Utility Plant Acquisition Adjustment	-	0.00%	-	-	-	-	-	-	-	-
4	402-00 Other Intangible Plant	1,194	2.30%	27	-	-	-	-	564	-	591
4	441-00 Land Rights	-	0.00%	-	-	-	-	-	-	-	-
5	461-00 Land Rights - Transmission	6,916	0.00%	-	-	-	-	-	1,190	-	1,190
6	471-00 Land Rights - Distribution	1,915	0.00%	-	-	-	-	-	261	-	261
8	461-00 Land Rights - Whistler	-	0.00%	-	-	-	-	-	-	-	-
9	402-00 Application Software - 8 year life	17,609	12.50%	2,201	-	(91)	-	-	6,270	-	8,380
10	402-00 Application Software - 5 year life	1,654	20.00%	331	-	-	-	-	544	-	875
11	TOTAL INTANGIBLE PLANT	29,478		2,565	-	(91)	-	-	8,891	-	11,365
12	<b>MANUFACTURED GAS / LOCAL STORAGE</b>										
13	430 Manufact'd Gas - Land	-	0.00%	-	-	-	-	-	-	-	-
14	432 Manufact'd Gas - Struct. & Improvements	-	0.00%	-	-	-	-	-	-	-	-
15	433 Manufact'd Gas - Equipment	-	0.00%	-	-	-	-	-	-	-	-
16	434 Manufact'd Gas - Gas Holders	-	0.00%	-	-	-	-	-	-	-	-
17	436 Manufact'd Gas - Compressor Equipment	-	0.00%	-	-	-	-	-	-	-	-
18	437 Manufact'd Gas - Measuring & Regulating Equipment	-	0.00%	-	-	-	-	-	-	-	-
19	440/441 Land in Fee Simple and Land Rights	-	0.00%	-	-	-	-	-	-	-	-
20	442 Structures & Improvements	-	0.00%	-	-	-	-	-	-	-	-
21	443 Gas Holders - Storage	-	0.00%	-	-	-	-	-	-	-	-
22	446 Compressor Equipment	-	0.00%	-	-	-	-	-	-	-	-
23	447 Measuring & Regulating Equipment	-	0.00%	-	-	-	-	-	-	-	-
24	448 Purification Equipment	-	0.00%	-	-	-	-	-	-	-	-
25	- Piping	-	0.00%	-	-	-	-	-	-	-	-
26	- Pre-treatment	-	0.00%	-	-	-	-	-	-	-	-
27	- Liquefaction Equipment	-	0.00%	-	-	-	-	-	-	-	-
28	- Send out Equipment	-	0.00%	-	-	-	-	-	-	-	-
29	- Sub-station and Electric	-	0.00%	-	-	-	-	-	-	-	-
30	- Control Room	-	0.00%	-	-	-	-	-	-	-	-
31	449 Local Storage Equipment	-	0.00%	-	-	-	-	-	-	-	-
32	TOTAL MANUFACTURED GAS / LOCAL STORAGE	-		-	-	-	-	-	-	-	-
33	<b>TRANSMISSION PLANT</b>										
34	460-00 Land in Fee Simple	2,842	0.00%	-	-	-	-	-	-	-	-
35	461-00 Land Rights	-	0.00%	-	-	-	-	-	-	-	-
36	462-00 Compressor Structures	11,265	3.72%	419	-	-	-	-	3,435	-	3,854
37	463-00 Measuring Structures	7,706	2.87%	221	-	-	-	-	2,581	-	2,802
38	464-00 Other Structures & Improvements	130	2.87%	4	-	-	-	-	17	-	21
39	465-00 Mains	371,397	1.73%	6,425	-	-	-	-	87,165	-	93,591
40	465-00 Mains - Inspection	1,187	0.00%	316	-	-	-	-	-	-	316
41	466-00 Compressor Equipment	60,213	3.19%	1,921	-	-	-	-	15,192	-	17,113
42	Compressor Equipment - Compressor Overhaul	467	0.00%	613	-	-	-	-	-	-	613
43	Compressor Equipment - Gas Turbine Overhaul	2,105	0.00%	1,095	-	-	-	-	-	-	1,095
44	467-00 Measuring & Regulating Equipment	14,920	5.59%	834	-	-	-	-	3,530	-	4,364
45	467-10 Telemetry	-	5.59%	-	-	-	-	-	-	-	-
46	468-00 Communication Structures & Equipment	3,266	10.07%	329	-	-	-	-	1,740	-	2,069
47	469-00 Other Transmission Equipment	-	0.00%	-	-	-	-	-	-	-	-
48	TOTAL TRANSMISSION PLANT	475,498		12,178	-	-	-	-	113,660	-	125,838

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x-ref Schedules 9, 40

TERASEN GAS (VANCOUVER ISLAND) INC.

Nov. 5 2009 NSP Agreement

Section C  
Tab 13  
Schedule 53

DEPRECIATION AND AMORTIZATION CONTINUITY SCHEDULE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Account	13 mo. Avg 2011 GPIS Balance for Depreciation	Annual Depreciation Rate %	Provision					Accumulated	
				2011 (Cr.)	Adjust- ments	Retirements	Retirement Costs	Proceeds on Disposal	12/31/2010	12/31/2011
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	<b>INTANGIBLE PLANT</b>									
2	401-00 Franchise and Consents	190	3.13%	\$6	\$0	\$0	\$0	\$0	\$68	\$74
3	402-00 Utility Plant Acquisition Adjustment	-	0.00%	-	-	-	-	-	-	-
4	402-00 Other Intangible Plant	1,194	2.30%	27	-	-	-	-	591	618
4	441-00 Land Rights	70	0.00%	-	-	-	-	-	-	-
5	461-00 Land Rights - Transmission	6,993	0.00%	-	-	-	-	-	1,190	1,190
6	471-00 Land Rights - Distribution	1,915	0.00%	-	-	-	-	-	261	261
8	461-00 Land Rights - Whistler	-	0.00%	-	-	-	-	-	-	-
9	402-00 Application Software - 8 year life	18,903	12.50%	2,363	-	(340)	-	-	8,380	10,403
10	402-00 Application Software - 5 year life	1,654	20.00%	331	-	-	-	-	875	1,206
11	TOTAL INTANGIBLE PLANT	30,919		2,727	-	(340)	-	-	11,365	13,752
12	<b>MANUFACTURED GAS / LOCAL STORAGE</b>									
13	430 Manufact'd Gas - Land	-	0.00%	-	-	-	-	-	-	-
14	432 Manufact'd Gas - Struct. & Improvements	-	0.00%	-	-	-	-	-	-	-
15	433 Manufact'd Gas - Equipment	-	0.00%	-	-	-	-	-	-	-
16	434 Manufact'd Gas - Gas Holders	-	0.00%	-	-	-	-	-	-	-
17	436 Manufact'd Gas - Compressor Equipment	-	0.00%	-	-	-	-	-	-	-
18	437 Manufact'd Gas - Measuring & Regulating Equipment	-	0.00%	-	-	-	-	-	-	-
19	440/441 Land in Fee Simple and Land Rights	659	0.00%	-	-	-	-	-	-	-
20	442 Structures & Improvements	18,992	6.00%	734	-	-	-	-	-	734
21	443 Gas Holders - Storage	43,412	2.51%	701	-	-	-	-	-	701
22	446 Compressor Equipment	-	0.00%	-	-	-	-	-	-	-
23	447 Measuring & Regulating Equipment	-	0.00%	-	-	-	-	-	-	-
24	448 Purification Equipment	-	0.00%	-	-	-	-	-	-	-
25	- Piping	12,906	3.75%	312	-	-	-	-	-	312
26	- Pre-treatment	5,789	6.00%	224	-	-	-	-	-	224
27	- Liquefaction Equipment	20,260	3.75%	490	-	-	-	-	-	490
28	- Send out Equipment	30,389	3.75%	734	-	-	-	-	-	734
29	- Sub-station and Electric	9,747	3.75%	236	-	-	-	-	-	236
30	- Control Room	7,235	10.01%	467	-	-	-	-	-	467
31	449 Local Storage Equipment	10,129	4.29%	280	-	-	-	-	-	280
32	TOTAL MANUFACTURED GAS / LOCAL STORAGE	159,519		4,177	-	-	-	-	-	4,177
33	<b>TRANSMISSION PLANT</b>									
34	460-00 Land in Fee Simple	2,842	0.00%	-	-	-	-	-	-	-
35	461-00 Land Rights	-	0.00%	-	-	-	-	-	-	-
36	462-00 Compressor Structures	11,265	3.72%	419	-	-	-	-	3,854	4,273
37	463-00 Measuring Structures	7,706	2.87%	221	-	-	-	-	2,802	3,023
38	464-00 Other Structures & Improvements	130	2.87%	4	-	-	-	-	21	25
39	465-00 Mains	375,356	1.73%	6,494	-	-	-	-	93,591	100,085
40	465-00 Mains - Inspection	2,654	9.70%	257	-	-	-	-	316	573
41	466-00 Compressor Equipment	59,342	3.20%	1,899	-	-	-	-	17,113	19,012
42	Compressor Equipment - Compressor Overhaul	1,299	12.03%	156	-	-	-	-	613	769
43	Compressor Equipment - Gas Turbine Overhaul	4,819	16.91%	815	-	-	-	-	1,095	1,910
44	467-00 Measuring & Regulating Equipment	17,268	5.95%	1,027	-	-	-	-	4,364	5,391
45	467-10 Telemetry	-	0.00%	-	-	-	-	-	-	-
46	468-00 Communication Structures & Equipment	3,266	10.07%	329	-	-	-	-	2,069	2,398
47	469-00 Other Transmission Equipment	-	0.00%	-	-	-	-	-	-	-
48	TOTAL TRANSMISSION PLANT	485,947		11,621	-	-	-	-	125,838	137,459

TERASEN GAS (VANCOUVER ISLAND) INC.

Nov. 5 2009 NSP Agreement

Section C  
Tab 13  
Schedule 54

DEPRECIATION AND AMORTIZATION CONTINUITY SCHEDULE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Account	13 mo. Avg 2011 GPIS Balance for Depreciation	Annual Depreciation Rate %	Provision					Accumulated	
				2011 (Cr.)	Adjust- ments	Retirements	Retirement Costs	Proceeds on Disposal	12/31/2010	12/31/2011
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	<b>DISTRIBUTION PLANT</b>									
2	470 Land	\$882	0.00%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3	481-00 Land Rights	-	0.00%	-	-	-	-	-	-	-
4	-Frame Buildings	2,131	3.21%	68	-	-	-	-	940	1,008
5	473-00 Services	177,540	1.91%	3,391	-	(426)	-	-	36,725	39,690
6	474-00 House Regulator & Meter Installation	22,532	3.45%	777	-	(63)	-	-	6,128	6,842
7	475-00 Mains	283,994	1.62%	4,601	-	(321)	-	-	71,575	75,855
8	-All Other	-	0.00%	-	-	-	-	-	-	-
9	477-00 Measuring & Regulating	8,358	4.60%	384	-	-	-	-	3,187	3,571
10	477-10 Telemetry	-	0.00%	-	-	-	-	-	-	-
11	478 Meters	15,191	4.37%	664	-	(52)	-	-	4,528	5,140
12	479 Other Distribution Equipment	-	0.00%	-	-	-	-	-	-	-
13		<u>510,628</u>		<u>9,885</u>	<u>-</u>	<u>(862)</u>	<u>-</u>	<u>-</u>	<u>123,083</u>	<u>132,106</u>
14	<b>GENERAL PLANT &amp; EQUIPMENT</b>									
15	480-00 Land in Fee Simple	1,065	0.00%	-	-	-	-	-	-	-
16	481-00 Land Rights	-	0.00%	-	-	-	-	-	-	-
17	482-00 Structures & Improvements	-	0.00%	-	-	-	-	-	-	-
18	- Frame Buildings	4,770	4.36%	208	-	-	-	-	855	1,063
19	- Masonry Buildings	-	0.00%	-	-	-	-	-	-	-
20	- Leasehold Improvement	470	16.53%	78	-	-	-	-	226	304
21	483-00 Office Furniture and Equipment	-	0.00%	-	-	-	-	-	-	-
22	- Furniture & Equipment	1,404	6.48%	91	-	(729)	-	-	1,532	894
23	- Computer Hardware	1,986	20.00%	397	-	(175)	-	-	1,545	1,767
24	- Computer Software (Infrastructure)	-	12.50%	-	-	-	-	-	-	-
25	- Computer Software (Non-Infrastructure)	211	20.00%	42	-	-	-	-	107	149
26	484-00 Transportation Equipment	6,000	17.88%	1,073	-	(162)	-	-	2,216	3,127
27	485-00 Heavy Work Equipment	1,181	7.09%	84	-	(32)	-	-	320	372
28	486-00 Small Tools & Equipment	7,034	5.00%	352	-	(210)	-	-	3,497	3,639
29	487-00 Equipment on Customer's Premises	-	0.00%	-	-	-	-	-	-	-
30	- VRA Compressor Installation Costs	-	0.00%	-	-	-	-	-	-	-
31	488-00 Communications Equipment	-	0.00%	-	-	-	-	-	-	-
32	- Telephone	781	6.67%	52	-	(22)	-	-	396	426
33	- Radio	329	6.67%	22	-	-	-	-	7	29
34	489-00 Other General Equipment	-	0.00%	-	-	-	-	-	-	-
35	TOTAL GENERAL PLANT	<u>25,231</u>		<u>2,399</u>	<u>-</u>	<u>(1,330)</u>	<u>-</u>	<u>-</u>	<u>10,701</u>	<u>11,770</u>
36	<b>UNCLASSIFIED PLANT</b>									
37	499 Plant Suspense	-	0.00%	-	-	-	-	-	-	-
38	TOTAL UNCLASSIFIED PLANT	<u>-</u>		<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
39	TOTAL	<u>1,212,244</u>		<u>30,809</u>	<u>-</u>	<u>(2,532)</u>	<u>-</u>	<u>-</u>	<u>270,987</u>	<u>299,264</u>
40	Less: Vehicle Depreciation allocated to Capital Projects			<u>(400)</u>					x-ref Schedules 10, 41	
41	Net Depreciation Expense			\$30,409	x-ref Schedule 29					

CONTRIBUTIONS IN AID OF CONSTRUCTION  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line			CPCN /	2009		
No.	Particulars	Balance	Jan.1 Bal	Additions /	Retirements /	Balance
	(1)	12/31/2008	Adjustment	Reamortization	Repayment	12/31/2009
		(2)	(3)	(4)	(5)	(6)
1	<b>CIAC</b>					
2						
3	Distribution Contributions	\$0	\$95,288	\$0	\$892	\$0
4						
5	Transmission Contributions	-	112,949	-	-	-
6						
7	Others	-	-	-	-	-
8						
9	TGW Contribution for Whistler Pipeline	-	17,034	-	-	-
10	Government Loans Contribution	60,835	-	-	(8,137)	52,698
11						
12	TOTAL Contributions	60,835	225,271	-	892	(8,137)
13						
14						
15						
16	<b>Amortization</b>					
17						
18	Distribution Contributions	-	(19,525)	(2,084)	-	-
19						
20	Transmission Contributions	-	(26,320)	(2,451)	-	-
21						
22	Others	-	-	-	-	-
23						
24	TGW Contribution for Whistler Pipeline	-	-	-	-	-
25	Government Loans Contribution	(1,990)	-	1,990	-	-
26						
27	TOTAL Amortization	(1,990)	(45,845)	(2,545)	-	-
28						
29	<b>NET CONTRIBUTIONS</b>	<u>\$58,845</u>	<u>179,426</u>	<u>(\$2,545)</u>	<u>\$892</u>	<u>(\$8,137)</u>

x-ref Schedule 8, 39

x-ref Schedule 8, 39

CONTRIBUTIONS IN AID OF CONSTRUCTION  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line			CPCN /	2010			
No.	Particulars	Balance	Jan. 1 Bal	Additions /	Retirements /	Balance	
	(1)	12/31/2009	Adjustment	Reamortization	Repayment	12/31/2010	
		(2)	(3)	(4)	(5)	(6)	(7)
1	<b>CIAC</b>						
2							
3	Distribution Contributions	\$96,180	\$0	\$0	\$442	\$0	\$96,622
4							
5	Transmission Contributions	112,949	-	-	-	-	112,949
6							
7	Others	-	-	-	-	-	-
8							
9	TGW Contribution for Whistler Pipeline	17,034	-	-	-	-	17,034
10	Government Loans Contribution	52,698	-	-	-	(3,575)	49,123
11							
12	TOTAL Contributions	278,861	-	-	442	(3,575)	275,728
13							x-ref Schedule 9, 40
14							
15							
16	<b>Amortization</b>						
17							
18	Distribution Contributions	(21,609)	-	(1,817)	-	-	(23,426)
19							
20	Transmission Contributions	(28,771)	-	(2,303)	-	-	(31,074)
21							
22	Others	-	-	-	-	-	-
23							
24	TGW Contribution for Whistler Pipeline	-	-	(295)	-	-	(295)
25	Government Loans Contribution	-	-	-	-	-	-
26							
27	TOTAL Amortization	(50,380)	-	(4,415)	-	-	(54,795)
28							x-ref Schedule 9, 40
29	<b>NET CONTRIBUTIONS</b>	<u>\$228,481</u>	<u>\$0</u>	<u>(\$4,415)</u>	<u>\$442</u>	<u>(\$3,575)</u>	<u>\$220,933</u>

CONTRIBUTIONS IN AID OF CONSTRUCTION  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line			CPCN /	2011			
No.	Particulars	Balance	Jan.1 Bal	Additions /	Retirements /	Balance	
	(1)	12/31/2010	Adjustment	Reamortization	Repayment	12/31/2011	
		(2)	(3)	(4)	(5)	(6)	
1	<b>CIAC</b>						
2							
3	Distribution Contributions	\$96,622	\$0	\$0	\$448	\$0	\$97,070
4							
5	Transmission Contributions	112,949	-	-	-	-	112,949
6							
7	Others	-	-	-	-	-	-
8							
9	TGW Contribution for Whistler Pipeline	17,034	-	-	-	-	17,034
10	Government Loans Contribution	49,123	-	-	-	-	49,123
11							
12	TOTAL Contributions	275,728	-	-	448	-	276,176 x-ref Schedule 10, 41
13							
14							
15							
16	<b>Amortization</b>						
17							
18	Distribution Contributions	(23,426)	-	(1,825)	-	-	(25,251)
19							
20	Transmission Contributions	(31,074)	-	(2,303)	-	-	(33,377)
21							
22	Others	-	-	-	-	-	-
23							
24	TGW Contribution for Whistler Pipeline	(295)	-	(295)	-	-	(590)
25	Government Loans Contribution	-	-	-	-	-	-
26							
27	TOTAL Amortization	(54,795)	-	(4,423)	-	-	(59,218) x-ref Schedule 10, 41
28							
29	<b>NET CONTRIBUTIONS</b>	<u>\$220,933</u>	<u>\$0</u>	<u>(\$4,423)</u>	<u>\$448</u>	<u>\$0</u>	<u>\$216,958</u>

UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Particulars	Balance 12/31/2008	Gross Additions	Less-Taxes*	Net Additions	Amortization Expense	Balance 12/31/2009	Mid-Year Average 2009	
(1)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
1	<u>Gas Cost Variance Account (GCVA)</u>	\$4,162	(\$5,781)	\$1,734	(\$4,047)	(\$4,162)	(\$4,047)	\$58	x-ref Schedules 2, 14, 27
2	<u>Energy Policy Related</u>								
3	Energy Efficiency & Conservation (EEC)	-	1,379	(414)	965	-	965	483	
4	NGV Conversion Grants	-	-	-	-	-	-	-	
5	<u>Non-Controllable Items</u>								
6	Insurance Variance	-	51	(15)	36	(36)	(0)	-	
7	Pension Expense	-	299	-	299	(299)	-	-	
8	Olympic Security Costs	-	84	(25)	59	-	59	29	
9	IFRS Conversion Costs	11	56	(17)	39	-	50	31	
10	<u>Cost of Current Applications</u>								
11	2010-2011 Revenue Requirement Application	40	118	(35)	82	-	122	81	
12	2009 ROE & Cost of Capital Application	-	70	(21)	49	-	49	25	
13	CCE CPCN Application	-	30	(9)	21	-	21	11	
14	2009 Rate Design Application	-	69	(21)	48	-	48	24	
15	<u>Other</u>								
16	PCEC Start Up Costs	1,184	-	-	-	(44)	1,140	1,162	
17	IFRS Transitional Adjustments	-	-	-	-	-	-	-	
18	Pension & OPEB funding	-	-	-	-	-	-	-	
19	<u>Residual Deferred Charges</u>								
20	Compressor Fired Hours	(1,288)	(770)	231	(539)	-	(1,827)	(1,557)	
21	LNG	826	-	-	-	(415)	411	619	
22	VIGP	15	-	-	-	(7)	7	11	
23	OSC - Compliance Certification Costs	-	12	(4)	9	(9)	0	-	
24	Financing Costs	2,429	-	-	-	(240)	2,189	2,309	
25	Preliminary Survey & Investigation costs	36	0	-	0	-	36	36	
26	BC Capital Tax Assessment & Appeal Cost	737	-	-	-	(737)	-	369	
30	Total Deferred Charges for Rate Base	<u>\$8,152</u>	<u>(\$4,383)</u>	<u>\$1,405</u>	<u>(\$2,979)</u>	<u>(\$5,949)</u>	<u>(\$775)</u>	<u>\$3,689</u>	x-ref Schedules 8, 39
31	<u>Non-Rate Base Deferral Accounts</u>								
32	RDDA	7,149	(10,211)	3,062	(7,149)	-	(0)	3,575	
33	2009 Revenue Surplus	-	(4,231)	1,269	(2,962)	-	(2,962)	(1,481)	
34	Rate Stabilization Deferral Account	-	-	-	-	-	-	-	
35	Interest Accumulated on RSDA	-	-	-	-	-	-	-	
36	Financing Costs	-	-	-	-	-	-	-	
37	Total Deferred Charges for Non-Rate Base	<u>\$7,149</u>	<u>(\$14,443)</u>	<u>\$4,331</u>	<u>(\$10,112)</u>	<u>\$0</u>	<u>(\$2,962)</u>	<u>\$2,093</u>	
38	Notes:								
39	*Taxes= 30% x Gross Addition								





UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars	Forecast Balance 12/31/2010 (2)	Gross Additions (3)	Less-Taxes* (4)	Net Additions (5)	Amortization Expense (6)	Balance 12/31/2011 (7)	Mid-Year Average 2011 (8)	
1	<u>Gas Cost Variance Account (GCVA)</u>	0	0	0	0	0	0	0	x-ref Schedules 4, 14, 29
2	<u>Energy Policy Related</u>								
3	Energy Efficiency & Conservation (EEC)	4,590	5,683	(1,506)	4,177	(469)	8,298	6,444	
4	NGV Conversion Grants	100	100	0	100	0	200	150	
5	<u>Non-Controllable Items</u>								
6	Insurance Variance	(0)	0	0	0	0	(0)	0	
7	Pension Expense	0	0	0	0	0	0	0	
8	Olympic Security Costs	272	0	0	0	(91)	181	226	
9	IFRS Conversion Costs	75	18	(5)	14	(25)	63	69	
10	<u>Cost of Current Applications</u>								
11	2010-2011 Revenue Requirement Application	61	0	0	0	(61)	0	31	
12	2009 ROE & Cost of Capital Application	39	0	0	0	(10)	29	34	
13	CCE CPCN Application	17	0	0	0	(4)	13	15	
14	2009 Rate Design Application	24	0	0	0	(24)	(0)	12	
15	<u>Other</u>								
16	PCEC Start Up Costs	1,096	0	0	0	(44)	1,052	1,074	
17	IFRS Transitional Adjustments	1,379	11,790	0	11,790	0	13,169	7,274	
18	Pension & OPEB funding	(5,076)	(10,689)	0	(10,689)	0	(15,765)	(10,421)	
19	<u>Residual Deferred Charges</u>								
20	Compressor Fired Hours	(0)	0	0	0	0	(0)	0	
21	LNG	(0)	0	0	0	0	(0)	0	
22	VIGP	0	0	0	0	0	0	0	
23	OSC - Compliance Certification Costs	0	0	0	0	0	0	0	
24	Financing Costs	0	0	0	0	0	0	0	
25	Preliminary Survey & Investigation costs	0	0	0	0	0	0	0	
26	BC Capital Tax Assessment & Appeal Cost	0	0	0	0	0	0	0	
30	Total Deferred Charges for Rate Base	<u>\$2,576</u>	<u>\$6,902</u>	<u>(\$1,511)</u>	<u>\$5,392</u>	<u>(\$727)</u>	<u>\$7,240</u>	<u>\$4,908</u>	x-ref Schedules 10, 41
31	<u>Non-Rate Base Deferral Accounts</u>								
32	RDDA	0	0	0	0	0	0	0	
33	2009 Revenue Surplus	(1,481)	0	0	0	1,481	0	(741)	x-ref Schedule 29
34	Rate Stabilization Deferral Account	(32,333)	(26,471)	6,517	(18,087)	0	(50,420)	(41,377)	
35	Interest Accumulated on RSDA	(289)	(1,972)	523	(1,450)	0	(1,739)	(1,014)	
36	Financing Costs	2,940	1,000	0	1,000	(50)	3,889	3,414	
37	Total Deferred Charges for Non-Rate Base	<u>(\$31,049)</u>	<u>(\$27,443)</u>	<u>\$7,040</u>	<u>(\$18,536)</u>	<u>\$1,431</u>	<u>(\$48,270)</u>	<u>(\$39,717)</u>	
38	Notes:								
39	*Taxes = 26.5% x Gross Addition								

WORKING CAPITAL ALLOWANCE  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Particulars (1)	2009 APPROVED (2)	2009		Change (5)	Reference (6)
			Approved Rates (3)	Cost of Service Rates (4)		
1	<b>Cash Working Capital</b>					
2	Cash Required for					
3	Operating Expenses	\$5,293	\$4,738	\$4,331	(\$962)	Schedule 64
4	Customer Deposits	(2,215)	(2,191)	(2,191)	24	
6	Less - Funds Available:					
7	Reserve for Bad Debts		0	-	-	
8	Withholdings From Employees	(5,178)	(5,136)	(5,136)	42	
9	Subtotal	<u>(2,100)</u>	<u>(2,589)</u>	<u>(2,996)</u>	<u>(895)</u>	x-ref Schedules 8, 39
10	<b>Other Working Capital Items</b>					
11	Refundable Contribution	(289)	(290)	(290)	(1)	
12	Gas in Storage	14,943	11,865	11,865	(3,079)	
13	Inventory - Materials & Supplies	234	0	-	(234)	
14	Other Working Capital Items		0	0	0	
15	Subtotal	<u>14,889</u>	<u>11,575</u>	<u>11,575</u>	<u>(3,313)</u>	x-ref Schedules 8, 39
16	Total	<u>\$12,788</u>	<u>\$8,986</u>	<u>\$8,579</u>	<u>(\$4,209)</u>	

WORKING CAPITAL ALLOWANCE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars (1)	2009 PROJECTION (2)	2010		Change (5)	Reference (6)
			Approved Rates (3)	Cost of Service Rates (4)		
1	<b>Cash Working Capital</b>					
2	Cash Required for					
3	Operating Expenses	\$4,331	\$2,345	\$1,595	(\$2,736)	Schedule 64
4	Customer Deposits	(2,191)	0	-	2,191	
6	Less - Funds Available:					
7	Reserve for Bad Debts	0	(1,008)	(1,008)	(1,008)	
8	Withholdings From Employees	(5,136)	(1,019)	(1,019)	4,117	
9	Subtotal	<u>(2,996)</u>	<u>318</u>	<u>(432)</u>	<u>2,563</u>	x-ref Schedules 9, 40
10	<b>Other Working Capital Items</b>					
11	Refundable Contribution	(290)	(290)	(290)	(0)	
12	Gas in Storage	11,865	9,822	9,822	(2,043)	
13	Inventory - Materials & Supplies	0	0	-	-	
14	Other Working Capital Items	0	0	0	0	
15	Subtotal	<u>11,575</u>	<u>9,533</u>	<u>9,533</u>	<u>(2,043)</u>	x-ref Schedules 9, 40
16	Total	<u>\$8,579</u>	<u>\$9,850</u>	<u>\$9,100</u>	<u>\$521</u>	

WORKING CAPITAL ALLOWANCE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars (1)	2010 FORECAST (2)	2011		Change (5)	Reference (6)
			Approved Rates (3)	Cost of Service Rates (4)		
1	<b>Cash Working Capital</b>					
2	Cash Required for					
3	Operating Expenses	\$1,595	\$2,291	\$1,910	\$315	Schedule 64
4	Customer Deposits	0	0	-	0	
6	Less - Funds Available:					
7	Reserve for Bad Debts	(1,008)	(1,045)	(1,045)	(37)	
8	Withholdings From Employees	(1,019)	(730)	(730)	289	
9	Subtotal	<u>(432)</u>	<u>516</u>	<u>135</u>	<u>567</u>	x-ref Schedules 10, 41
10	<b>Other Working Capital Items</b>					
11	Refundable Contribution	(290)	(290)	(290)	0	
12	Gas in Storage	9,822	12,467	12,467	2,645	
13	Inventory - Materials & Supplies	0	0	0	0	
14	Other Working Capital Items	0	0	0	0	
15	Subtotal	<u>9,533</u>	<u>12,178</u>	<u>12,178</u>	<u>2,645</u>	x-ref Schedules 10, 41
16	Total	<u>\$9,100</u>	<u>\$12,694</u>	<u>\$12,313</u>	<u>\$3,213</u>	

CASH WORKING CAPITAL  
FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011  
(\$000s)

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Tab 13  
Schedule 64

Line No.	Particulars	2009			2010			2011			Reference
		Days	Expenses	Cash Working Capital	Days	Expenses	Cash Working Capital	Days	Expenses	Cash Working Capital	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
<b>1 CASH WORKING CAPITAL</b>											
2 Revenue Lag Days		43.8			39.7			39.8			Schedule 65
3 Expense Lead Days		<u>33.5</u>			<u>34.7</u>			<u>35.2</u>			Schedule 66
4 Net Lead/(Lag) Days		<u>10.3</u>	\$167,909	<u>\$4,738</u>	<u>5.0</u>	171,216	<u>\$2,345</u>	<u>4.6</u>	\$181,768	<u>\$2,291</u>	
<b>5 CASH WORKING CAPITAL, COST OF SERVICE RATES</b>											
6 Revenue Lag Days		43.8			39.9			39.9			Schedule 65
7 Expense Lead Days		<u>34.1</u>			<u>36.2</u>			<u>35.9</u>			Schedule 66
8 Net Lead/(Lag) Days		<u>9.7</u>	\$162,980	<u>\$4,331</u>	<u>3.7</u>	\$157,325	<u>\$1,595</u>	<u>4.0</u>	\$174,258	<u>\$1,910</u>	Schedule 62
<b>9 CASH WORKING CAPITAL CHANGE</b>				<u>(\$407)</u>			<u>(\$750)</u>			<u>(\$381)</u>	

# Cash working capital = Col. 2 x Col. 3 / 365 days

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CASH WORKING CAPITAL

LEAD TIME FROM DATE OF PAYMENT TO RECEIPT OF CASH

FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011

(\$000s)

Line No.	Particulars	2009			2010			2011			Reference
		Revenue At Approved Rates	Lag Days Service to Collection	Dollar Days	Revenue At Approved Rates	Lag Days Service to Collection	Dollar Days	Revenue At Approved Rates	Lag Days Service to Collection	Dollar Days	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
<b>1 REVENUE</b>											
2	Gas Sales and Transportation Service Revenue										
3	Residential and Commercial	\$176,878	43.8	\$7,747,242	\$176,746	38.7	\$6,842,760	\$179,702	38.7	\$6,957,438	Schedules 18, 19, 20
4	Industrial (ILF & HLF)	2,624	43.8	114,918	2,699	38.4	103,658	2,699	38.4	103,658	
5	NGV Fuel - Stations	0	0.0	0	0	0.0	0	0	0.0	0	
6	T-Service	22,194	43.8	972,108	20,669	38.4	793,684	20,501	38.4	787,197	
7	Total Gas Sales	201,696	43.8	8,834,268	200,114	38.7	7,740,102	202,902	38.7	7,848,293	
8	Other Revenues										
9	Late Payment Charges	368	43.8	16,110	340	38.9	13,226	345	38.9	13,436	Schedule 22
10	Returned Cheque Charges	4	43.8	158	5	38.9	191	5	38.9	195	
11	Connection Charges	519	43.8	22,741	370	38.9	14,385	380	38.9	14,790	
12	Other Utility Income	2	43.8	105	2	38.9	93	732	38.9	28,514	
13	Royalty Revenue - For CWC Reasons	28,095	43.8	1,281,118	35,832	45.6	1,633,921	40,091	45.6	1,828,168	
14	LNG Mitigation	0	0.0	0	0	0.0	0	9,020	38.9	350,878	
15	Total Revenue	\$230,684	43.8	\$10,154,500	\$236,663	39.7	\$9,401,918	\$253,475	39.8	\$10,084,274	
<b>16 REVENUE, COST OF SERVICE RATES</b>											
17	Gas Sales and Transportation Service Revenue										
18	Residential and Commercial	\$162,549	43.8	\$7,119,633	\$134,490	38.7	\$5,205,395	\$155,269	38.7	\$6,010,520	Schedules 18, 19, 20
19	Industrial (ILF & HLF)	2,510	43.8	109,925	2,350	38.4	90,256	2,529	38.4	97,129	
20	NGV Fuel - Stations	0	0.0	0	0	0.0	0	0	0.0	0	
21	T-Service	22,194	43.8	972,108	20,669	38.4	793,684	20,501	38.4	787,197	
22	Total Gas Sales	187,253	43.8	8,201,666	157,509	38.7	6,089,335	178,299	38.7	6,894,846	
23	Other Revenues										
24	Late Payment Charges	368	43.8	16,110	340	38.9	13,226	345	38.9	13,436	Schedule 22
25	Returned Cheque Charges	4	43.8	158	5	38.9	191	5	38.9	195	
26	Connection Charges	519	43.8	22,741	370	38.9	14,385	380	38.9	14,790	
27	Other Utility Income	2	43.8	105	2	38.9	93	2	38.9	93	
28	Royalty Revenue - For CWC Reasons	28,095	43.8	1,281,118	35,832	45.6	1,633,921	40,091	45.6	1,828,168	
29	LNG Mitigation	0	0.0	0	0	0.0	0	9,020	38.9	350,878	
30	Total Revenue	\$216,241	43.8	\$9,521,898	\$194,058	39.9	\$7,751,151	\$228,142	39.9	\$9,102,406	

CASH WORKING CAPITAL  
LAG TIME IN PAYMENT OF EXPENSES  
FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011  
(\$000s)

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Line No.	Particulars	2009			2010			2011			Reference
		Amount	Lead Days Expense to Payment	Dollar Days	Amount	Lead Days Expense to Payment	Dollar Days	Amount	Lead Days Expense to Payment	Dollar Days	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
<b>1 EXPENSES</b>											
2 O&M Expenses		\$27,006	22.5	\$607,635	\$26,858	35.8	\$961,516	\$28,136	35.8	\$1,007,255	
3 Transportation Costs		3,977	62.7	249,358	\$4,015	40.2	161,403	\$4,122	40.2	165,704	
4 Gas Purchases		99,314	40.5	4,022,217	98,628	40.2	3,964,846	107,311	40.2	4,313,902	
5 Taxes Other Than Income											
6 Property Taxes		8,449	3.5	29,572	9,119	2.6	23,709	9,564	2.6	24,867	
7 Carbon Tax		7,613	33.3	253,513	10,638	29.5	313,821	13,892	29.5	409,814	
8 GST - Net		2,413	50.3	121,375	2,392	39.8	95,221	2,426	39.8	96,570	
9 PST		5,959	33.3	198,435	5,905	37.1	219,076	5,965	37.1	221,302	
# Income Tax		13,178	10.7	141,005	13,661	15.2	207,647	10,351	15.2	157,335	
# Total		167,909	33.5	5,623,109	171,216	34.7	5,947,239	181,767	35.2	6,396,749	
<b># EXPENSES, COST OF SERVICE RATES</b>											
# O&M Expenses		\$27,006	22.5	\$607,635	\$26,858	35.8	\$961,516	\$28,136	35.8	\$1,007,269	
# Transportation Costs		3,977	62.7	249,358	\$4,015	40.2	161,403	\$4,122	40.2	165,704	
# Gas Purchases		99,314	40.5	4,022,217	98,628	40.2	3,964,846	107,311	40.2	4,313,902	
# Taxes Other Than Income											
# Property Taxes		8,449	3.5	29,572	9,119	2.6	23,709	9,564	2.6	24,866	
# Carbon Tax		7,613	33.3	253,513	10,638	29.5	313,821	13,892	29.5	409,814	
# GST - Net		2,241	50.3	112,718	1,884	39.8	74,995	2,133	39.8	84,885	
# PST		5,533	33.3	184,249	4,662	37.1	172,960	5,266	37.1	195,369	
# Income Tax		8,847	10.7	94,663	1,521	15.2	23,119	3,834	15.2	58,277	
# Total		162,980	34.1	5,553,924	157,325	36.2	5,696,370	174,258	35.9	6,260,086	



TERASEN GAS (VANCOUVER ISLAND) INC.

Nov. 5 2009 NSP Agreement

Section C

Tab 13

Schedule 67

FUTURE INCOME TAX LIABILITY / ASSET  
FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011  
(\$000s)

Line No.	Particulars (1)	2009 (2)	2010 (3)	2011 (4)
1	Property Plant & Equipment			
2	Net Book Value *	(\$710,651)	(\$776,930)	(\$813,945)
3	Less: Undepreciated Capital Cost	<u>(529,801)</u>	<u>(587,921)</u>	<u>(610,463)</u>
4		(180,850)	(189,009)	(203,482)
5	Weighted Average Future Tax Rate	25%	25%	25%
6		<u>(45,153)</u>	<u>(47,255)</u>	<u>(50,836)</u>
7				
8	Total FIT Liability- After Tax (PP&E)	(45,153)	(47,255)	(50,836)
9	Total FIT Liability- After Tax (Non-PP&E)	<u>1,031</u>	<u>1,206</u>	<u>1,040</u>
10	Total FIT Liability- After Tax	(44,121)	(46,048)	(49,795)
11				
12	Tax Gross Up	<u>(14,681)</u>	<u>(15,351)</u>	<u>(16,583)</u>
13				
14	FIT Liability/Asset - End of Year	(58,802)	(61,399)	(66,379)
15				
16	FIT Liability/Asset - Opening Balance	(58,802)	(58,802)	(61,399)
17				
18	FIT Liability/Asset - Mid Year	<u>(58,802)</u>	<u>(60,101)</u>	<u>(63,889)</u>
19		x-ref Schedules 8, 39	x-ref Schedules 9, 40	x-ref Schedules 10, 41
20				
21	Note: * Excludes Land			

TERASEN GAS (VANCOUVER ISLAND) INC.  
RETURN ON CAPITAL  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Nov. 5 2009 NSP Agreement

Section C  
Tab 13  
Schedule 68

Line No.	Particulars	Reference	----- Capitalization -----		%	Average Embedded Cost	Cost Component	Earned Return	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
1	APPROVED RATES								
2	Long-Term Debt	Schedule 71		\$260,940	48.300%	5.956%	2.880%	15,541	x-ref Schedule 5
3	Unfunded Debt			63,177	11.700%	1.500%	0.180%	948	x-ref Schedule 5
4	Common Equity			<u>216,078</u>	<u>40.000%</u>	13.841%	<u>5.536%</u>	<u>29,907</u>	
5	Before Sub Debt Interest	Schedule 39		<u>\$540,195</u>	<u>100.000%</u>		8.596%	\$46,396	
6	Sub Debt Interest							<u>1,270</u>	x-ref Schedule 5
7	Total						<u>8.824%</u>	<u>\$47,666</u>	
8	2009 COST OF SERVICE RATES - PROJECTION								
9	Long-Term Debt			\$260,940	48.340%	5.956%	2.880%	15,541	x-ref Schedule 5
10	Unfunded Debt		\$63,177						
11	Adjustment, Revised Rates		(244)	62,933	11.660%	1.500%	0.170%	944	x-ref Schedule 5
12	Common Equity			<u>215,915</u>	<u>40.000%</u>	9.170%	<u>3.670%</u>	<u>19,799</u>	
13	Before Sub Debt Interest	Schedule 39		<u>\$539,788</u>	<u>100.000%</u>		6.720%	\$36,284	
14	Sub Debt Interest							<u>1,270</u>	x-ref Schedule 5
15	Total						<u>6.957%</u>	<u>37,554</u>	x-ref Schedule 2, 5, 14

TERASEN GAS (VANCOUVER ISLAND) INC.  
RETURN ON CAPITAL  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Nov. 5 2009 NSP Agreement

Section C  
Tab 13  
Schedule 69

Line No.	Particulars	Reference	----- Capitalization -----		%	Average Embedded Cost	Cost Component	Earned Return	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
1	APPROVED RATES								
2	Long-Term Debt	Schedule 72		\$289,659	52.210%	5.950%	3.110%	17,233	x-ref Schedule 6
3	Unfunded Debt			43,199	7.790%	2.500%	0.190%	1,080	x-ref Schedule 6
4	Common Equity			<u>221,905</u>	<u>40.000%</u>	22.882%	<u>9.153%</u>	<u>50,776</u>	
5	Before Sub Debt Interest	Schedule 40		<u>\$554,763</u>	<u>100.000%</u>		12.453%	\$69,089	
6	Sub Debt Interest							<u>261</u>	x-ref Schedule 6
7	Total						<u>12.501%</u>	<u>\$69,350</u>	
8	2010 COST OF SERVICE RATES - FORECAST								
9	Long-Term Debt			\$289,659	52.280%	5.950%	3.110%	17,233	x-ref Schedule 6
10	Unfunded Debt		\$43,199						
11	Adjustment, Revised Rates		(450)	42,749	7.720%	2.500%	0.190%	1,069	x-ref Schedule 6
12	Common Equity			<u>221,605</u>	<u>40.000%</u>	9.170%	<u>3.670%</u>	<u>20,321</u>	
13	Before Sub Debt Interest	Schedule 40		<u>\$554,013</u>	<u>100.000%</u>		6.970%	\$38,623	
14	Sub Debt Interest							<u>261</u>	x-ref Schedule 6
15	Total						<u>7.019%</u>	<u>\$38,884</u>	x-ref Schedule 3, 6, 14

TERASEN GAS (VANCOUVER ISLAND) INC.  
RETURN ON CAPITAL  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Nov. 5 2009 NSP Agreement

Section C  
Tab 13  
Schedule 70

Line No.	Particulars	Reference	----- Capitalization -----		%	Average Embedded Cost	Cost Component	Earned Return	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
1	APPROVED RATES								
2	Long-Term Debt	Schedule 73		\$390,731	53.570%	6.119%	3.278%	23,909	x-ref Schedule 7
3	Unfunded Debt			46,894	6.430%	4.750%	0.305%	2,227	x-ref Schedule 7
4	Common Equity			<u>291,750</u>	<u>40.000%</u>	15.361%	<u>6.145%</u>	<u>44,816</u>	
5	Total	Schedule 41		<u>\$729,375</u>	<u>100.000%</u>		<u>9.728%</u>	<u>\$70,953</u>	
6	2011 COST OF SERVICE RATES - FORECAST								
7	Long-Term Debt			\$390,731	53.600%	6.119%	3.280%	23,909	x-ref Schedule 7
8	Unfunded Debt		\$46,894						
9	Adjustment, Revised Rates		(229)	46,665	6.400%	4.750%	0.304%	2,217	x-ref Schedule 7
10	Common Equity			<u>291,598</u>	<u>40.000%</u>	9.170%	<u>3.668%</u>	<u>26,740</u>	
11	Total	Schedule 41		<u>\$728,994</u>	<u>100.000%</u>		<u>7.252%</u>	<u>52,866</u>	x-ref Schedule 4, 7, 14

TERASEN GAS (VANCOUVER ISLAND) INC.

Nov. 5 2009 NSP Agreement

Section C

EMBEDDED COST OF LONG-TERM DEBT  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Tab 13

Schedule 71

Line No.	Particulars (1)	Issue Date (2)	Maturity Date (3)	Coupon Rate (4)	Principal Amount of Issue (5)	Issue Expense (6)	Net Proceeds of Issue (7)	Effective Interest Cost (8)	Average Principal Outstanding (9)	Annual Cost (10)
1	Long Term Debt	16-Feb-2006	15-Feb-2038	6.050%	\$250,000	2,014	\$247,986	6.108%	\$250,000	\$15,270
2										
3										
4	PCEPA Repayment Loan	1-Jan-2008	1-Jan-2013	1.630%	13,381	-	13,381	2.473%	10,940	271
5	Long Term (Rate Base) Debt				263,381	2,014	261,367		260,940	15,541
6	Series 1 RDDA Sub Debt	1-Jun-2006	11-Jan-2011	7.280%				7.280%	-	631
7	Series 2 RDDA Sub Debt	1-Jun-2002	31-Jul-2012	7.370%				7.370%	3,729	275
8	Series 4 RDDA Sub Debt	1-Jun-2004	14-May-2009	6.820%				6.820%	-	-
9	Series 5 RDDA Sub Debt	1-Jun-2005	6-Jul-2010	5.950%				5.950%	(0)	33
10	Series 7 RDDA Sub Debt	1-Jun-2007	26-Jun-2012	7.370%				7.370%	3,420	331
11	Series 8 RDDA Sub Debt	1-Jun-2003	31-Jul-2008	6.300%				6.300%	-	-
12	RDDA Subtotal								7,149	1,270
13							Total with Sub Debt		\$268,089	\$16,811 x-ref Schedule 68
14							Average Embedded Cost before Sub Debt			5.956%

TERASEN GAS (VANCOUVER ISLAND) INC.

Nov. 5 2009 NSP Agreement

Section C

EMBEDDED COST OF LONG-TERM DEBT  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Tab 13

Schedule 72

Line No.	Particulars	Issue Date	Maturity Date	Coupon Rate	Principal Amount of Issue	Issue Expense	Net Proceeds of Issue	Effective Interest Cost	Average Principal Outstanding	Annual Cost
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Long Term Debt 1	16-Feb-2006	15-Feb-2038	6.050%	\$250,000	2,014	\$247,986	6.108%	250,000	\$15,270
2	Long Term Debt 2	1-Oct-2010	1-Oct-2039	6.004%	100,000	1,000	99,000	6.078%	25,205	1,532
3										
4	PCEPA Repayment Loan	1-Jan-2008	1-Jan-2013	2.630%	15,526	-	15,526	2.984%	14,454	431
5	Long Term (Rate Base) Debt				365,526	3,014	362,512		289,659	17,233
6	Series 1 RDDA Sub Debt	1-Jun-2006	11-Jan-2011	7.280%				7.280%	-	-
7	Series 2 RDDA Sub Debt	1-Jun-2002	31-Jul-2012	7.370%				7.370%	-	136
8	Series 4 RDDA Sub Debt	1-Jun-2004	14-May-2009	6.820%				6.820%	-	-
9	Series 5 RDDA Sub Debt	1-Jun-2005	6-Jul-2010	5.950%				5.950%	-	-
10	Series 7 RDDA Sub Debt	1-Jun-2007	26-Jun-2012	7.370%				7.370%	-	125
11									-	-
12	Less: RDDA Sub Debt Adjustment								-	261
13							Total with Sub Debt		<u>\$289,659</u>	<u>\$17,495</u> x-ref Schedule 69
14							Average Embedded Cost before Sub Debt			<u>5.950%</u>

TERASEN GAS (VANCOUVER ISLAND) INC.

Nov. 5 2009 NSP Agreement

Section C

EMBEDDED COST OF LONG-TERM DEBT  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Tab 13

Schedule 73

Line No.	Particulars	Issue Date	Maturity Date	Coupon Rate	Principal Amount of Issue	Issue Expense	Net Proceeds of Issue	Effective Interest Cost	Average Principal Outstanding	Annual Cost	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
1	Long Term Debt 1	16-Feb-2006	15-Feb-2038	6.050%	\$250,000	2,014	\$247,986	6.108%	\$250,000	\$15,270	
2	Long Term Debt 2	1-Oct-2010	1-Oct-2039	6.004%	100,000	1,000	99,000	6.078%	100,000	6,078	
3	Long Term Debt 3	1-Oct-2011	1-Oct-2041	6.892%	100,000	1,000	99,000	6.972%	25,205	1,757	
4	PCEPA Repayment Loan	1-Jan-2008	1-Jan-2013	4.880%	<u>15,526</u>	<u>-</u>	<u>15,526</u>	5.181%	<u>15,526</u>	<u>804</u>	
5	Long Term (Rate Base) Debt				465,526	4,014	461,512		390,731	23,909	
6	Series 1 RDDA Sub Debt	1-Jun-2006	11-Jan-2011	7.280%				7.280%	-	-	
7	Series 2 RDDA Sub Debt	1-Jun-2002	31-Jul-2012	7.370%				7.370%	-	-	
8	Series 4 RDDA Sub Debt	1-Jun-2004	14-May-2009	6.820%				6.820%	-	-	
9	Series 5 RDDA Sub Debt	1-Jun-2005	6-Jul-2010	5.950%				5.950%	-	-	
10	Series 7 RDDA Sub Debt	1-Jun-2007	26-Jun-2012	7.370%				7.370%	-	-	
11									-	-	
12	RDDA Subtotal								-	-	
13							Total with Sub Debt		<u>\$390,731</u>	<u>\$23,909</u>	x-ref Schedule 69
14							Average Embedded Cost before Sub Debt			<u>6.119%</u>	

**TERASEN GAS (VANCOUVER ISLAND) INC.**

Nov. 5 2009 NSP Agreement

Section C

Tab 13

Schedule 74

RDDA CONTINUITY  
 FOR THE YEARS ENDING DECEMBER 31, 2007 - 2009  
 In Dollars

Line No.	Particulars	Approved 2007	Actual 2008	Projected 2009	Reference
	(1)	(2)	(3)	(5)	(6)
1	<b>Opening Balance</b>	<u>\$41,626,420</u>	<u>\$ 27,907,609</u>	<u>\$ 7,149,120</u>	
2	Deemed Interest on Subordinated Debt	\$ 3,207,564	\$ 2,481,026	\$ 1,269,953	
3	Annual Revenue Surplus Allocated to Sub Debt Interest Payment	(3,207,564)	(2,481,026)	(1,269,953)	
4	Annual Revenue Surplus Allocated to RDDA Amortization	<u>(13,718,811)</u>	<u>(20,758,489)</u>	<u>(7,149,120)</u>	*See Note
5	<b>Closing Balance</b>	<u>\$ 27,907,609</u>	<u>\$ 7,149,120</u>	<u>\$ -</u>	

\*2009 is projected to be the first year where the Annual Revenue Surplus is greater than the sum of the Opening Balance and the Subt Debt Interest. The remainder of the surplus not shown as allocated to either Sub Debt Interest Payment or RDDA Amortization has been allocated to the 2009 Revenue Surplus Deferral Account.



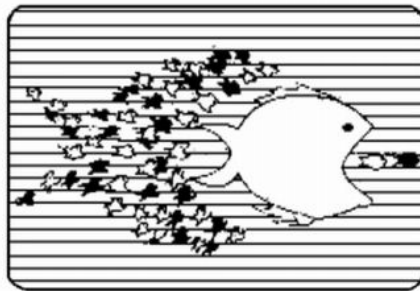
Terasen Gas (Vancouver Island) Inc. 2010-2011 Revenue Requirements Application  
Negotiated Settlement Process  
Issues of Particular Concern to the Commission Panel

In accordance with sections 3 and 9 of the Negotiated Settlement Process-Policy, Procedures and Guidelines, the Commission Panel has identified the following issues of particular concern that parties should be aware of during the negotiations:

1. EEC Program-TGVI is to provide results of the programs approved by the EEC Decision and expectations for new programs before the Commission Panel will approve additional EEC program funding.
2. Natural Gas for Vehicles ("NGV")-if NGV is to proceed why should the natural gas ratepayer fund this initiative rather than Terasen's non-regulated businesses or the competitive market?
3. Biogas-could be reviewed by a CPCN which demonstrates market uptake of customers that are willing to pay the full cost.
4. International Financial Reporting Standards ("IFRS")-could have no IFRS impact in 2010.
5. 2010 Rate Changes-in the event that a 2010 rate reduction were to occur as a result of the negotiations, the current rates should remain unchanged and place the revenue surplus into a deferral account to apply against 2011 and future rate increases with a phase in amortization that strives for rate stability.
6. CPCN threshold-why should the threshold increase from \$5 million.
7. Unrealized losses in rate base-should some of these losses be to the shareholder? Parties should present a separate settlement package.
8. Rate Design-should BC Hydro receive any refund for the expected 2009 RDDA surplus?

# The British Columbia Public Interest Advocacy Centre

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Coast Salish Territory  
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Valerie Conrad	687-3017
Sarah Khan	687-4134
Eugene Kung	687-3006
James L. Quail	687-3034
Ros Salvador	488-1315
Leigha Worth	687-3044

Barristers & Solicitors

Peggy Lee  
Article Student

**APPENDIX A**  
**to Order G-140-09**  
**Page 100 of 102**

Our file: 7430

November 12, 2009

## VIA EMAIL

Erica M. Hamilton  
Commission Secretary  
BC Utilities Commission  
Sixth Floor, 900 Howe Street  
Vancouver, BC V6Z 2N3

**Re: Terasen Gas Vancouver Island Inc. Revenue Requirements 2010-2011  
Negotiated Settlement**

This is to confirm, that we are satisfied that the draft Settlement Agreement circulated by Mr. Thompson and Mr. Loski on November 5, 2009 accurately captures the consensus reached by the parties to the Negotiated Settlement Process in this proceeding, and that we have been instructed by our clients, BCOAPO et al., to endorse it.

Accordingly, we ask that the Commission incorporate it into a consent Order for the resolution of all issues in the Application.

Our only further comments, made here only "for the record" and in no way detracting from our clients' endorsement of the Settlement, concern the "Alternative Energy Solutions" addressed under heading 8 of the document. While we believe that the ultimately appropriate corporate and regulatory formats for these lines of business are subject-matters which may require eventual determination by the Commission, our clients are content with the treatment of these issues in the Settlement Agreement over its term, in that it provides a "firewall" to ensure that the utility's natural gas distribution customers do not subsidize or otherwise contribute to these nascent programs through their rates.

Yours truly,

**BC PUBLIC INTEREST ADVOCACY CENTRE**

*Original in filed signed by:*

Jim Quail  
Executive Director

cc: parties of record

William E Ireland, QC  
Douglas R Johnson+  
Allison R Kuchta+  
James L Carpick+  
Michael P Vaughan  
Terence W Yu+  
Michael F Robson+  
Scott H Stephens  
Edith A Ryan

D Barry Kirkham, QC+  
James D Burns+  
Susan E Lloyd+  
Christopher P Weafer+  
Gregory J Tucker+  
Harley J Harris+  
James H McBeath+  
Ramneek S Padda  
James W Zaitsoff

Robin C Macfarlane+  
Duncan J Manson+  
Daniel W Burnett+  
Paul J Brown+  
Karen S Thompson+  
Gary M Yaffe  
Paul A Brackstone+  
Zachary J Ansley

J David Dunn+  
Alan A Frydenlund+\*  
Harvey S Delaney+  
Patrick J Habert+  
Heather E Maconachie  
Jonathan L Williams+  
Marilyn R Bjelos  
Susan C Gilchrist

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E-mail: [cweafer@owenbird.com](mailto:cweafer@owenbird.com)  
Our File: 23841/0040

Carl J Pines, Associate Counsel+  
R Keith Thompson, Associate Counsel+  
Rose-Mary L Basham, QC, Associate Counsel+

Hon Walter S Owen, QC, QC, LLD (1981)  
John I Bird, QC (2005)

+ Law Corporation  
\* Also of the Yukon Bar

November 13, 2009

**VIA ELECTRONIC MAIL**

British Columbia Utilities Commission  
6<sup>th</sup> Floor, 900 Howe Street  
Vancouver, B.C. V6Z 2N3

**Attention: Erica M. Hamilton,  
Commission Secretary**

Dear Sirs/Mesdames:

**Re: Terasen Gas (Vancouver Island) Inc. ("TGVI") 2010 and 2011 Revenue  
Requirements and Rate Design Application, Project No. 3698563**

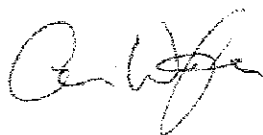
We are counsel to the Commercial Energy Consumers Association of British Columbia (the "CEC"). We confirm that the CEC accepts the terms of the final version of the Negotiated Settlement Agreement on the above-noted Application circulated by TGVI on November 5, 2009 and have no comments on that draft.

The CEC thanks the Commission staff and facilitator, TGVI and the other customer representatives for their efforts during these negotiations.

If you have any questions regarding the foregoing, please do not hesitate to contact the undersigned.

Yours truly,

**OWEN BIRD LAW CORPORATION**



Christopher P. Weafer  
CPW/jlb  
cc: CEC  
cc: TGVI  
cc: Registered Intervenor

**Leon Cender**

Manager, Power Acquisitions

Phone: (604) 623-4436

Fax: (604) 623-4335

Email: leon.cender@bchydro.com

November 13, 2009

Ms. Erica M. Hamilton  
Commission Secretary  
British Columbia Utilities Commission  
Sixth Floor – 900 Howe Street  
Vancouver, BC V6Z 2N3

Dear Ms. Hamilton:

**RE: Project No. 3698563  
British Columbia Utilities Commission (BCUC)  
British Columbia Hydro and Power Authority (BC Hydro)  
Terasen Gas (Vancouver Island) Inc. 2010 and 2011 Revenue Requirements and  
Rate Design Application - Negotiated Settlement Agreement**

---

BC Hydro acknowledges receipt of the final version of the Negotiated Settlement Agreement from Terasen Gas (Vancouver Island) Inc. (TGVI) and that the company has reviewed the document.

BC Hydro accepts the Negotiated Settlement Agreement and confirms that it has taken no position with respect to matters reflected in the Negotiated Settlement Agreement other than matters related to the Rate Design and those referred to in items 21 and 22 of the Negotiated Settlement Agreement.

Yours sincerely,



Leon Cender  
Manager, Power Acquisitions

cc. BCUC: Philip Nakoneshny  
TGVI – Tom Loski  
BCOAPO et al. – Jim Quail  
CEC – Chris Weafer

**BRITISH COLUMBIA  
UTILITIES COMMISSION**

**ORDER  
NUMBER G-141-09**

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IN THE MATTER OF  
the Utilities Commission Act, R.S.B.C. 1996, Chapter 473

and

An Application by Terasen Gas Inc.  
for Approval of 2010 and 2011 Revenue Requirements and Delivery Rates

**BEFORE:** A.W.K. Anderson, Panel Chair/Commissioner  
D.A. Cote, Commissioner  
M.R. Harle, Commissioner  
November 26, 2009

**ORDER**

**WHEREAS:**

- A. On June 15, 2009 Terasen Gas Inc. ("Terasen Gas") filed an application for approval of interim and permanent delivery rates effective January 1, 2010 and January 1, 2011 (the "Application") pursuant to sections 59 to 61 and 89 of the *Utilities Commission Act* (the "Act"), representing an increase of 5.3 percent for 2010 and 4.1 percent for 2011; and
- B. Terasen Gas sought other approvals in the Application, including Orders pursuant to sections 59 to 61 of the Act, approving Tariff changes effective January 1, 2010 for Compression and Refueling and Transportation Services for Natural Gas Vehicles and economic models for evaluating biogas projects and alternative energy extensions for geo-exchange, solar thermal and district energy systems to complement its core natural gas business; and
- C. The interim and permanent delivery rates sought in the Application are subject to adjustment for any changes in Terasen Gas' allowed return on equity and capital structure; and
- D. Terasen Gas proposed a written hearing process to address the Application but was open to a Negotiated Settlement Process ("NSP") addressing all of the issues; and
- E. In accordance with Commission Order G-76-09, a Workshop was held July 6, 2009 for a review of the Application and a first Procedural Conference was held on July 15, 2009. Commission Order G-89-09 established the requirement for a second Procedural Conference, held on September 25, 2009 to address the regulatory process and preliminary timetable; and
- F. At the second Procedural Conference, the Commission Panel received submissions on the principal issues arising from or related to the Application, process options for the review of the Application, location of the proceedings and other matters that would assist the Commission's efficient review of the Application. The primary issues raised were whether a separate Certificate of Public Convenience and Necessity ("CPCN") review was required for the Alternative Energy Solutions proposed in the Application and whether the regulatory process should be in the form of an oral or written hearing or NSP; and

**BRITISH COLUMBIA  
UTILITIES COMMISSION**

**ORDER  
NUMBER            G-141-09**

2

- G. The Intervenors expressed a wish to avoid a separate CPCN process for the Alternative Energy Solutions and all Intervenors supported an NSP for the review of the Application. The Intervenors submitted that, in the event that the NSP is not successful in resolving all issues, an Oral Public Hearing could be ordered by the Commission. Terasen Gas requested that, if an Oral Public Hearing is established, it be limited in scope; and
- H. Terasen Gas proposed that its application for interim rate approval be deferred until the end of November 2009; and
- I. By Order G-119-09, the Commission Panel established a regulatory timetable for an NSP commencing October 21, 2009. The settlement discussions concluded on November 3, 2009; and
- J. On November 13, 2009, the Negotiated Settlement Agreement ("NSA"), together with the Letters of Support received from the participants in the NSP, the Letter of Comment from Commission Staff and Terasen Gas' response to the Letter of Comment ("Settlement Package"), was made public and circulated to the Commission Panel; and
- K. The Settlement Package was also distributed to Registered Intervenors who did not participate in the NSP ("Other Intervenors"). The Other Intervenors were requested to provide their comments on the Settlement Package to the Commission by November 20, 2009. The Commission Panel received no comments from Other Intervenors regarding the Settlement Package; and
- L. The Commission Panel having reviewed the proposed NSA and the comments related thereto and noting the support of all parties to the proposed Negotiated Settlement Agreement, in which only sections 12(a) and (b) are severable, subject to the implementation of section 12.2, considers that approval is warranted.

**NOW THEREFORE** pursuant to sections 59 to 61 and 89 of the Act the Commission orders as follows:

- 1. The Negotiated Settlement Agreement attached as Appendix A to this Order is approved.
- 2. TGI is to file an amended Summary of Rates and Bill Comparison schedules based on the Negotiated Settlement Agreement.
- 3. The Commission will accept, subject to timely filing by TGI, amended permanent Gas Tariff Rate Schedules in accordance with the terms of this Order. TGI is to provide notice of the permanent rates to customers via a bill message, to be reviewed in advance by Commission Staff to confirm compliance with this Order.

**DATED** at the City of Vancouver, In the Province of British Columbia, this        26<sup>th</sup>        day of November 2009.

BY ORDER

*Original signed by:*

A.W.K. Anderson  
Panel Chair/Commissioner

Attachment



ERICA HAMILTON  
COMMISSION SECRETARY  
Commission. Secretary@bcuc.com  
web site: <http://www.bcuc.com>

SIXTH FLOOR, 900 HOWE STREET, BOX 250  
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BC TOLL FREE: 1-800-663-1385  
FACSIMILE: (604) 660-1102

Log No. 29797

VIA EMAIL

November 13, 2009

Registered Intervenor  
(TGI-2010-11RR-RI)

Dear Registered Intervenor:

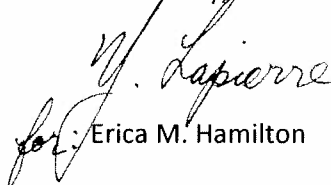
Re: Terasen Gas Inc.  
2010-2011 Revenue Requirements Application  
Negotiated Settlement

Enclosed with this letter is the proposed settlement package for Terasen Gas Inc.'s 2010-2011 Revenue Requirements Application.

This settlement package is now public and is being submitted to the Commission and all Intervenor. Also enclosed are Letters of Comment received to date from the participants in the negotiated settlement process.

Prior to consideration by the Commission, Intervenor who did not participate in the settlement negotiations are requested to provide to the Commission with their comments on the settlement package by Friday, November 20, 2009. Thereafter, the Commission will consider the settlement package. A public hearing may not be required unless there is significant opposition to the proposed settlement.

Yours truly,

  
for: Erica M. Hamilton

PWN/yl

Attachments

cc: Mr. Tom Loski  
Chief Regulatory Officer  
Terasen Gas Inc.  
(Via Email: [regulatory.affairs@terasengas.com](mailto:regulatory.affairs@terasengas.com))

~~CONFIDENTIAL~~  
**NEGOTIATED SETTLEMENT AGREEMENT  
TERASEN GAS INC.  
DATED THURSDAY, NOVEMBER 5**

IN THE MATTER OF  
the Utilities Commission Act, R.S.B.C. 1996, Chapter 473  
  
and

An Application by Terasen Gas Inc.  
for Approval of 2010 and 2011 Revenue Requirements and Delivery Rates  
Negotiated Settlement Process

WHEREAS:

- A. On June 15, 2009, Terasen Gas Inc. ("TGI") filed its 2010 and 2011 Revenue Requirements Application, which was supplemented by a filing on July 9, 2009 and amended by filings on August 14 and September 18, 2009 (the "Application"); and
- B. Amongst other things, the Application sought:
  - 1. An order pursuant to sections 59 to 61 of the *Utilities Commission Act* (the "Act"), approving delivery rates for all non-bypass customers effective January 1, 2010 and January 1, 2011, representing an increase of 5.3 percent for 2010 and an additional 4.1 percent for 2011, subject to changes in TGI's allowed return on equity ("ROE") and capital structure; and
  - 2. An order pursuant to section 44.2 of the Act approving an expenditure schedule for the continuation in 2011 of TGI's residential and commercial Energy Efficiency and Conservation ("EEC") funding, as well as new EEC funding for 2010 and 2011 for interruptible industrial programs and innovative technologies; and
  - 3. New tariff offerings and economic tests for Compression and Refuelling and Transportation Services for Natural Gas Vehicles ("NGV"), geo-exchange, solar thermal and district energy systems and a pilot program for Biogas; and
- C. A complete listing of the relief sought by TGI in the Application was included in Section D (pages 513-516)<sup>1</sup> of the Application; and
- D. In accordance with Commission Order No. G-76-09 issued on June 19, 2009, a Workshop was held on July 6, 2009 for a review of the Application, a procedural conference was held on July 15, 2009, and TGI responded to two rounds of Information Requests; and
- E. In accordance with Commission Order No. G-89-09 issued on July 20, 2009, a second procedural conference was held on September 25, 2009; and

---

<sup>1</sup> Page 516 of the Application was amended on September 18, 2009.



**CONFIDENTIAL**  
**NEGOTIATED SETTLEMENT AGREEMENT**  
**TERASEN GAS INC.**  
**DATED THURSDAY, NOVEMBER 5**

- F. On October 2, 2009, the Commission issued Order G-119-09 establishing a Negotiated Settlement Process ("NSP") for the Application; and
- G. The Parties to the NSP were TGI, British Columbia Old Age Pensioners et al. ("BCOAPO"), Commercial Energy Consumers Association of British Columbia ("CEC"), Teck Coal Ltd. ("Teck"), and the Ministry of Energy, Mines and Petroleum Resources ("MEMPR") (collectively referred to in this Agreement as the "Parties"); and
- H. At the outset of the NSP on October 21, 2009, Commission Staff provided the Parties with a document prepared by the Commission Panel titled "Issues of Particular Concern to the Commission Panel", a copy of which is appended as Appendix 1 to this Agreement; and
- I. The NSP was held on October 21-23, 30, and November 3 and 4, 2009; and
- J. The Parties have negotiated in good faith to achieve a compromise settlement, reflected in this Agreement, of the issues raised by the Application, and the Commission Panel document referenced in recital H above, and further consider the Agreement reached to be fair, just and reasonable; and
- K. This Agreement consists of four Parts:
- Part I includes general provisions;
- Part II includes the items agreed to that differ from what was requested in the Application;
- Part III includes the items agreed to that remain as proposed by TGI in the Application; and
- Part IV includes revised financial schedules reflecting all items set out in the Agreement.

**NOW THEREFORE THE PARTIES AGREE AS FOLLOWS**

**PART I – GENERAL**

**1. Agreement a Product of Compromise**

The Parties recognize and emphasize that this Agreement is the product of compromise on the part of all Parties, yielding an overall package that the Parties consider to be fair, just and reasonable. The Parties agree that any compromises resulting from this Agreement are without prejudice to the Parties' ability to take different positions after 2011 and without prejudice to the Parties right to intervene in any applications contemplated in or resulting from this Agreement.

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**2. Whole Agreement**

Unless otherwise stated in this Agreement, portions of this Agreement cannot be removed or changed by the Commission without nullifying the whole Agreement.

**3. TGI to Manage Business**

The Parties agree that TGI will have the discretion to manage its business and determine how best to allocate the overall O&M and Capital expenditures stipulated in this Agreement.

**4. Final IFRS Rate-regulated Activity Standard**

The Parties acknowledge that this Agreement is predicated on the Final IFRS Rate-regulated Activity Standard permitting the financial accounting treatment contemplated in this Agreement in the manner outlined in the current Exposure Draft on Rate-regulated Activities. The Parties agree that if, in TGI's opinion, the Final IFRS Rate-regulated Activity Standard differs from the current Exposure Draft on Rate-regulated Activities so as not to permit the financial accounting treatment contemplated in this Negotiated Settlement Agreement, which among other things anticipates the recognition of regulatory assets and liabilities for external reporting purposes, then TGI is at liberty to apply to the Commission during the period of this Agreement for a determination of that issue, and to seek changes in the regulatory treatment contemplated in this Agreement to accord with the Final IFRS Rate-regulated Activity Standard, with the resulting impacts flowed through into rates commencing in 2011.

**PART II – AGREED CHANGES FROM THE APPLICATION**

**5. Delivery Rates**

The Delivery rate changes for 2010 and 2011 that would flow from this Agreement would be a decrease of 1.73 per cent in 2010 and an increase of 3.93 per cent in 2011, subject to being updated as contemplated in this Agreement. Issue No. 5 in the Commission Panel's "Issues of Particular Concern to the Commission Panel" stated:

"2010 Rate Changes – in the event that a 2010 rate reduction were to occur as a result of negotiations, the current rates should remain unchanged and place the revenue surplus into a deferral account to apply against 2011 and future rate increases with a phase in amortization that strives for rate stability."

Therefore, the Parties agree that this Agreement will not result in a decrease in delivery rates for 2010 and that the 2010 forecast revenue surplus will be recorded in a 2010 Revenue Surplus Deferral Account and be applied to offset any forecast increase in delivery rates in 2011. The forecast 2010 revenue surplus of \$9.2 million per Schedule 1 included in Part IV of this Agreement, is recorded in the 2010 Revenue Surplus Deferral Account, which

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will be amortized in 2011 to reduce the 2011 forecast revenue deficit. The 2010 Revenue Surplus Deferral Account will be included in Rate Base.

However, the delivery rates for 2010 and 2011 will be updated to reflect changes in TGI's allowed ROE and capital structure flowing from the Commission's decision in TGI's concurrent ROE and Capital Structure Application<sup>2</sup>, or as adjusted from time to time by the Commission. Nothing in this Agreement precludes TGI from applying to the Commission in 2010 or 2011 for changes to its allowed ROE and capital structure.

**6. Service Quality Indicators**

The Parties agree that TGI will report on the same SQL's as set out in the 2004-2007 PBR Agreement and the 2008-2009 extension thereof through quarterly postings on TGI's website.

**7. Customer Additions Forecast**

The Parties agree that TGI's net Residential customer additions forecast is revised to be 5,952 in 2010 (increase of 352 from Application<sup>3</sup>) and 6,166 in 2011 (increase of 316 customers from the number specified in the Application), reflecting the updated published CMHC Q3 2009 forecast, and TGI's year end 2009 number of customers has additionally been updated to be 835,862. Customer additions for the other rate classes remain unchanged from what was specified in the Application<sup>4</sup>.

**8. Use Per Customer Rates**

The Parties agree that the Residential annual use per customer is revised upward from 89.7 GJ to 91.7 in 2010 and from 88.3 to 90.3 in 2011. Use per customer rates for the other rate classes remain unchanged from what was included in the Application (other than Industrial as set out in item 9).

**9. Industrial Demand Forecast**

The Parties agree that the industrial demand forecast is revised upwards from what was requested in the Application based on responses TGI has since received from the 2009 Industrial Survey and actual year-to-date demand. The revised industrial demand forecast includes forecast demand of 46.5 PJ and 46.5 PJ (compared to 43.4 PJ and 43.3 PJ as presented in the Application) for 2010 and 2011 respectively.

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<sup>2</sup> Filed jointly by the Terasen Utilities [TGI, Terasen Gas (Vancouver Island) Inc. and Terasen Gas (Whistler) Inc.] on May 15, 2009.

<sup>3</sup> See Application, page 276

<sup>4</sup> IBID

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**10. Inclusion of SCP Capacity in MCRA**

The Parties agree that TGI will continue for 2010 and 2011 to include in the MCRA the \$3.6 million representing the annual cost of Southern Crossing Pipeline (SCP) capacity, because the benefits and use of the SCP capacity are used by Core Market Customers (Rate Schedules 1-7).

**11. Energy Efficiency and Conservation (“EEC”) Funding for 2010**

The Parties agree as follows in respect of the EEC funding sought by TGI for 2010:

- (a) TGI will reallocate from residential and commercial EEC programs an additional \$1.6 million from the amount approved for 2010 in the EEC Decision<sup>5</sup> to low income and rental housing programs. This brings the total for low income and rental housing programs to \$2.4 million for 2010.
- (b) EEC funding for industrial interruptible programs for 2010 will be \$435,000, which is the amount requested by TGI in the Application.
- (c) EEC funding for innovative technologies will be \$2.3 million for 2010, which is the amount requested by TGI in the Application.
- (d) All agreed to EEC expenditures will be considered and evaluated within the existing portfolio, and be subject to the same financial treatment, as per the Commission’s EEC Decision dated April 16, 2009 (Application, page 514, Item 6). However, Innovative Technology programs will be managed by TGI as a separate segment of the overall portfolio to have a weighted average Total Resource Cost (“TRC”) of 1.0 or more. TGI will consult with stakeholders on the practical application of the weighted average TRC through the EEC Advisory Committee.

**12. EEC Funding for 2011**

12.1 The Parties agree as follows in respect of the EEC funding sought by TGI for 2011:

- (a) EEC funding for residential and commercial programs for 2011 will be \$23.075 million, which is the amount requested by TGI in the Application.
- (b) TGI will reallocate from 2011 residential and commercial EEC funding (\$23.075M for 2011) an additional \$1.6 million (from the \$0.8 million included in the Application) to low income and rental housing programs. This brings the total for low income and rental housing programs to \$2.4 million for 2011.

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<sup>5</sup> Decision and Order No. G-36-09 dated April 16, 2009 in the TGI-TGVI Energy Efficiency and Conservation Application

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- (c) EEC funding for industrial interruptible programs will be \$1.875 million for 2011, which is the amount requested by TGI in the Application.
- (d) EEC funding for innovative technologies will be \$4.669 million for 2011, which is the amount requested by TGI in the Application.
- (e) All agreed to EEC expenditures will be considered and evaluated within the existing EEC portfolio, and will be subject to the same financial treatment, as per the Commission's EEC Decision dated April 16, 2009 (Application, page 514, Item 6). However, Innovative Technology programs will be managed by TGI as a separate segment of the overall portfolio to have a weighted average TRC of 1.0 or more. TGI will consult with stakeholders on the practical application of the weighted average TRC through the EEC Advisory Committee.
- (f) TGI will report to the Commission on industrial interruptible and innovative technology programs as part of TGI's annual report on EEC activities required under the EEC Decision.

The Parties offer the following rationale for the agreed upon 2011 EEC funding.

All Parties agree that it is important to maintain EEC funding levels in 2011 to allow customers to have continued access to EEC programs and incentives. The residential and commercial EEC programs relating to the \$23.075 million funding in 2011 on a portfolio basis in aggregate have a TRC of one or more. This means that, from a resource perspective and on a portfolio basis, these programs are expected to yield favourable results for customers. The predictability and continuity of these programs on a sustained basis is critical to their overall success.

Issue No. 1 in the Commission Panel's "Issues of Particular Concern to the Commission Panel" stated:

"EEC Program – TGI is to provide results of programs approved by the EEC Decision and expectations for new programs before the Commission Panel will approve additional EEC program funding."

There are practical difficulties associated with the approach identified by the Commission Panel. They include the following:

- As per the EEC Decision (Order No. G-36-09), TGI will be reporting 2009 activities and results by no later than March 31, 2010. This report will also outline the forecasted activities and programs for 2010. Recognizing the timing of the recent EEC Decision and its current implementation in the Fall of 2009, the EEC Report for 2009 results will give the Commission and stakeholders another check point to validate the level of spend for 2011. However, there is expected to be very little additional information on the results of programs available in March 2010 than exists presently and is included in the evidentiary record of this proceeding. TGI's

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EEC programs only completed start up phase in the Fall of 2009. It typically takes longer than 6-8 months to achieve momentum with EEC programs. There will be no information available in March 2010 on results for industrial programs or programs relating to innovative technologies initiated in 2010 as a result of this Agreement. The information that the Commission Panel appears to desire will be more likely included in TGI's 2010 results report to be filed in March 2011.

- Employees responsible for the programs at TGI, whose salaries are funded from EEC funding, will face the prospect of losing their jobs in 2011. This could lead to employee retention issues. Employee turnover issues may disrupt the program implementation progress and potentially be more costly if EEC activity is ceased and later resumed.
- Programs will need to begin winding down in advance of 2011 if the 2011 funding is not approved. For example, programs will need to have an end date of December 31, 2010 which may not yield positive results since programs will be winding up in the middle of the heating season.

12.2 The Parties agree that the Commission may sever Section 12.1 (a) and (b) above from this Agreement, with the remainder of this Agreement remaining in force and effect. If the Commission severs Section 12.1 (a) and (b), then the Parties agree that the following provisions take effect:

- (a) The Residential and Commercial EEC programs totaling \$23.075 million in 2011 will be removed from the EEC expenditure forecast and the revenue requirements for 2011. (If 12.2 takes effect, the financial schedules in Part IV of this Agreement and the revenue requirements resulting from this Agreement will be revised to reflect this).
- (b) The Parties agree that the first annual report on EEC Activities, which was due to be filed on March 31, 2010 pursuant to Order No. G-36-09, can be filed on or before June 30, 2010. Concurrent with that report, TGI will file an application with the anticipation of a decision within 120 days after filing. The application will include requests for:
  - i. approval of the above EEC funding for 2011;
  - ii. approval of the same financial treatment approved in the EEC Decision; and
  - iii. approval for the continuation of the portfolio approach and assessment methodology as approved in the EEC Decision.

**13. Alternative Energy Solutions**

Alternative Energy Solutions ("AES") means Geo-exchange, Solar-thermal and District Energy Systems as those terms are described in the Application.

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Natural Gas service taken in combination with AES will be charged under TGI's natural gas rates.

The Parties agree that the costs incurred by TGI to provide AES should not be recovered as part of natural gas service rates, and visa versa. The Parties agree that TGI's proposed New Energy Solutions Deferral Account, attracting AFUDC, is an appropriate mechanism to address allocation issues as between TGI's gas customers and TGI's AES customers. Therefore, the Parties agree that the new Energy Solutions Deferral Account will remain in effect pending a future rate design application at an unspecified future date after 2011 and will capture and record the following (plus AFUDC) to be recovered from AES customers:

- (a) Direct costs associated with AES projects as outlined on pages 267-268 of the Application, including cost of design, equipment, etc. constructing and financing; and
- (b) Sales and marketing O&M and other development costs will be directly charged to the deferral account by time sheets or other direct charge (estimated at \$1.0 million in 2010 and \$1.5 million in 2011, representing a portion of the agreed upon Gross O&M reduction from gas customers of \$4.0 million in 2010 and \$5.5 million in 2011); and
- (c) An appropriate overhead allocation, which the parties have agreed will be \$500,000 in each of 2010 and 2011 (representing a portion of the agreed upon Gross O&M reduction from gas customers of \$4.0 million in 2010 and \$5.5 million in 2011).

Revenues received from customers for all AES projects, which are based on contracts approved by Commission will be recorded in the AES deferral account.

The risk of non-recovery of amounts in the New Energy Solutions Deferral Account will not be borne by natural gas ratepayers. The Parties agree that any debit balance in the New Energy Solutions Deferral Account will not be recovered through natural gas rates and any credit balance will not be applied to reduce natural gas rates.

In evaluating AES projects, TGI will apply the economic test outlined in the Application. The Parties agree that the proposed GT&C (Section 12A – Alternative Energy Extensions) are acceptable. Pursuant to the *Utilities Commission Act*, within the Alternative Energy class of service, project-specific contracts with AES customers will be filed with the Commission for acceptance as a rate, at which time the Commission may review and adjust the economic test and GT&C Section 12A – Alternative Energy Extensions.

The CPCN threshold of \$5 million applies to AES projects brought forward in 2010 and 2011.

The Parties agree that it is premature to address issues relating to the gas load and gas consumption profiles of AES projects that incorporate a natural gas component. Such issues are appropriately addressed in a future rate design application, once TGI has sufficient AES customers that take gas so as to provide reliable information on gas load and gas consumption profiles.

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TGI will capture costs and revenue on a project specific basis and will report on AES projects as part of the next Revenue Requirements application.

**14. Natural Gas for Vehicles (“NGV”)**

The Commission Issue No. 2 in the Commission Panel’s “Issues of Particular Concern to the Commission Panel” stated:

“Natural Gas Vehicles (“NGV”) – if NGV is to proceed why should the natural gas ratepayer fund this initiative rather than Terasen’s non-regulated businesses or the competitive market?”

The Parties agree:

- (a) NGV Rate Schedule 26 - NGV Transportation Service should be approved as filed.
- (b) The marketing costs in support of NGV that are included in the revenue requirements Application are appropriately recoverable in 2010 and 2011 rates.
- (c) Upon acceptance of this Agreement by the Commission, TGI withdraws its request in this Application for the following:
  - i. Rate Schedule 6C NGV Compression and Refueling Service and 6A NGV Refueling Service; and
  - ii. the Compression Service (“CS”) Test; and
  - iii. NGV non-rate base deferral account.

The Parties acknowledge that these requests are being withdrawn by TGI to facilitate a settlement on other issues presented in this Application. The Parties agree that TGI’s withdrawal of its requests regarding NGV is without prejudice to TGI’s right to bring forward similar requests in 2010 or 2011 or otherwise in the future. The Parties acknowledge that TGI intends to develop this area of business and that TGI anticipates it will bring forward applications on NGV projects to the Commission on a case-by-case basis during the term of this Agreement and in future years. The Parties agree that TGI is at liberty to do so.

**15. Biogas**

Issue No. 3 in the Commission Panel’s “Issues of Particular Concern to the Commission Panel” stated:

“Biogas – to be reviewed by a CPCN which demonstrates market uptake of customers that are willing to pay the full cost.”



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The Parties agree that, upon acceptance of this Agreement by the Commission, TGI withdraws its requests in this Application related to Biogas. The Parties acknowledge that these requests are being withdrawn to facilitate a settlement on other issues presented in this Application. The Parties agree that TGI will bring forward an application (the “Biogas Application”) during the test period that will:

- (a) Address the economic assessment model; and
- (b) Provide Biogas rates (including green rate, transportation rate, etc.); and
- (c) Provide for recovery of costs associated with providing Biogas service.

TGI may include in the Biogas Application any Biogas Projects under development at that time. TGI is, however, not precluded from applying for Commission approval in respect of individual Biogas Projects at any time, either prior to the Biogas Application or afterwards.

**16. CPCN Threshold**

Issue No. 6 in the Commission Panel’s “Issues of Particular Concern to the Commission Panel” stated:

“CPCN threshold – stay at \$5 million.”

The Parties accordingly agree that the CPCN threshold will remain at \$5 million for 2010 and 2011. TGI’s Category B Capital Expenditures forecast for the forecast period will be revised to reflect this change (please see item 18 below).

**17. Category A Capital**

The Parties agree that Category A Capital will be \$43.3 million for 2010 and \$46.0 million for 2011, reflecting the proposed amount updated to reflect the published CMHC Q3 2009 forecast, and TGI’s adjusted re-forecasted year end net customer addition numbers (as set out in item 7).

**18. Category B and Category C Capital**

As a consequence of the CPCN threshold being established at \$5 million for 2010 and 2011 (see item 16 above), TGI will file CPCN applications for the Huntingdon and Kootenay Crossing projects identified in TGI’s Application. The Category B Capital will consequently be reduced by \$2.2 million in 2010 and \$16.0 million in 2011. TGI will seek deferral treatment for 2011 of the capital costs associated with those projects at the time of filing the CPCN Applications.

The Parties agree that Category B and C Capital will be reduced by a total of \$3 million in each of 2010 and 2011. For the purposes of the determination of revenue requirements

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with this Application, Category B Capital has been reduced by \$1 million and Category C IT Capital has been reduced by \$2 million.

The revised Category B Capital Expenditures, reflecting both the CPCN adjustment and the \$1 million reduction in spending, are now \$17.4 million in 2010 and \$14.9 million in 2011.

The revised Category C Capital Expenditures, reflecting the \$2 million IT Capital reduction, are now \$32.8 million in 2010 and \$32.7 million in 2011.

**19. Gross O&M (to be recovered from gas customers)**

The Parties agree that the proposed gross O&M, before shared service allocations, recoverable from gas customers for 2010 and 2011 is reduced from the amounts included in the original Application by \$4.0 million in 2010 and a further \$1.5 million (for a total impact of \$5.5 million) in 2011. This reduction of Gross O&M will result in a reduction in the pool of costs subject to the Shared Services Agreement with TGVI and with TGW by an estimated \$3.3 million in 2010 and \$4.8 million in 2011. Therefore, and as discussed in Item 21, the final Gross O&M to be included in TGI's cost of service for 2010 and 2011 will be determined based on the Shared Services and Corporate Services allocations determined in the TGVI RRA.

**20. Interest Expense**

The Parties agree that TGI will update its assumptions around both the issuance of long-term debt and the associated interest rates. TGI has determined that Long-term Debt Series 25 will not be issued December 1, 2009 as originally forecast and is now anticipated to be issued April 1, 2010. In addition, the interest rate forecast for Long-term Debt Series 26, to be issued July 1, 2011, has been revised downwards from 6.13 per cent to 5.65 per cent.

**21. Shared Services/Corporate Services Allocations**

The 2010 and 2011 revenue requirements stipulated in this Agreement are based on TGI's proposed Shared Services and Corporate Services allocation for 2010 and 2011. The Parties acknowledge, however, that the final amount allocated to TGI for Shared Service and Corporate Services cannot be confirmed until the Commission determines the TGVI RRA. The Parties agree that if the amounts allocated to TGVI for Shared Services and/or Corporate Services for 2010 or 2011 changes from that agreed to in this Agreement as a result of a settlement or decision in the concurrent TGVI RRA proceeding, then the amount(s) allocated to TGI and its revenue requirements for 2010 and 2011 will be updated by a corresponding amount to ensure recovery of all of the combined Corporate Services and Shared Services costs.

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**22. Depreciation Study**

The Parties agree that the depreciation rates specified in the Gannett Fleming study included the Application under Appendix H-2 for Parts I-III, and in the Supplemental filing dated July 8, 2009 for Parts IV and V, will be implemented effective January 1, 2010, with the exception of:

- (a) Masonry Structures, which has been updated to 40 years instead of 22.88 years; and
- (b) the component of those rates that represent recovery of negative salvage (see item 23 below).

Adjusting for the Masonry Structures, negative salvage, and the impacts of capitalized overhead and capital additions changes yields total depreciation expense of \$98.3 million in 2010 and \$100.5 million in 2011, of which approximately \$6.3 million results from the updated Gannett Fleming depreciation study.

The Parties agree that TGI will undertake an updated depreciation study to be included as part of TGI's next Revenue Requirements Application. This study will address the methodology and rates for net negative salvage to be included in cost of service for future periods. TGI will work with Commission staff and a depreciation rate specialist in determining the requirements of the study.

**23. Negative Salvage Values**

On an annual basis, TGI includes a provision for estimated net negative salvage value (removal costs less proceeds) in its depreciation rates. This treatment recognizes that net negative salvage value is a cost of providing service using the asset and should be recovered from customers over the useful life of the asset. An alternative treatment is to recover the net negative salvage values at the time they are incurred resulting in future customers paying for the removal costs, which TGI views as inappropriate. The inclusion of a provision for estimated net negative salvage value in depreciation rates is a practice that has been followed by TGI historically, and with this RRA TGI had proposed continuation of this treatment. This treatment is consistent with the BCUC Uniform System of Accounts and is generally followed by other investor-owned utilities in British Columbia and across Canada.

The Parties agree that for the purposes of the two year period covered by this Agreement, the provision for net negative salvage (net removal costs) will be removed from the depreciation estimates. Instead, an estimate of the amount of net removal costs to be incurred in each of the years 2010 and 2011 (\$8.038 million and \$11.29 million) will be included in the cost of service and recovered from customers in each of those years. Any variances between the actual amount of net removal costs realized and the estimated amounts included in cost of service will be recorded in a new deferral account created for this purpose that will be called the "Removal Cost Deferral Account". The amount accumulated in the Removal Cost Deferral Account over the two year period of this Agreement will be recovered from (or returned to) customers in 2012.

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TGI continues to be of the position that removal costs should be recovered over the service life of the asset and not at the time the removal costs are actually incurred. TGI will work with Commission staff and a depreciation rate specialist in determining both the methodology and estimates for the removal costs and include the documentation to support the rates in its next depreciation study filed as part of its next Revenue Requirement Application.

**24. Unrecovered Losses**

Issue No. 7 in the Commission Panel's "Issues of Particular Concern to the Commission Panel" stated:

"Unrealized losses in rate base – should some of these losses be to the shareholder? Parties should present a separate settlement package."

Unrealized (unrecovered) losses relate to Unrecovered Depreciation on assets used 100 per cent for the provision of utility service to ratepayers (as discussed in the response to BCUC IR 2.131.1.4).

The Parties agree that the treatment for unrecovered losses as proposed in the Application is acceptable for the 2010 and 2011 period covered by this agreement. TGI will work with Commission staff and a depreciation rate specialist in determining both the methodology and estimates for the unrecovered losses and include the documentation to support the rates in its next depreciation study filed as part of its next Revenue Requirement Application.

**25. Changes to CCA Rates**

TGI amended its 2007 and 2008 tax returns to reflect changes to CCA rates announced in 2007 but not enacted until 2009. TGI proposed this benefit be shared in accordance with the terms of the PBR settlement. Some Parties have expressed the view, however, that all of the benefit should have been flowed through to customers via the Tax Deferral Account. The Parties, acting in good faith, have concluded that they have a fundamental and legitimate disagreement regarding the terms of the 2004-2009 PBR Settlement Agreement as it relates to the items to be included in the Tax Deferral Account. TGI has nevertheless agreed, as a compromise in furtherance of reaching an overall Agreement among the Parties, to include the full value of the incremental tax benefit associated with the difference in the CCA rates for 2007 and 2008 totalling \$921,000 and remove the proposed 50% sharing benefit from the Earnings Sharing Mechanism.

**26. Taxes – Tax Benefits Relating to Prior Periods – SCP Landscaping Costs**

TGI had proposed to accelerate the deduction of the remaining Regulatory Tax balance of SCP Landscaping costs (amounting to approximately \$8.2 million) in 2009. That proposal would have resulted in the related tax benefit of approximately \$2.4 million being flowed through the Earnings Sharing Mechanism pursuant to the PBR Settlement Agreement, resulting in a net benefit to customers of approximately \$1.2 million.

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The Parties agree that, instead, TGI will continue to amortize the balance of SCP Landscaping costs for 2009 as contemplated in the approved rates for 2009 and consistent with prior years, resulting in a deduction of approximately \$0.3 million for Regulatory Tax purpose in 2009 and a related tax benefit. TGI will then deduct the remaining balance (approximately \$7.9 million) in 2010 with the full value of the remaining benefit (approximately \$2.3 million) going to customers reflected as a reduction in revenue requirements in 2010.

The Parties agree that the acceleration of this benefit to customers was the result of tax planning actions taken by TGI and acknowledge that the agreed upon treatment set out above reflects customers receiving 100% of the value of the deductions of the SCP Landscaping costs. The intervenor Parties to this Agreement will not seek any additional recovery in respect of SCP Landscaping costs.

**27. Overheads Capitalized**

The Parties agree to a change in the overheads capitalized rate to 14 per cent of Gross O&M for 2010 and 2011 which reflects the approximate actual Overheads Capitalized rate for 2009.

**28. International Financial Reporting Standards (“IFRS”) 2010 Impact**

Issue No. 4 in the Commission Panel’s “Issues of Particular Concern to the Commission Panel” stated:

“International Financial Reporting Standards (“IFRS”) – no IFRS impact in 2010.”

The Parties agree to defer the 2010 revenue requirement impact of IFRS to be recovered in rates in 2011 (relating specifically to capitalization of the current service portion of pension and OPEB related costs; capitalization of inspection costs; and timing of depreciation expense) up to a maximum of \$1.0 million. Amounts, if any, over \$1.0 million would be deferred and recovered in rates after 2011 based on the amortization approved by the Commission at that time.

**PART III – REQUESTS UNCHANGED FROM THE APPLICATION**

The Parties agree to the following items set out in this section, which are consistent with the proposals in TGI’s Application.

**29. Rate Proposals as per Application Part III, Section D .1 - Approvals Sought**

The Parties agree to the following rate proposals, as set out in TGI’s Application:

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- (a) Allocation of delivery margin rate changes - Annual margin increase allocated to variable (volumetric & demand) based delivery charges, with no change to fixed (basic and admin fee) charges in each year (Application Page 513, Item 1).
- (b) Earnings Sharing Mechanism (ESM) rider (incl. end of term capital) - Change the ESM rate rider to be (\$0.040)/GJ effective January 1st, 2010, and change the estimated ESM rate rider to be (\$0.046)/GJ effective January 1st, 2011. ESM amount to include End of Term Capital phase out and to be amortized over two years. The final 2011 rider amount will be adjusted based on 2009 actual earnings. TGI will submit an application to change the 2011 ESM rate rider at the same time it submits its Q4 quarterly gas cost report in early December 2010 (Application Page 513, Item 3).
- (c) Rate Stabilization Adjustment Mechanism (RSAM) rider - Change the RSAM rate rider to be (\$0.053)/GJ effective January 1st, 2010 and change the estimated RSAM rate rider to be (\$0.052)/GJ effective January 1st, 2011. The 2011 rider amount will be adjusted based on 2009 actual results and 2010 year to date actual results. TGI will submit an application to change the 2011 RSAM rate rider at the same time it submits its Q4 quarterly gas cost report in early December 2010 (Application - Page 514 Item 4).

**30. Accounting Policy Changes as per Application Part III, Section D.1 - Approvals Sought - to be effective January 1, 2010**

The Parties agree to the following accounting policy changes, as set out in TGI's Application:

- (a) Training and Feasibility Study Costs to be treated as O&M expense, rather than capital (Application Page 515 and 516, Item 11).
- (b) Capitalization of Major Inspection Costs, including the creation of a new Asset Class (Application Page 515 and 516, Item 11).
- (c) Capitalization of the Current Service portion of Pensions and OPEBs expense that is applicable to capital projects (Application Page 515 and 516, Item 11).
- (d) Capitalization of Depreciation on Assets used in Construction (Application Page 515 and 516, Item 11).
- (e) All capital expenditures, including CPCNs, to be included in plant in service (and rate base) in the month following the available-for-use date, with depreciation starting at that time (Application Page 515 and 516, Item 11).
- (f) Treatment of Vehicle Lease as a capital lease and inclusion of the NBV of vehicles in rate base (Application Page 515 and 516, Item 11).
- (g) Discontinuation the Software Tax Credit as part of the CIAC additions (Application Page 515 and 516, Item 11).

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**31. Various Accounting Related Proposals as per Application Part III, Section D .1 - Approvals Sought effective January 1, 2010**

The Parties agree to the following accounting related changes, as set out in TGI's Application:

- (a) Adoption of the Cash Working Capital Lead/Lag Days as set out in the Lead/Lag study (Application page 515, Item 8c).
- (b) Consolidated Core Market Administration Expenses (for TGI, TGV and TGW), including allocation percentages to TGV and TGW (Application page 515, Item 8d).
- (c) Modify the Pricing Methodology for Company Use Gas to be based on market-based Sumas pricing, rather than pricing for expired "netback" contracts (Application page 514, Item 7a).
- (d) The MCRA will absorb any volumes not used or excess volumes required for company use gas, as opposed to the O&M costs being adjusted for the differences (Application page 514, Item 7b).

**32. Tariff Change Proposals as per Application Part III, Section D .1 - Approvals Sought, Item 12 & 13**

The Parties agree to the following Tariff changes, as set out in TGI's Application:

- (a) New NGV Transportation Service (RS 26)
- (b) Revised Fee New Customer Application fee from \$85 to \$25
- (c) Revised Fee Meter Testing fee from \$30 to \$60

**33. Deferral Account Proposals as per Application Part III, Section D .1 - Approvals Sought, Item 10**

The Parties agree to the continuation, modification or adoption of the following deferral accounts as set out in TGI's Application:

- (a) Deferral Accounts - No Change:
  - i. CCRA, MCRA, RSAM, and associated Interest and Revelstoke Propane (Application pages 429 and 430, Items (1) (a), (1) (b), (1) (c), (1) (d), (1) (e)).
  - ii. NGV Conversion Grants (Application page 432, Item (2) (b)).
  - iii. Property Tax variance (Application page 433, Item (3) (a)).
  - iv. Insurance variance (Application page 433, Item (3) (b)).

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**NEGOTIATED SETTLEMENT AGREEMENT**  
**TERASEN GAS INC.**  
**DATED THURSDAY, NOVEMBER 5**

- v. BCUC Levies variance (Application page 433, Item (3) (d)).
- vi. Interest variance (Application page 434, Item (3) (e)).
- vii. Olympic Security costs (Application page 434, Item (3) (g)).
- viii. IFRS conversion costs (Application page 435, Item (3) (h)).
- ix. Accounts Amortized in 2010 (Application page 438, Item (6) (a)).
- x. SCP PST Reassessment (Application page 439, Item (6) (b)).
- xi. Deferred Service Line Installation Fee (Application page 439, Item (6) (d)).
- xii. ESM (Application page 440, Item (6) (e)).

(b) Deferral Accounts - Modified:

- i. SCP Mitigation Revenues Variance Account - combine the two currently approved accounts into one account (Application page 431, Item (1) (f)).
- ii. Pension & OPEB variance - modify to add OPEB (Application page 433, Item (3) (c)).
- iii. Tax variance - broader (changes in tax laws, practices, reassessments) (Application page 434, Item (3) (f)).
- iv. Pension and OPEB funding Differences - expand to include pension funding differences and include addition in rate base not net of tax (Application page 437, Item (5) (c)).

(c) Deferral Accounts - New:

- i. Interest variance calculation on gas in storage inventory (Application page 434, Item (3) (e)).
- ii. Costs of applications (CCE, ROE, RRA) (Application page 435, Item (4)).
- iii. IFRS Transitional Deferral Account (Application page 435, Item (5) (a)).
- iv. Gains and Losses on Asset Disposition (Application page 436, Item (5) (b)).
- v. CCE CPCN Costs (incremental non-capital costs plus timing impacts) (Application page 437, Item (5) (d)).
- vi. LILO Reassessment (Application page 439, Item (6) (c)).



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DATED THURSDAY, NOVEMBER 5

**34. Transfer Pricing Policy (TPP) and Code of Conduct (COC)**

The Parties agree that the existing COC and TPP Policies will be maintained.

**PART IV – REVISED FINANCIAL SCHEDULES**

The revised Financial Schedules follow.



**TERASEN GAS INC.**

2010-2011 REVENUE REQUIREMENTS APPLICATION

NOVEMBER 5, 2009 NEGOTIATED SETTLEMENT AGREEMENT

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**Summary of TGI 2010 and 2011 Revenue Requirement Increase**

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	<u>2010</u>		<u>Incremental</u>	<u>Cumulative</u>
	(\$ Millions)		2011 (\$ Millions)	2011 (\$ Millions)
<u>Rebase from Formula Capital and O&amp;M</u>				
Rate Base- Net Plant in Service				
Equity Finance Expense	\$ (2.0)		\$ -	
Debt Finance Expense	(3.0)		-	
Utility O&M	(8.0)		-	
Overheads Capitalized	1.3			
After Tax Depreciation	(10.0)		-	
Tax Impacts of Rebase Depreciation	(4.3)		-	
Other Revenue	2.6		-	
Taxes	<u>1.0</u>	\$ (22.4)	<u>-</u>	\$ (22.4)
<u>Volumes/Revenue Related</u>				
Change in Gross Margin due to Customer Growth	\$ (4.6)		(3.7)	
Change in Use Rate	(4.7)		4.7	
Change in Other Revenue	(1.6)		(1.9)	
All Others	<u>(1.8)</u>	(12.7)	<u>(1.5)</u>	(2.4)
<u>O&amp;M Forecast</u>				
Change in overheads capitalized- change in O&M	(1.2)		(0.7)	
Change in O&M & Vehicle Lease Forecast	<u>14.9</u>	13.7	<u>11.5</u>	10.8
<u>Depreciation &amp; Amortization Forecast</u>				
After Tax Change in Depreciation from GPIS Additions/Retirements	3.7		2.3	
Change in Amortization	<u>(2.2)</u>	1.5	<u>4.0</u>	6.3
<u>Other</u>				
Higher Property Taxes	1.6		1.0	
Change in Income Tax Expense	(0.4)		(0.1)	
Rate Base changes to support customer growth	1.8		2.5	
Interest Expense	2.1		5.4	
Rounding Difference	<u>0.2</u>	<u>5.3</u>	<u>(0.1)</u>	<u>8.7</u>
<b>Total Revenue Increase/(Decrease) Before Accounting Standard Changes</b>		\$ (14.6)		\$ 23.4
<u>Accounting Standard Changes</u>				
Change in Overhead Capitalized Rate & Methodology	11.2		-	
Impacts on O&M	<u>(0.3)</u>	10.9	<u>(2.0)</u>	(2.0)
After Tax change in Depreciation Rates	20.8		0.4	
After Tax change in Depreciation Commencement	1.9		-	
Tax Impacts of Depreciation Changes	<u>9.0</u>	<u>31.7</u>	<u>0.1</u>	<u>0.5</u>
<b>Total Revenue Increase from Accounting Standard Changes</b>		\$ 42.6		\$ (1.5)
<b>Net Revenue Increase - June 15, 2009 Application</b>		<u>\$ 27.9</u>		<u>\$ 21.9</u>
Negotiated Settlement Process Adjustments- please refer to Settlement Agreement for detail		(37.1)		(28.8)
Adjusted Revenue (Decrease) / Increase		\$ (9.2)	-1.73%	\$ 21.0
2010 Revenue Surplus deferred (pre-tax)*		<u>9.2</u>		<u>(9.2)</u>
<b>Net Revised Revenue (Decrease) / Increase- Negotiated Settlement Agreement Nov 5, 2009</b>		<u>\$ -</u>		<u>\$ 11.8</u>

\*After Tax 2010 Revenue Surplus is \$6.5 million

SUMMARY OF RATE CHANGE REQUIRED  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars (1)	June 15, 2009 Application (2)	2010				Change (7)	Reference (8)
			Core (3)	Non-Core (4)	Bypass and Special Rates (5)	Total (6)		
1	RATE CHANGE REQUIRED							
2								
3	Gas Sales and Transportation Revenue, At Prior Year's Rates	\$1,487,998	\$1,430,710	\$61,497	\$12,094	\$1,504,300	\$16,302	- Tab C-13, Schedule 16
4								
5								
6	Add - Other Revenue Related to SCP Third Party Revenue / Terasen Gas (Vancouver Island)	16,276	-	-	16,276	16,276	-	- Tab C-13, Schedule 26
7								
8								
9	Total Revenue	1,504,274	1,430,710	61,497	28,369	1,520,576	16,302	
10								
11	Less - Cost of Gas	(975,597)	(986,394)	(759)	(817)	(987,970)	(12,373)	- Tab C-13, Schedule 19
12								
13	Gross Margin	\$528,677	\$444,316	\$60,738	\$27,552	\$532,606	\$3,929	
14								
15	Revenue Deficiency (Surplus)	\$27,865	\$0	\$0	\$0	\$0	(\$27,865)	
16								
17	Revenue Deficiency (Surplus) as a % of Gross Margin	5.27%	0.00%	0.00%	0.00%	0.00%		
18								
19	Revenue Deficiency (Surplus) as a % of Total Revenue	1.85%	0.00%	0.00%	0.00%	0.00%		
20								

SUMMARY OF RATE CHANGE REQUIRED  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars (1)	June 15, 2009 Application (2)	2011				Change (7)	Reference (8)
			Core (3)	Non-Core (4)	Bypass and Special Rates (5)	Total (6)		
1	RATE CHANGE REQUIRED							
2								
3	Gas Sales and Transportation Revenue,							
4	At Prior Year's Rates	\$1,489,519	\$1,433,011	\$61,612	\$12,094	\$1,506,716	\$17,197	- Tab C-13, Schedule 17
5								
6	Add - Other Revenue Related to SCP Third Party							
7	Revenue / Terasen Gas (Vancouver Island)	18,253	-	-	18,253	18,253	-	- Tab C-13, Schedule 27
8								
9	Total Revenue	1,507,772	1,433,011	61,612	30,347	1,524,969	17,197	
10								
11	Less - Cost of Gas	(976,614)	(988,047)	(759)	(821)	(989,627)	(13,013)	- Tab C-13, Schedule 21
12								
13	Gross Margin	\$531,158	\$444,964	\$60,853	\$29,526	\$535,342	\$4,184	
14								
15	Revenue Deficiency (Surplus)	\$49,846	\$10,340	\$1,414	\$0	\$11,754	(\$38,092)	
16								
17	Revenue Deficiency (Surplus) as a % of Gross Margin	9.38%	2.32%	2.32%	0.00%	2.20%		
18								
19	Revenue Deficiency (Surplus) as a % of Total Revenue	3.31%	0.72%	2.30%	0.00%	0.77%		
20								

TERASEN GAS INC.

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Schedule 4

UTILITY INCOME AND EARNED RETURN  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars	June 15, 2009 Application (2)	Existing 2009 Rates (3)	2010 ----Revised Rates-----		Change (6)	Reference (7)
				Revised Revenue (4)	Total (5)		
1	ENERGY VOLUMES (TJ)						
2	Sales	112,423	113,863	-	113,863	1,440	- Tab C-13, Schedule 14
3	Transportation	88,255	90,743	-	90,743	2,488	- Tab C-13, Schedule 14
4		<u>200,678</u>	<u>204,606</u>	<u>-</u>	<u>204,606</u>	<u>3,928</u>	
5							
6	Average Rate per GJ						
7	Sales	\$12.801	\$12.565	\$0.000	\$12.565	(\$0.236)	
8	Transportation	\$0.869	\$0.811	\$0.000	\$0.811	(\$0.058)	
9	Average	\$7.554	\$7.352	\$0.000	\$7.352	(\$0.202)	
10							
11	UTILITY REVENUE						
12	Sales - Existing Rates	\$1,414,636	\$1,430,710	\$0	\$1,430,710	\$16,074	- Tab C-13, Schedule 16
13	- Increase / (Decrease)	24,497	-	-	-	(24,497)	- Tab C-13, Schedule 22
14	RSAM Revenue						
15	Transportation - Existing Rates	73,362	73,591	-	73,591	229	- Tab C-13, Schedule 16
16	- Increase / (Decrease)	3,368	-	-	-	(3,368)	- Tab C-13, Schedule 22
17	<b>Total</b>	<u>1,515,863</u>	<u>1,504,301</u>	<u>-</u>	<u>1,504,301</u>	<u>(11,562)</u>	
18							
19	Cost of Gas Sold (Including Gas Lost)	975,597	987,970	-	987,970	12,373	- Tab C-13, Schedule 19
20							
21	<b>Gross Margin</b>	<u>540,266</u>	<u>516,331</u>	<u>-</u>	<u>516,331</u>	<u>(23,935)</u>	
22							
23	Operation and Maintenance	192,823	177,559	-	177,559	(15,264)	- Tab C-13, Schedule 28
24	Operating Leases	-	-	-	-	-	
25	Property and Sundry Taxes	49,193	49,193	-	49,193	-	- Tab C-13, Schedule 31
26	Depreciation and Amortization	103,796	88,893	-	88,893	(14,903)	- Tab C-13, Schedule 33
27	Removal Cost Provision		8,038	-	8,038	8,038	- Tab C-13, Schedule 33
28	Capitalized Depreciation		-	-	-	-	- Tab C-13, Schedule 33
29	NSP Provision (IFRS -\$800 + ESM \$225 + RSDA \$6537)		5,963	-	5,963	5,963	
30	Other Operating Revenue	(22,422)	(22,455)	-	(22,455)	(33)	- Tab C-13, Schedule 26
31		<u>323,390</u>	<u>307,191</u>	<u>-</u>	<u>307,191</u>	<u>(16,199)</u>	
32	Utility Income Before Income Taxes	216,876	209,140	-	209,140	(7,736)	
33							
34	Income Taxes	31,622	24,923	-	24,923	(6,699)	- Tab C-13, Schedule 35
35							
36	<b>EARNED RETURN</b>	<u>\$185,254</u>	<u>\$184,217</u>	<u>\$0</u>	<u>\$184,217</u>	<u>(\$1,037)</u>	- Tab C-13, Schedule 10
37							
38							
39	<b>UTILITY RATE BASE</b>	<u>\$2,535,887</u>	<u>\$2,534,444</u>	<u>\$0</u>	<u>\$2,534,444</u>	<u>(\$1,442)</u>	- Tab C-13, Schedule 8
40							
41	<b>RATE OF RETURN ON UTILITY RATE BASE</b>	<u>7.31%</u>	<u>7.27%</u>		<u>7.27%</u>	<u>-0.04%</u>	- Tab C-13, Schedule 10

TERASEN GAS INC.

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Section C  
Tab 13  
Schedule 5

UTILITY INCOME AND EARNED RETURN  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars	June 15, 2009 Application (2)	2011				Reference
			Existing 2009 Rates (3)	Revised Revenue (4)	Total (5)	Change (6)	
	(1)						(7)
1	ENERGY VOLUMES (TJ)						
2	Sales	112,326	113,846	-	113,846	1,520	- Tab C-13, Schedule 15
3	Transportation	88,438	91,014	-	91,014	2,576	- Tab C-13, Schedule 15
4		<u>200,764</u>	<u>204,860</u>	<u>-</u>	<u>204,860</u>	<u>4,096</u>	
5							
6	Average Rate per GJ						
7	Sales	\$12.997	\$12.587	\$0.000	\$12.678	(\$0.319)	
8	Transportation	\$0.898	\$0.810	\$0.000	\$0.825	(\$0.073)	
9	Average	\$7.668	\$7.355	\$0.000	\$7.412	(\$0.256)	
10							
11	UTILITY REVENUE						
12	Sales - Existing Rates	\$1,416,102	\$1,433,011	\$0	\$1,433,011	\$16,909	- Tab C-13, Schedule 17
13	- Increase / (Decrease)	43,822	-	10,341	10,341	(33,481)	- Tab C-13, Schedule 24
14							
15	Transportation - Existing Rates	73,417	73,705	-	73,705	288	- Tab C-13, Schedule 17
16	- Increase / (Decrease)	6,024		1,413	1,413	(4,611)	- Tab C-13, Schedule 24
17	<b>Total</b>	<u>1,539,365</u>	<u>1,506,716</u>	<u>11,754</u>	<u>1,518,470</u>	<u>(20,895)</u>	
18							
19	Cost of Gas Sold (Including Gas Lost)	976,614	989,627	-	989,627	13,013	- Tab C-13, Schedule 21
20							
21	<b>Gross Margin</b>	<u>562,751</u>	<u>517,089</u>	<u>11,754</u>	<u>528,843</u>	<u>(33,908)</u>	
22							
23	Operation and Maintenance	201,617	184,625	-	184,625	(16,992)	- Tab C-13, Schedule 28
24	Operating Leases	-	-	-	-	-	
25	Property and Sundry Taxes	50,211	50,211	-	50,211	-	- Tab C-13, Schedule 32
26	Depreciation and Amortization	110,496	88,588	-	88,588	(21,908)	- Tab C-13, Schedule 34
27	Removal Cost Provision		11,290	-	11,290	11,290	- Tab C-13, Schedule 34
28	Capitalized Depreciation		-	-	-	-	- Tab C-13, Schedule 34
29	NSP Provision (IFRS \$800 + ESM \$225)		1,025	-	1,025	1,025	
30	Other Operating Revenue	(24,359)	(24,394)	-	(24,394)	(35)	- Tab C-13, Schedule 27
31		<u>337,965</u>	<u>311,345</u>	<u>-</u>	<u>311,345</u>	<u>(26,620)</u>	
32	Utility Income Before Income Taxes	224,786	205,744	11,754	217,498	(7,288)	
33							
34	Income Taxes	31,654	21,449	3,115	24,564	(7,090)	- Tab C-13, Schedule 36
35							
36	<b>EARNED RETURN</b>	<u>\$193,132</u>	<u>\$184,295</u>	<u>\$8,639</u>	<u>\$192,934</u>	<u>(\$198)</u>	- Tab C-13, Schedule 11
37							
38							
39	<b>UTILITY RATE BASE</b>	<u>\$2,620,341</u>	<u>\$2,628,766</u>	<u>\$6</u>	<u>\$2,628,772</u>	<u>\$8,431</u>	- Tab C-13, Schedule 9
40							
41	<b>RATE OF RETURN ON UTILITY RATE BASE</b>	7.37%	7.01%		7.34%	-0.03%	- Tab C-13, Schedule 11



TERASEN GAS INC.

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Section C

Tab 13

Schedule 6

## INCOME TAXES

FOR THE YEAR ENDING DECEMBER 31, 2010

(\$000s)

Line No.	Particulars	June 15, 2009 Application	2010			Change	Reference
			Existing 2009 Rates	Revised Revenue	Total		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	CALCULATION OF INCOME TAXES						
2	Earned Return	\$185,254	\$184,217	\$0	\$184,217	(\$1,037)	- Tab C-13, Schedule 4
3	Deduct - Interest on Debt	(110,056)	(109,062)	-	(109,062)	994	- Tab C-13, Schedule 10
4	Add- Non-Tax Ded. Expense (Net)	(1,864)	(2,069)	-	(2,069)	(205)	- Tab C-13, Schedule 37
5	Accounting Income After Tax	73,334	73,086	-	73,086	(248)	
6	Add (Deduct) - Timing Differences	5,999	(4,958)	-	(4,958)	(10,957)	- Tab C-13, Schedule 37
7	Taxable Income After Tax	79,333	68,128	-	68,128	(11,205)	
8	Taxable Income Adj - SCP Landscaping Deduction	-	(7,834)	-	(7,834)	(7,834)	
9	Taxable Income Adj - Tax on SCP Landscaping	-	2,233	-	2,233	2,233	
10	Adjusted Taxable Income After Tax	<u>\$79,333</u>	<u>62,527</u>	<u>-</u>	<u>\$62,527</u>	<u>(16,806)</u>	
11							
12		28.500%	28.500%	28.500%	28.500%	0.000%	
13	1 - Current Income Tax Rate	71.500%	71.500%	71.500%	71.500%	0.000%	
14							
15	Taxable Income	<u>\$110,955</u>	<u>\$87,450</u>	<u>\$0</u>	<u>\$87,450</u>	<u>(\$23,505)</u>	
16							
17	<b>Total Income Tax</b>	<u>\$31,622</u>	<u>\$24,923</u>	<u>\$0</u>	<u>\$24,923</u>	<u>(\$6,699)</u>	
18							

TERASEN GAS INC.

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Section C  
Tab 13  
Schedule 7

INCOME TAXES  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars	2011				Reference
		June 15, 2009 Application	Existing 2009 Rates	Revised Revenue	Total	
	(1)	(2)	(3)	(4)	(5)	(6)
1	CALCULATION OF INCOME TAXES					
2	Earned Return	\$193,132	\$184,295	\$8,639	\$192,934	(\$198)
3	Deduct - Interest on Debt	(115,430)	(114,982)	-	(114,982)	448
4	Add- Non-Tax Ded. Expense (Net)	1,974	(4,769)	-	(4,769)	(6,743)
5	Accounting Income After Tax	79,676	64,544	8,639	73,183	(6,493)
6	Add (Deduct) - Timing Differences	8,118	(5,053)	-	(5,053)	(13,171)
7	Taxable Income After Tax	87,794	59,491	8,639	68,130	(19,664)
8	Taxable Income Adjustment	-	-	-	-	-
9	Taxable Income Adjustment	-	-	-	-	-
10	Adjusted Taxable Income After Tax	<u>\$87,794</u>	<u>59,491</u>	<u>8,639</u>	<u>\$68,130</u>	<u>(39,328)</u>
11						
12		26.500%	26.500%	26.500%	26.500%	0.000%
13	1 - Current Income Tax Rate	73.500%	73.50%	73.500%	73.500%	0.000%
14						
15	Taxable Income	<u>\$119,448</u>	<u>\$80,940</u>	<u>\$11,754</u>	<u>\$92,694</u>	<u>(\$26,754)</u>
16						
17	<b>Total Income Tax</b>	<u>\$31,654</u>	<u>\$21,449</u>	<u>\$3,115</u>	<u>\$24,564</u>	<u>(\$7,090)</u>
18						(X-Ref - Tab C-13, Schedule 5)

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UTILITY RATE BASE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
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Line No.	Particulars	June 15, 2009 Application	2010		Revised Rates	Change	Reference
			Existing 2009 Rates	Adjustments			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Gas Plant in Service, Beginning	\$3,317,590	\$3,315,365	\$0	\$3,315,365	(\$2,225)	- Tab C-13, Schedule 45
2	Adjustment - CPCNs	-	-	-	-	-	- Tab C-13, Schedule 43
3	Gas Plant in Service, Ending	3,449,336	3,453,394	-	3,453,394	4,058	- Tab C-13, Schedule 45
4							
5	Accumulated Depreciation Beginning - Plant	(\$779,187)	(\$780,174)	\$0	(\$780,174)	(\$987)	- Tab C-13, Schedule 49
6	Accumulated Depreciation Ending - Plant	(840,835)	(835,365)	-	(835,365)	5,470	- Tab C-13, Schedule 49
7							
8	CIAC, Beginning	(\$176,845)	(\$176,845)	\$0	(\$176,845)	\$0	- Tab C-13, Schedule 52
9	CIAC, Ending	(183,817)	(183,885)	-	(183,885)	(68)	- Tab C-13, Schedule 52
10							
11	Accumulated Amortization Beginning - CIAC	\$44,146	\$44,146	\$0	\$44,146	\$0	- Tab C-13, Schedule 52
12	Accumulated Amortization Ending - CIAC	47,061	47,062	-	47,062	1	- Tab C-13, Schedule 52
13							
14	Net Plant in Service, Mid-Year	<u>\$2,438,725</u>	<u>\$2,441,849</u>	<u>\$0</u>	<u>\$2,441,849</u>	<u>\$3,125</u>	
15							
16							
17	Adjustment to 13-Month Average	13,537	13,537	-	13,537	-	
18	Work in Progress, No AFUDC	15,627	15,627	-	15,627	-	
19	Unamortized Deferred Charges	(27,015)	(30,797)	-	(30,797)	(3,782)	- Tab C-13, Schedule 54
20	Cash Working Capital	(6,778)	(7,563)	-	(7,563)	(785)	- Tab C-13, Schedule 56
21	Other Working Capital (incl. Construction Advances)	103,439	103,439	-	103,439	-	- Tab C-13, Schedule 56
22	Future Income Taxes Regulatory Asset	284,455	284,455	-	284,455	-	- Tab C-13, Schedule 61
23	Future Income Taxes Regulatory Liability	(284,455)	(284,455)	-	(284,455)	-	- Tab C-13, Schedule 61
24	LIFO Benefit	(1,648)	(1,648)	-	(1,648)	-	
25	Utility Rate Base	<u>\$2,535,887</u>	<u>\$2,534,444</u>	<u>\$0</u>	<u>\$2,534,444</u>	<u>(\$1,442)</u>	(X-Ref - Tab C-13, Schedule 10)

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UTILITY RATE BASE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
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Line No.	Particulars (1)	June 15, 2009 Application (2)	2011		Revised Rates (5)	Change (6)	Reference (7)
			Existing 2009 Rates (3)	Adjustments (4)			
1	Gas Plant in Service, Beginning	\$3,449,336	\$3,453,394	\$0	\$3,453,394	\$4,058	- Tab C-13, Schedule 47
2	Adjustment - CPCNs	-	-	-	-	-	
3	Gas Plant in Service, Ending	3,535,828	3,538,378	-	3,538,378	2,550	- Tab C-13, Schedule 47
4							
5	Accumulated Depreciation Beginning - Plant	(\$840,835)	(\$835,365)	\$0	(\$835,365)	\$5,470	- Tab C-13, Schedule 51
6	Accumulated Depreciation Ending - Plant	(899,386)	(885,651)	-	(885,651)	13,735	- Tab C-13, Schedule 51
7							
8	CIAC, Beginning	(\$183,817)	(\$183,885)	\$0	(\$183,885)	(\$68)	- Tab C-13, Schedule 53
9	CIAC, Ending	(194,646)	(194,753)	-	(194,753)	(107)	- Tab C-13, Schedule 53
10							
11	Accumulated Amortization Beginning - CIAC	\$47,061	\$47,062	\$0	\$47,062	\$1	- Tab C-13, Schedule 53
12	Accumulated Amortization Ending - CIAC	50,241	50,245	-	50,245	4	- Tab C-13, Schedule 53
13							
14	Net Plant in Service, Mid-Year	<u>\$2,481,891</u>	<u>\$2,494,713</u>	<u>\$0</u>	<u>\$2,494,713</u>	<u>\$12,822</u>	
15							
16							
17	Adjustment to 13-Month Average	-	-	-	-	-	
18	Work in Progress, No AFUDC	15,627	15,627	-	15,627	-	
19	Unamortized Deferred Charges	10,347	6,770	-	6,770	(3,577)	- Tab C-13, Schedule 55
20	Cash Working Capital	(6,133)	(6,953)	6	(6,947)	(814)	- Tab C-13, Schedule 57
21	Other Working Capital (incl. Construction Advances)	120,091	120,091	-	120,091	-	- Tab C-13, Schedule 57
22	Future Income Taxes Regulatory Asset	292,155	292,155	-	292,155	-	- Tab C-13, Schedule 61
23	Future Income Taxes Regulatory Liability	(292,155)	(292,155)	-	(292,155)	-	- Tab C-13, Schedule 61
24	LIFO Benefit	(1,482)	(1,482)	-	(1,482)	-	
25	<b>Utility Rate Base</b>	<u>\$2,620,341</u>	<u>\$2,628,766</u>	<u>\$6</u>	<u>\$2,628,772</u>	<u>\$8,431</u>	(X-Ref - Tab C-13, Schedule 11)

TERASEN GAS INC.

RETURN ON CAPITAL  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars	Reference	----- Capitalization ----- Amount	%	Embedded Cost	Cost Component	Earned Return
	(1)	(2)	(3) (4)	(5)	(6)	(7)	(8)
1	2010 AT 2009 RATES						
2	Long-Term Debt	- Tab C-13, Schedule 64	\$1,558,326	61.49%	6.870%	4.22%	
3	Unfunded Debt		88,809	3.50%	2.250%	0.08%	
4	Preference Shares		-	0.00%	0.000%	0.00%	
5	Common Equity		887,309	35.01%	8.483%	2.97%	
6							
7		- Tab C-13, Schedule 8	<u>\$2,534,444</u>	<u>100.00%</u>		<u>7.27%</u>	
8							
9	2010 REVISED RATES						
10	Long-Term Debt	- Tab C-13, Schedule 64	\$1,558,326	61.49%	6.870%	4.22%	\$107,064
11	Unfunded Debt		\$88,809				
12	Adjustment, Revised Rates		-	88,809	3.50%	2.250%	0.08%
13	Preference Shares		-	0.00%	0.000%	0.00%	-
14	Common Equity		887,309	35.01%	8.470%	2.97%	75,155
15		(X-Ref - Tab C-13, Schedule 4)					
16		- Tab C-13, Schedule 8	<u>\$2,534,444</u>	<u>100.00%</u>		<u>7.27%</u>	<u>\$184,217</u>

TERASEN GAS INC.

RETURN ON CAPITAL  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

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Line No.	Particulars	Reference	Capitalization Amount	%	Embedded Cost	Cost Component	Earned Return
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	2011 AT 2009 RATES						
2	Long-Term Debt	- Tab C-13, Schedule 65	\$1,631,453	62.06%	6.836%	4.24%	
3	Unfunded Debt		76,982	2.93%	4.500%	0.13%	
4	Preference Shares		-	0.00%	0.000%	0.00%	
5	Common Equity		920,331	35.01%	7.529%	2.64%	
6							
7		- Tab C-13, Schedule 9	\$2,628,766	100.00%		7.01%	
8							
9	2011 REVISED RATES						
10	Long-Term Debt	- Tab C-13, Schedule 64	\$1,631,453	62.06%	6.836%	4.24%	\$111,518
11	Unfunded Debt		\$76,982				
12	Adjustment, Revised Rates	4	76,986	2.93%	4.500%	0.13%	3,464
13	Preference Shares		-	0.00%	0.000%	0.00%	-
14	Common Equity		920,333	35.01%	8.470%	2.97%	77,952
15		(X-Ref - Tab C-13, Schedule 5)					
16		- Tab C-13, Schedule 9	\$2,628,772	100.00%		7.34%	\$192,934

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UTILITY INCOME AND EARNED RETURN  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars (1)	June 15, 2009 Application (2)	Existing 2009 Rates (3)	2010 -----Revised Rates-----		Change (6)	Reference (7)
				Revised Revenue (4)	Total (5)		
1	ENERGY VOLUMES (TJ)						
2	Sales	112,423	113,863	-	113,863	1,440	- Tab C-13, Schedule 14
3	Transportation	88,255	90,743	-	90,743	2,488	- Tab C-13, Schedule 14
4		<u>200,678</u>	<u>204,606</u>	<u>-</u>	<u>204,606</u>	<u>3,928</u>	
5							
6	Average Rate per GJ						
7	Sales	\$12.801	\$12.565	\$0.000	\$12.565	(\$0.236)	
8	Transportation	\$0.869	\$0.811	\$0.000	\$0.811	(\$0.058)	
9	Average	\$7.554	\$7.352	\$0.000	\$7.352	(\$0.202)	
10							
11	UTILITY REVENUE						
12	Sales - Existing Rates	\$1,414,636	\$1,430,710	\$0	\$1,430,710	\$16,074	- Tab C-13, Schedule 16
13	- Increase / (Decrease)	24,497	-	-	-	(24,497)	- Tab C-13, Schedule 22
14		-					
15	Transportation - Existing Rates	73,362	73,591	-	73,591	229	- Tab C-13, Schedule 16
16	- Increase / (Decrease)	3,368		-	-	(3,368)	- Tab C-13, Schedule 22
17	<b>Total</b>	<u>1,515,863</u>	<u>1,504,301</u>	<u>-</u>	<u>1,504,301</u>	<u>(11,562)</u>	
18							
19	Cost of Gas Sold (Including Gas Lost)	975,597	987,970	-	987,970	12,373	- Tab C-13, Schedule 19
20							
21	<b>Gross Margin</b>	<u>540,266</u>	<u>516,331</u>	<u>-</u>	<u>516,331</u>	<u>(23,935)</u>	
22							
23	Operation and Maintenance	192,823	177,559	-	177,559	(15,264)	- Tab C-13, Schedule 28
24	Vehicle Lease	-	-	-	-	-	
25	Property and Sundry Taxes	49,193	49,193	-	49,193	-	- Tab C-13, Schedule 31
26	Depreciation and Amortization	103,796	88,893	-	88,893	(14,903)	- Tab C-13, Schedule 33
27	Removal Cost Provision		8,038	-	8,038	8,038	- Tab C-13, Schedule 33
28	Capitalized Depreciation		-	-	-	-	- Tab C-13, Schedule 33
29	NSP Provision (IFRS -\$800 + ESM \$225 + RSDA \$6537)		5,963	-	5,963	5,963	
30	Other Operating Revenue	(22,422)	(22,455)	-	(22,455)	(33)	- Tab C-13, Schedule 26
31		<u>323,390</u>	<u>307,191</u>	<u>-</u>	<u>307,191</u>	<u>(16,199)</u>	
32	Utility Income Before Income Taxes	216,876	209,140	-	209,140	(7,736)	
33							
34	Income Taxes	31,622	24,923	-	24,923	(6,699)	- Tab C-13, Schedule 35
35							
36	<b>EARNED RETURN</b>	<u>\$185,254</u>	<u>\$184,217</u>	<u>\$0</u>	<u>\$184,217</u>	<u>(\$1,037)</u>	- Tab C-13, Schedule 10
37							
38							
39	<b>UTILITY RATE BASE</b>	<u>\$2,535,887</u>	<u>\$2,534,444</u>	<u>\$0</u>	<u>\$2,534,444</u>	<u>(\$1,442)</u>	- Tab C-13, Schedule 8
40							
41	<b>RATE OF RETURN ON UTILITY RATE BASE</b>	<u>7.31%</u>	<u>7.27%</u>		<u>7.27%</u>	<u>-0.04%</u>	- Tab C-13, Schedule 10

TERASEN GAS INC.

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Schedule 13

UTILITY INCOME AND EARNED RETURN  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars (1)	June 15, 2009 Application (2)	Existing 2009 Rates (3)	2011 -----Revised Rates-----		Change (6)	Reference (7)
				Revised Revenue (4)	Total (5)		
1	ENERGY VOLUMES (TJ)						
2	Sales	112,326	113,846	-	113,846	1,520	- Tab C-13, Schedule 15
3	Transportation	88,438	91,014	-	91,014	2,576	- Tab C-13, Schedule 15
4		<u>200,764</u>	<u>204,860</u>	<u>-</u>	<u>204,860</u>	<u>4,096</u>	
5							
6	Average Rate per GJ						
7	Sales	\$12.997	\$12.587	\$0.000	\$12.678	(\$0.319)	
8	Transportation	\$0.898	\$0.810	\$0.000	\$0.825	(\$0.073)	
9	Average	\$7.668	\$7.355	\$0.000	\$7.412	(\$0.256)	
10							
11	UTILITY REVENUE						
12	Sales - Existing Rates	\$1,416,102	\$1,433,011	\$0	\$1,433,011	\$16,909	- Tab C-13, Schedule 17
13	- Increase / (Decrease)	43,822	-	10,341	10,341	(33,481)	- Tab C-13, Schedule 24
14		-					
15	Transportation - Existing Rates	73,417	73,705	-	73,705	288	- Tab C-13, Schedule 17
16	- Increase / (Decrease)	6,024		1,413	1,413	(4,611)	- Tab C-13, Schedule 24
17	<b>Total</b>	<u>1,539,365</u>	<u>1,506,716</u>	<u>11,754</u>	<u>1,518,470</u>	<u>(20,895)</u>	
18							
19	Cost of Gas Sold (Including Gas Lost)	976,614	989,627	-	989,627	13,013	- Tab C-13, Schedule 21
20							
21	<b>Gross Margin</b>	<u>562,751</u>	<u>517,089</u>	<u>11,754</u>	<u>528,843</u>	<u>(33,908)</u>	
22							
23	Operation and Maintenance	201,617	184,625	-	184,625	(16,992)	- Tab C-13, Schedule 28
24	Vehicle Lease	-	-	-	-	-	
25	Property and Sundry Taxes	50,211	50,211	-	50,211	-	- Tab C-13, Schedule 32
26	Depreciation and Amortization	110,496	88,588	-	88,588	(21,908)	- Tab C-13, Schedule 34
27	Removal Cost Provision		11,290	-	11,290	11,290	- Tab C-13, Schedule 34
28	Capitalized Depreciation		-	-	-	-	- Tab C-13, Schedule 34
29	NSP Provision (IFRS \$800 + ESM \$225)		1,025	-	1,025	1,025	
30	Other Operating Revenue	(24,359)	(24,394)	-	(24,394)	(35)	- Tab C-13, Schedule 27
31		<u>337,965</u>	<u>311,345</u>	<u>-</u>	<u>311,345</u>	<u>(26,620)</u>	
32	Utility Income Before Income Taxes	224,786	205,744	11,754	217,498	(7,288)	
33							
34	Income Taxes	31,654	21,449	3,115	24,564	(7,090)	- Tab C-13, Schedule 36
35							
36	<b>EARNED RETURN</b>	<u>\$193,132</u>	<u>\$184,295</u>	<u>\$8,639</u>	<u>\$192,934</u>	<u>(\$198)</u>	- Tab C-13, Schedule 11
37							
38							
39	<b>UTILITY RATE BASE</b>	<u>\$2,620,341</u>	<u>\$2,628,766</u>	<u>\$6</u>	<u>\$2,628,772</u>	<u>\$8,431</u>	- Tab C-13, Schedule 9
40							
41	<b>RATE OF RETURN ON UTILITY RATE BASE</b>	<u>7.37%</u>	<u>7.01%</u>		<u>7.34%</u>	<u>-0.03%</u>	- Tab C-13, Schedule 11



TERASEN GAS INC.

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Section C  
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Schedule 14

GAS SALES AND TRANSPORTATION VOLUMES  
FOR THE YEAR ENDING DECEMBER 31, 2010

Line No.	Particulars	June 15, 2009 Application	2010 Terajoules		Change	Reference
			Core and Non-Core	Bypass and Special Rates		
	(1)	(2)	(3)	(4)	(6)	(7)
1	<b>SALES</b>					
2	Schedule 1 - Residential	67,829.2	69,174.3	0.0	1,345.1	
3	Schedule 2 - Small Commercial	24,374.3	24,374.3		0.0	
4	Schedule 3 - Large Commercial	16,818.6	16,818.6		0.0	
5						
6	Schedules 1, 2 and 3	109,022.1	110,367.2	0.0	1,345.1	
7						
8	Schedule 4 - Seasonal	184.6	184.6		0.0	
9	Schedule 5 - General Firm	3,098.5	3,184.6		86.1	
10						
11	Industrials	0.0				
12	Schedule 7 - Interruptible	14.2	22.7		8.5	
13						
14	Schedule 6 - N G V Fuel - Stations	103.8	103.8		0.0	
15						
16	Total Sales	112,423.2	113,862.9	0.0	1,439.7	(X-Ref - Tab C-13, Schedule 4)
17						
18	<b>TRANSPORTATION SERVICE</b>					
19	Schedule 22 - Firm Service	13,090.4	8,103.2	7,795.6	2,808.4	
20	- Interruptible Service	11,849.7	11,080.5	0.0	(769.2)	
21	Byron Creek (aka Fording Coal Mountain)	125.8		137.5	11.7	
22	Burrard Thermal - Firm	2,343.9		1,719.4	(624.5)	
23	TGVI - Firm	36,368.3		36,368.3	0.0	
24	Schedule 23 - Large Commercial	6,134.0	6,134.0		0.0	
25	Schedule 25 - Firm Service	13,159.6	12,944.4	873.1	657.9	
26	Schedule 27 - Interruptible Service	5,183.5	5,587.4		403.9	
27						
28	Total Transportation Service	88,255.2	43,849.5	46,893.9	2,488.2	(X-Ref - Tab C-13, Schedule 4)
29						
30	<b>TOTAL SALES AND TRANSPORTATION SERVICES</b>	200,678.4	157,712.4	46,893.9	3,927.9	(X-Ref - Tab C-13, Schedule 23)

TERASEN GAS INC.

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Section C  
Tab 13  
Schedule 15

GAS SALES AND TRANSPORTATION VOLUMES  
FOR THE YEAR ENDING DECEMBER 31, 2011

Line No.	Particulars	June 15, 2009 Application	2011 Terajoules		Change	Reference
			Core and Non-Core	Bypass and Special Rates		
	(1)	(2)	(3)	(4)	(5)	(6)
1	<b>SALES</b>					
2	Schedule 1 - Residential	67,190.5	68,578.9	0.0	68,578.9	1,388.4
3	Schedule 2 - Small Commercial	24,603.1	24,603.1		24,603.1	0.0
4	Schedule 3 - Large Commercial	17,168.5	17,168.5		17,168.5	0.0
5						
6	Schedules 1, 2 and 3	108,962.1	110,350.5	0.0	110,350.5	1,388.4
7						
8	Schedule 4 - Seasonal	184.6	184.6		184.6	0.0
9	Schedule 5 - General Firm	3,061.2	3,184.3		3,184.3	123.1
10						
11	Industrials	0.0				
12	Schedule 7 - Interruptible	14.2	22.7		22.7	8.5
13						
14	Schedule 6 - N G V Fuel - Stations	103.8	103.8		103.8	0.0
15						
16	Total Sales	112,325.9	113,845.9	0.0	113,845.9	1,520.0
17						(X-Ref - Tab C-13, Schedule 5)
18	<b>TRANSPORTATION SERVICE</b>					
19	Schedule 22 - Firm Service	13,090.4	8,103.2	7,795.6	15,898.8	2,808.4
20	- Interruptible Service	11,830.5	11,080.5	0.0	11,080.5	(750.0)
21	Byron Creek (aka Fording Coal Mountain)	125.8		137.5	137.5	11.7
22	Burrard Thermal - Firm	2,343.9		1,719.4	1,719.4	(624.5)
23	TGVI - Firm	36,596.4		36,596.4	36,596.4	0.0
24	Schedule 23 - Large Commercial	6,177.2	6,177.2		6,177.2	0.0
25	Schedule 25 - Firm Service	13,102.0	12,944.1	873.1	13,817.2	715.2
26	Schedule 27 - Interruptible Service	5,171.9	5,587.4		5,587.4	415.5
27						
28	Total Transportation Service	88,438.1	43,892.4	47,122.0	91,014.4	2,576.3
29						(X-Ref - Tab C-13, Schedule 5)
30	<b>TOTAL SALES AND TRANSPORTATION SERVICES</b>	200,764.0	157,738.3	47,122.0	204,860.3	4,096.3
31						(X-Ref - Tab C-13, Schedule 25)

TERASEN GAS INC.

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Section C  
Tab 13  
Schedule 16

REVENUE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars	2010 Gas Sales Revenue At Existing 2009 Rates				Change	Reference
		June 15, 2009 Application	Core and Non-Core	Bypass and Special Rates	Total		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	<b>Core Sales</b>						
2	Schedule 1 - Residential	\$897,420	\$912,822	\$0	\$912,822	\$15,402	
3	Schedule 2 - Small Commercial	297,556	297,556		297,556	-	
4	Schedule 3 - Large Commercial	189,604	189,604		189,604	-	
5	Schedules 1, 2 and 3	1,384,580	1,399,982	-	1,399,982	15,402	
6							
7	Schedule 4 - Seasonal	1,477	1,477	-	1,477	-	
8	Schedule 5 - General Firm	27,404	28,012		28,012	609	
9		28,881	29,490	-	29,490	609	
10	Industrials						
11	Interruptible - Schedule 7	130	194	-	194	64	
12							
13	N G V Fuel - Stations - Schedule 6	1,044	1,044		1,044	-	
14							
15	Total Core Sales	1,414,636	1,430,710	-	1,430,710	16,074	(X-Ref - Tab C-13, Schedule 4)
16							(X-Ref - Tab C-13, Schedule 12)
17	<b>Transportation Service</b>						
18	Schedule 22 - Firm Service	6,380	5,189	1,270	6,459	79	
19	- Interruptible Service	9,743	9,270	-	9,270	(473)	
20	Byron Creek (aka Fording Coal Mountain)	53		53	53	-	
21	Burrard Thermal - Firm	9,996		9,996	9,996	-	
22	TGVI - Firm	-		-	-	-	
23	Schedule 23 - Large Commercial	16,411	16,411	-	16,411	-	
24	Schedule 25 - Firm Service	24,509	23,970	775	24,744	235	
25	Schedule 27 - Interruptible Service	6,270	6,658	-	6,658	388	
26	Total T-Service	73,362	61,497	12,094	73,591	229	(X-Ref - Tab C-13, Schedule 4)
27							(X-Ref - Tab C-13, Schedule 12)
28	TOTAL SALES AND TRANSPORTATION SERVICE	\$1,487,998	\$1,492,207	\$12,094	\$1,504,300	\$16,302	(X-Ref - Tab C-13, Schedule 23)

TERASEN GAS INC.

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Schedule 17

REVENUE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars	2011 Gas Sales Revenue At Existing 2009 Rates				Change	Reference
		June 15, 2009 Application	Core and Non-Core	Bypass and Special Rates	Total		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	<b>Core Sales</b>						
2	Schedule 1 - Residential	\$891,764	\$907,735	\$0	\$907,735	\$15,971	
3	Schedule 2 - Small Commercial	300,831	300,831		300,831	-	
4	Schedule 3 - Large Commercial	193,720	193,720		193,720	-	
5	Schedules 1, 2 and 3	1,386,315	1,402,286	-	1,402,286	15,971	
6							
7	Schedule 4 - Seasonal	1,477	1,477	-	1,477	-	
8	Schedule 5 - General Firm	27,135	28,009		28,009	874	
9		28,613	29,487	-	29,487	874	
10	Industrials						
11	Interruptible - Schedule 7	130	194	-	194	64	
12							
13	N G V Fuel - Stations - Schedule 6	1,044	1,044		1,044	-	
14							
15	Total Core Sales	1,416,102	1,433,011	-	1,433,011	16,908	- Tab C-13, Schedule 5 (X-Ref - Tab C-13, Schedule 13)
16							
17	<b>Transportation Service</b>						
18	Schedule 22 - Firm Service	6,380	5,189	1,270	6,459	79	
19	- Interruptible Service	9,729	9,270	-	9,270	(459)	
20	Byron Creek (aka Fording Coal Mountain)	53		53	53	-	
21	Burrard Thermal - Firm	9,996		9,996	9,996	-	
22	TGVI - Firm	-		-	-	-	
23	Schedule 23 - Large Commercial	16,525	16,525	-	16,525	-	
24	Schedule 25 - Firm Service	24,475	23,969	775	24,744	269	
25	Schedule 27 - Interruptible Service	6,258	6,658	-	6,658	400	
26	Total T-Service	73,417	61,612	12,094	73,705	288	- Tab C-13, Schedule 5 (X-Ref - Tab C-13, Schedule 13)
27							
28	TOTAL SALES AND TRANSPORTATION SERVICE	\$1,489,519	\$1,494,622	\$12,094	\$1,506,716	\$17,197	(X-Ref - Tab C-13, Schedule 25)

COST OF GAS BY RATE SCHEDULE - Summary by Service Area (Non-Bypass)  
FOR THE YEAR ENDING DECEMBER 31, 2010

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Tab 13

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Schedule 18

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Line No.	Particulars	Lower Mainland			Inland Including Revelstoke			Columbia			Total
		Energy TJ (2)	Unit Cost \$/GJ (3)	Cost of Gas (\$000s) (4)	Energy TJ (5)	Unit Cost \$/GJ (6)	Cost of Gas (\$000s) (7)	Energy TJ (8)	Unit Cost \$/GJ (9)	Cost of Gas (\$000s) (10)	Cost of Gas (\$000s) (11)
1	<b>Non-Bypass CORE AND NON-CORE</b>										
2	Core Sales										
3	Schedule 1 - Residential	51,798.7	\$8.830	\$457,371	15,692.9	\$8.325	\$130,649	1,682.7	\$8.394	\$14,124	\$602,144
4	Schedule 2 - Small Commercial	17,866.8	8.972	160,297	5,791.0	8.449	48,931	716.5	8.554	6,129	215,357
5	Schedule 3 - Large Commercial	13,802.1	8.756	120,855	2,703.0	8.260	22,327	313.5	8.140	2,552	145,734
6	Schedules 1, 2 and 3	83,467.6		738,523	24,186.9		201,907	2,712.7		22,805	963,235
7											
8	Schedule 4 - Seasonal	87.8	6.701	588	96.8	6.622	641	-	-	-	1,229
9	Schedule 5 - General Firm	2,729.0	6.632	18,099	415.7	6.608	2,747	39.9	6.677	266	21,112
10											
11	Industrials										
12	Interruptible - Schedule 7	-	-	-	22.7	6.608	150	-	-	-	150
13											
14	N G V Fuel - Stations - Schedule 6	92.0	6.447	593	11.8	6.356	75	-	-	-	668
15											
16	Total Core Sales	86,376.4		757,803	24,733.9		205,520	2,752.6		23,071	986,394
17											
18	Transportation Service										
19	Schedule 22 - Firm Service	-	-	-	5,514.3	0.017	94	2,588.9	0.081	210	304
20	- Interruptible Service	10,726.2	0.007	71	329.1	0.365	120	25.2	-	-	191
21	Schedule 23 - Large Commercial	4,950.9	0.008	40	1,124.1	0.016	18	59.0	0.080	5	63
22	Schedule 25 - Firm Service	9,356.3	0.008	75	3,318.8	0.016	53	269.3	0.080	22	150
23	Schedule 27 - Interruptible Service	4,820.0	0.008	39	747.7	0.016	12	19.7	-	-	51
24	Total T-Service	29,853.4		225	11,034.0		297	2,962.1		237	759
25	<b>Total Non-Bypass Sales and Transportation Service</b>										
26	<b>Cost of Gas Sold</b>	116,229.8		\$758,028	35,767.9		\$205,817	5,714.7		\$23,308	\$987,153

TERASEN GAS INC.

COST OF GAS BY RATE SCHEDULE - Summary by Service Area (Bypass)  
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Line No.	Particulars	Lower Mainland			Inland Including Revelstoke			Columbia			Total
		Energy TJ (2)	Unit Cost \$/GJ (3)	Cost of Gas (\$000s) (4)	Energy TJ (5)	Unit Cost \$/GJ (6)	Cost of Gas (\$000s) (7)	Energy TJ (8)	Unit Cost \$/GJ (9)	Cost of Gas (\$000s) (10)	Cost of Gas (\$000s) (11)
1	<b>BYPASS AND SPECIAL RATES</b>										
2	Bypass and Special Rates Transportation Service										
3	Schedule 22 - Firm Service	-	-	15	7,475.8	-	-	319.8	0.050	16	31
4	- Interruptible Service	-	-	-	-	-	-	-	-	-	-
5	Byron Creek (aka Fording Coal Mountain)	-	-	-	-	-	-	137.5	0.049	7	7
6	Burrard Thermal - Firm	1,719.4	0.020	35	-	-	-	-	-	-	35
7	TGVI - Firm	36,368.3	0.020	730	-	-	-	-	-	-	730
8	Schedule 23 - Large Commercial				-	-	-				-
9	Schedule 25 - Firm Service	-	-	-	873.1	0.016	14	-	-	-	14
10	Schedule 27 - Interruptible Service				-	-	-				-
11	<b>Total Bypass and Spec. Rates T-Svc</b>	<u>38,087.7</u>		<u>780</u>	<u>8,348.9</u>		<u>14</u>	<u>457.3</u>		<u>23</u>	<u>817</u>
12											
13	<b>Total Non-Bypass and Bypass Sales and Transportation Service</b>										
14	<b>Cost of Gas Sold</b>	<u>154,317.5</u>		<u>\$758,808</u>	<u>44,116.8</u>		<u>\$205,831</u>	<u>6,172.0</u>		<u>\$23,331</u>	<u>\$987,970</u>

(X-Ref - Tab C-13, Schedule 12) , (X-Ref - Tab C-13, Schedule 4)

TERASEN GAS INC.

COST OF GAS BY RATE SCHEDULE - Summary by Service Area (Non-Bypass)  
FOR THE YEAR ENDING DECEMBER 31, 2011

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Line No.	Particulars	Lower Mainland			Inland Including Revelstoke			Columbia			Total
		Energy TJ (2)	Unit Cost \$/GJ (3)	Cost of Gas (\$000s) (4)	Energy TJ (5)	Unit Cost \$/GJ (6)	Cost of Gas (\$000s) (7)	Energy TJ (8)	Unit Cost \$/GJ (9)	Cost of Gas (\$000s) (10)	Cost of Gas (\$000s) (11)
1	<b>Non-Bypass CORE AND NON-CORE</b>										
2	Core Sales										
3	Schedule 1 - Residential	51,350.2	\$8.846	\$454,251	15,555.0	\$8.342	\$129,766	1,673.7	\$8.410	\$14,076	\$598,093
4	Schedule 2 - Small Commercial	18,027.1	8.991	162,072	5,851.0	8.471	49,566	725.0	8.580	6,221	217,859
5	Schedule 3 - Large Commercial	14,042.4	8.770	123,157	2,801.4	8.259	23,136	324.7	8.149	2,646	148,939
6	Schedules 1, 2 and 3	83,419.7		739,480	24,207.4		202,468	2,723.4		22,943	964,891
7											
8	Schedule 4 - Seasonal	87.8	6.701	588	96.8	6.622	641	-	-	-	1,229
9	Schedule 5 - General Firm	2,728.9	6.632	18,098	415.5	6.606	2,745	39.9	6.677	266	21,109
10											
11	Industrials										
12	Interruptible - Schedule 7	-	-	-	22.7	6.608	150	-	-	-	150
13											
14	N G V Fuel - Stations - Schedule 6	92.0	6.447	593	11.8	6.356	75	-	-	-	668
15											
16	Total Core Sales	86,328.4		758,759	24,754.2		206,079	2,763.3		23,209	988,047
17											
18	Transportation Service										
19	Schedule 22 - Firm Service	-	-	-	5,514.3	0.017	94	2,588.9	0.081	210	304
20	- Interruptible Service	10,726.2	0.007	71	329.1	0.365	120	25.2	-	-	191
21	Schedule 23 - Large Commercial	4,974.0	0.008	40	1,144.2	0.016	18	59.0	0.080	5	63
22	Schedule 25 - Firm Service	9,356.0	0.008	75	3,318.8	0.016	53	269.3	0.080	22	150
23	Schedule 27 - Interruptible Service	4,820.0	0.008	39	747.7	0.016	12	19.7	-	-	51
24	Total T-Service	29,876.2		225	11,054.1		297	2,962.1		237	759
25	<b>Total Non-Bypass Sales and Transportation Service</b>										
26	<b>Cost of Gas Sold</b>	116,204.6		\$758,984	35,808.3		\$206,376	5,725.4		\$23,446	\$988,806

TERASEN GAS INC.

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Section C

COST OF GAS BY RATE SCHEDULE - Summary by Service Area (Bypass)  
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Schedule 21

Line No.	Particulars	Lower Mainland			Inland Including Revelstoke			Columbia			Total
		Energy TJ (2)	Unit Cost \$/GJ (3)	Cost of Gas (\$000s) (4)	Energy TJ (5)	Unit Cost \$/GJ (6)	Cost of Gas (\$000s) (7)	Energy TJ (8)	Unit Cost \$/GJ (9)	Cost of Gas (\$000s) (10)	Cost of Gas (\$000s) (11)
1	<b>BYPASS AND SPECIAL RATES</b>										
2	Bypass and Special Rates Transportation Service										
3	Schedule 22 - Firm Service	-	-	15	7,475.8	-	-	319.8	0.056	18	33
4	- Interruptible Service	-	-	-	-	-	-	-	-	-	-
5	Byron Creek (aka Fording Coal Mountain)	-	-	-	-	-	-	137.5	0.032	4	4
6	Burrard Thermal - Firm	1,719.4	0.020	35	-	-	-	-	-	-	35
7	TGVI - Firm	36,596.4	0.020	735	-	-	-	-	-	-	735
8	Schedule 23 - Large Commercial				-	-	-				-
9	Schedule 25 - Firm Service	-	-	-	873.1	0.016	14	-	-	-	14
10	Schedule 27 - Interruptible Service				-	-	-				-
11	<b>Total Bypass and Spec. Rates T-Svc</b>	<u>38,315.8</u>		<u>785</u>	<u>8,348.9</u>		<u>14</u>	<u>457.3</u>		<u>22</u>	<u>821</u>
12											
13	<b>Total Non-Bypass and Bypass Sales and Transportation Service</b>										
14	<b>Cost of Gas Sold</b>	<u>154,520.4</u>		<u>\$759,769</u>	<u>44,157.2</u>		<u>\$206,390</u>	<u>6,182.7</u>		<u>\$23,468</u>	<u>\$989,627</u>

(X-Ref - Tab C-13, Schedule 13) , (X-Ref - Tab C-13, Schedule 5)



REVENUE UNDER EXISTING 2009 RATES AND REVISED 2010 RATES (Non-Bypass)  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

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Tab 13  
Schedule 22

Line No.	Particulars	Terajoules (2)	Revenue -- At Existing 2009 Rates --		Gross Margin -- At Existing 2009 Rates --		Effective Increase / (Decrease) 0.00% of Margin		Average Number of Customers (9)	Revenue ---- Revised Rates ----	
			Average \$/GJ (3)	Revenue (\$000s) (4)	Average \$/GJ (5)	Margin (\$000s) (6)	\$/GJ (7)	Revenue (\$000s) (8)		Average \$/GJ (10)	Revenue (\$000s) (11)
1	<b>NON-BYPASS</b>										
2	Core Sales										
3	Schedule 1 - Residential	69,174.3	\$13.196	\$912,822	\$4.491	\$310,678	\$0.000	\$0	754,076	\$13.196	\$912,822
4	Schedule 2 - Small Commercial	24,374.3	12.208	297,556	3.372	82,200	-	0	76,536	12.208	297,556
5	Schedule 3 - Large Commercial	16,818.6	11.273	189,604	2.608	43,870	-	0	5,022	11.273	189,604
6	Total Schedules 1 , 2 and 3	110,367.2		1,399,982		436,747		0	835,633		1,399,982
7											
8	Schedule 4 - Seasonal Service	184.6	8.003	1,477	1.343	248	-	0	16	8.003	1,477
9	Schedule 5 - General Firm Service	3,184.6	8.796	28,012	2.167	6,901	-	0	281	8.796	28,012
10											
11	Industrials										
12	Schedule 7 - Interruptible	22.7	8.542	194	1.938	44	-	0	2	8.542	194
13											
14	Schedule 6 - N G V Fuel - Stations	103.8	10.062	1,044	3.628	377	-	0	32	10.062	1,044
15											
16	Total Core Sales	113,862.9		1,430,710		444,316		0	835,964		1,430,710
17											
18	Transportation Service										
19	Schedule 22 - Firm Service	8,103.2	0.640	5,189	0.603	4,885	-	0	13	0.640	5,189
20	- Interruptible Service	11,080.5	0.837	9,270	0.819	9,079	-	0	22	0.837	9,270
21	Schedule 23 - Large Commercial	6,134.0	2.675	16,411	2.665	16,348	-	0	1,309	2.675	16,411
22	Schedule 25 - Firm Service	12,944.4	1.852	23,970	1.840	23,820	-	0	573	1.852	23,970
23	Schedule 27 - Interruptible Service	5,587.4	1.192	6,658	1.183	6,607	-	0	98	1.192	6,658
24											
25	Total T-Service	43,849.5		61,497		60,739		0	2,015		61,497
26											
27	Total Non-Bypass Sales & Transportation Service	157,712.4		\$1,492,207		\$505,055		\$0	837,979		\$1,492,207
28											

(X-Ref - Tab C-13, Schedule 14) (X-Ref - Tab C-13, Schedule 16)

(X-Ref - Tab C-13, Schedule 2)

REVENUE UNDER EXISTING 2009 RATES AND REVISED 2010 RATES (Bypass)  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

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Schedule 23

Line No.	Particulars	Terajoules (2)	Revenue -- At Existing 2009 Rates --		Gross Margin -- At Existing 2009 Rates --		Increase / (Decrease) 0.00% of Margin		Average Number of Customers (9)	Revenue ---- Revised Rates ----	
			Average \$/GJ (3)	Revenue (\$000) (4)	Average \$/GJ (5)	Margin (\$000s) (6)	Revenue (\$000) (7)	Revenue (\$000) (8)		Average \$/GJ (10)	Revenue (\$000) (11)
1	<b>BYPASS AND SPECIAL RATES</b>										
2	Bypass and Special Rates Transportation Service										
3	Schedule 22 - Firm Service	7,795.6	0.163	1,270	0.159	1,239	-	-	8	0.163	1,270
4	- Interruptible Service	-	-	-	-	-	-	-	1	-	-
5	Byron Creek (aka Fording Coal Mountain)	137.5	0.386	53	0.338	46	-	-	1	0.386	53
6	Burrard Thermal - Firm	1,719.4	5.814	9,996	5.794	9,962	-	-	1		9,996
7	TGVI - Firm	36,368.3	-	-	-	-	-	-	1	-	-
8	Schedule 23 - Large Commercial	-	-	-	-	-	-	-	-	-	-
9	Schedule 25 - Firm Service	873.1	0.887	775	0.871	761	-	-	7	0.887	775
10	Schedule 27 - Interruptible Service	-	-	-	-	-	-	-	-	-	-
11	Total Bypass and Spec. Rates T-Svc	<u>46,893.9</u>		<u>12,094</u>		<u>12,008</u>		<u>-</u>	<u>19</u>		<u>12,094</u>
12											
13	Total Bypass Sales and										
14	Transportation Service	<u>46,893.9</u>		<u>12,094</u>		<u>12,008</u>		<u>-</u>	<u>19</u>		<u>12,094</u>
15											
16	TOTAL NON-BYPASS AND BYPASS SALES AND										
17	TRANSPORTATION SERVICE	<u>204,606.3</u>		<u>\$1,504,300</u>		<u>\$517,063</u>		<u>\$0</u>	<u>837,998</u>		<u>\$1,504,300</u>
18		(X-Ref - Tab C-13, Schedule 14)		(X-Ref - Tab C-13, Schedule 16)		(X-Ref - Tab C-13, Schedule 2)					

## REVENUE UNDER EXISTING 2009 RATES AND REVISED 2011 RATES (Non-Bypass)

FOR THE YEAR ENDING DECEMBER 31, 2011

(\$000s)

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Line No.	Particulars	Terajoules (2)	Revenue -- At Existing 2009 Rates --		Gross Margin -- At Existing 2009 Rates --		Effective Increase / (Decrease) 2.32% of Margin		Average Number of Customers (9)	Revenue ---- Revised Rates ----	
			Average	Revenue	Average	Margin	Revenue			Average	Revenue
			\$/GJ (3)	(\$000) (4)	\$/GJ (5)	(\$000s) (6)	\$/GJ (7)	(\$000) (8)		\$/GJ (10)	(\$000s) (11)
1	NON-BYPASS										
2	Core Sales										
3	Schedule 1 - Residential	68,578.9	\$13.236	\$907,735	\$4.515	\$309,643	\$0.105	\$7,196	759,267	\$13.341	\$914,931
4	Schedule 2 - Small Commercial	24,603.1	12.227	300,831	3.372	82,972	0.078	1,928	77,252	12.305	302,759
5	Schedule 3 - Large Commercial	17,168.5	11.283	193,720	2.608	44,781	0.061	1,040	5,126	11.344	194,760
6	Total Schedules 1 , 2 and 3	110,350.5		1,402,286		437,395		10,164	841,644		1,412,450
7											
8	Schedule 4 - Seasonal Service	184.6	8.0030	1,477	1.3430	248	0.0330	6	16	8.036	1,483
9	Schedule 5 - General Firm Service	3,184.3	8.7960	28,009	2.1670	6,900	0.0510	161	281	8.847	28,170
10											
11	Industrials										
12	Schedule 7 - Interruptible	22.7	8.5420	194	1.9380	44	0.0440	1	2	8.586	195
13											
14	Schedule 6 - N G V Fuel - Stations	103.8	10.0620	1,044	3.6280	377	0.0870	9	32	10.149	1,053
15											
16	Total Core Sales	113,845.9		1,433,011		444,964		10,341	841,975		1,443,352
17											
18	Transportation Service										
19	Schedule 22 - Firm Service	8,103.2	0.6400	5,189	0.6030	4,885	0.0140	113	13	0.654	5,302
20	- Interruptible Service	11,080.5	0.8370	9,270	0.8190	9,079	0.0190	210	22	0.856	9,480
21	Schedule 23 - Large Commercial	6,177.2	2.6750	16,525	2.6650	16,462	0.0620	383	1,318	2.737	16,908
22	Schedule 25 - Firm Service	12,944.1	1.8520	23,969	1.8400	23,819	0.0430	554	573	1.895	24,523
23	Schedule 27 - Interruptible Service	5,587.4	1.1920	6,658	1.1830	6,607	0.0270	153	98	1.219	6,811
24											
25	Total T-Service	43,892.4		61,612		60,853		1,413	2,024		63,025
26											
27	Total Non-Bypass Sales & Transportation Service	157,738.3		\$1,494,622		\$505,817		\$11,754	843,999		\$1,506,376
28		(X-Ref - Tab C-13, Schedule 15)		(X-Ref - Tab C-13, Schedule 17)			(X-Ref - Tab C-13, Schedule 3)				

(X-Ref - Tab C-13, Schedule 15) (X-Ref - Tab C-13, Schedule 17)

(X-Ref - Tab C-13, Schedule 3)

REVENUE UNDER EXISTING 2009 RATES AND REVISED 2011 RATES (Bypass)  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

**APPENDIX A**  
**to Order G-141-09**  
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Tab 13  
Schedule 25

Line No.	Particulars	Terajoules (2)	Revenue	Gross Margin	Increase / (Decrease)	Revenue					
			-- At Existing 2009 Rates --	-- At Existing 2009 Rates --	2.32%	of Margin	Average	---- Revised Rates ----			
			Average	Revenue	Average	Margin	Revenue	Number of	Average	Revenue	
	(1)	(3)	\$/GJ (\$000)	\$/GJ (\$000s)	\$/GJ (\$000s)	\$/GJ (\$000)	Customers	\$/GJ (\$000)	(\$000)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	BYPASS AND SPECIAL RATES										
2	Bypass and Special Rates Transportation Service										
3	Schedule 22 - Firm Service	7,795.6	0.1630	1,270	0.1587	1,237	-	-	8	0.1630	1,270
4	- Interruptible Service	-	-	-	-	-	-	-	1	-	-
5	Byron Creek (aka Fording Coal Mountain)	137.5	0.3860	53	0.3543	49	-	-	1	0.3860	53
6	Burrard Thermal - Firm	1,719.4	5.8140	9,996	5.7936	9,962	-	-	1	5.8140	9,996
7	TGVI - Firm	36,596.4	-	-	-	-	-	-	1	-	-
8	Schedule 23 - Large Commercial	-	-	-	-	-	-	-	-	-	-
9	Schedule 25 - Firm Service	873.1	0.8870	775	0.8711	761	-	-	7	0.8870	775
10	Schedule 27 - Interruptible Service	-	-	-	-	-	-	-	-	-	-
11	Total Bypass and Spec. Rates T-Svc	47,122.0		12,094		12,008		-	19		12,094
12											
13	Total Bypass Sales and										
14	Transportation Service	47,122.0		12,094		12,008		-	19		12,094
15											
16	TOTAL NON-BYPASS AND BYPASS SALES AND										
17	TRANSPORTATION SERVICE	204,860.3		\$1,506,716		\$517,825		\$11,754	844,018		\$1,518,470
18		(X-Ref - Tab C-13, Schedule 15)		(X-Ref - Tab C-13, Schedule 17)			(X-Ref - Tab C-13, Schedule 3)				

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Section C  
Tab 13  
Schedule 26

OTHER OPERATING REVENUE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars (1)	June 15, 2009 Application (2)	2010 (3)	Change (4)	Reference (5)
1	<b>Other Utility Revenue</b>				
2					
3	Late Payment Charge	\$2,982	\$3,014	\$32	(X-Ref - Tab C-13, Schedule 59)
4					
5	Connection Charge	2,879	2,880	1	(X-Ref - Tab C-13, Schedule 59)
6					
7	NSF Returned Cheque Charges	82	82	-	(X-Ref - Tab C-13, Schedule 59)
8					
9	Other Recoveries	74	74	-	(X-Ref - Tab C-13, Schedule 59)
10					
11	Total Other Utility Revenue	6,017	6,050	33	
12					
13	<b>Miscellaneous Revenue</b>				
14					
15	TGVI Wheeling Charge	3,457	3,457	-	(X-Ref - Tab C-13, Schedule 2)
16					
17	SCP Third Party Revenue	12,819	12,819	-	(X-Ref - Tab C-13, Schedule 2)
18					
19	TGVI SAP Lease Income	129	129	-	(X-Ref - Tab C-13, Schedule 59)
20					
21					
22	Total Miscellaneous	16,405	16,405	-	(X-Ref - Tab C-13, Schedule 12)
23					
24	<b>Total Other Operating Revenue</b>	<u>\$22,422</u>	<u>\$22,455</u>	<u>\$33</u>	(X-Ref - Tab C-13, Schedule 4)

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Section C  
Tab 13  
Schedule 27

OTHER OPERATING REVENUE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000)

Line No.	Particulars (1)	June 15, 2009 Application (2)	2011 (3)	Change (4)	Reference (5)
1	<b>Other Utility Revenue</b>				
2					
3	Late Payment Charge	\$2,987	\$3,020	\$33	(X-Ref - Tab C-13, Schedule 59)
4					
5	Connection Charge	2,905	2,907	2	(X-Ref - Tab C-13, Schedule 59)
6					
7	NSF Returned Cheque Charges	82	82	-	(X-Ref - Tab C-13, Schedule 59)
8					
9	Other Recoveries	76	76	-	(X-Ref - Tab C-13, Schedule 59)
10					
11	Total Other Utility Revenue	6,050	6,085	35	
12					
13	<b>Miscellaneous Revenue</b>				
14					
15	TGVI Wheeling Charge	3,455	3,455	-	(X-Ref - Tab C-13, Schedule 3)
16					
17	SCP Third Party Revenue	14,798	14,798	-	(X-Ref - Tab C-13, Schedule 3)
18					
19	TGVI SAP Lease Income	56	56	-	(X-Ref - Tab C-13, Schedule 59)
20					
21					
22	Total Miscellaneous	18,309	18,309	-	(X-Ref - Tab C-13, Schedule 13)
23					
24	<b>Total Other Operating Revenue</b>	<u>\$24,359</u>	<u>\$24,394</u>	<u>\$35</u>	(X-Ref - Tab C-13, Schedule 5)

TERASEN GAS INC

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Section C

Tab 13

Schedule 28

OPERATION & MAINTENANCE EXPENSES - RESOURCE VIEW  
FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011  
(\$000)

Line No.	Particulars	PROJECTION	FORECAST	FORECAST	Reference
		2009 (2)	2010 (3)	2011 (4)	
1	M&E Costs	\$ 43,087	\$ 45,496	\$ 48,663	
2	COPE Costs	24,792	29,505	31,938	
3	IBEW Costs	22,301	24,870	26,559	
4					
5	<b>Labour Costs</b>	<b>90,179</b>	<b>99,871</b>	<b>107,160</b>	
6					
7	Vehicle Costs	4,626	3,111	3,084	
8	Employee Expenses	3,979	5,212	5,227	
9	Materials and Supplies	5,579	7,251	7,191	
10	Computer Costs	7,612	11,192	11,991	
11	Fees and Administration Costs	27,369	27,860	28,512	
12	Contractor Costs	58,251	60,112	60,052	
13	Facilities	11,717	13,973	14,318	
14	Recoveries & Revenue	(14,235)	(22,117)	(22,854)	
15					
16	<b>Non-Labour Costs</b>	<b>104,899</b>	<b>106,593</b>	<b>107,520</b>	
17					
18					
19	<b>Total Gross O&amp;M Expenses</b>	<b>195,078</b>	<b>206,464</b>	<b>214,680</b>	
20					
21	Less: Vehicle Lease Reclass	(1,804)	-	-	
22	Less: Capitalized Overhead	(28,113)	(28,905)	(30,055)	
23					
24	<b>Total O&amp;M Expenses</b>	<b>\$ 165,162</b>	<b>\$ 177,559</b>	<b>\$ 184,625</b>	(X-Ref - Tab C-13, Schedule 4) (X-Ref - Tab C-13, Schedule 5)

TERASEN GAS INC.

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Section C

Tab 13

Schedule 29

OPERATION & MAINTENANCE EXPENSES - ACTIVITY VIEW  
FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011  
(\$000)

Line No.	Particulars	Reference	PROJECTION 2009 (3)	FORECAST 2010 (4)	FORECAST 2011 (5)	Reference (6)
	(1)	(2)				
1	Distribution Supervision	100-11	\$ 9,782	\$ 10,331	\$ 10,609	
2	Distribution Supervision Total	100-10	9,782	10,331	10,609	
3						
4	Operation Centre - Distribution	100-21	6,747	9,798	10,451	
5	Asset Management - Distribution	100-22	1,113	1,925	2,437	
6	Preventative Maintenance - Distribution	100-23	2,026	1,927	2,377	
7	Distribution Operations - General	100-24	4,720	5,096	5,512	
8	Emergency Management	100-25	6,582	5,240	5,488	
9	Distribution Operations Total	100-20	21,189	23,986	26,266	
10						
11	Distribution Corrective - Meters	100-31	1,176	1,433	1,524	
12	Distribution Corrective - Propane	100-32	5	5	5	
13	Distribution Corrective - Leak Repair	100-33	931	939	996	
14	Distribution Corrective - Stations	100-34	490	681	727	
15	Distribution Corrective - General	100-35	486	505	534	
16	Distribution Maintenance Total	100-30	3,089	3,562	3,785	
17						
18	<b>Distribution Total</b>	<b>100</b>	<b>34,060</b>	<b>37,879</b>	<b>40,660</b>	
19						
20	Transmission Supervision	200-11	2,448	3,079	3,161	
21	Transmission Supervision Total	200-10	2,448	3,079	3,161	
22						
23	Pipeline Operation	200-21	2,094	2,627	2,836	
24	Right of Way	200-22	1,407	1,282	1,345	
25	Compression	200-23	1,650	1,919	1,922	
26	Gas Control	200-24	2,264	2,896	3,105	
27	Transmission Pipeline Integrity Project (TPIP)	200-25	5,355	3,177	3,317	
28	Transmission Operations Total	200-20	12,771	11,902	12,525	
29						
30	Pipeline - Maintenance	200-31	167	189	194	
31	Compression - Maintenance	200-32	163	167	172	
32	TPIP - Maintenance	200-33	373	671	929	
33	Transmission Maintenance Total	200-30	702	1,027	1,295	
34						
35	<b>Transmission Total</b>	<b>200</b>	<b>15,921</b>	<b>16,008</b>	<b>16,980</b>	
36						
37	LNG Plant Operations	300-11	825	1,036	1,088	
38	LNG Plant Operations Total	300-10	825	1,036	1,088	
39	LNG Plant Maintenance	300-21	200	269	277	
40	LNG Plant Maintenance Total	300-20	200	269	277	
41						
42	<b>LNG Plant Total</b>	<b>300</b>	<b>1,025</b>	<b>1,305</b>	<b>1,365</b>	
43						
44	Measurement Operations	400-11	3,759	4,083	4,297	
45	Measurement Operations Total	400-10	3,759	4,083	4,297	
46						
47	Measurement Maintenance	400-21	1,804	2,208	2,334	
48	Measurement Maintenance Total	400-20	1,804	2,208	2,334	
49						
50	<b>Measurement Total</b>	<b>400</b>	<b>5,562</b>	<b>6,291</b>	<b>6,630</b>	



TERASEN GAS INC.

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Section C

Tab 13

OPERATION & MAINTENANCE EXPENSES - ACTIVITY VIEW (Continued)

Schedule 30

FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011

(\$000)

Line No.	Particulars	Reference	PROJECTION 2009 (3)	FORECAST 2010 (4)	FORECAST 2011 (5)	Reference (6)
1	Facilities Management	500-10	5,580	6,277	5,968	
2	Shops & Stores	500-20	3,699	4,018	4,152	
3	Operations Engineering	500-30	6,368	8,121	8,679	
4	Property Services	500-40	988	1,174	1,307	
5	System Integrity	500-50	2,040	2,393	2,492	
6	Environmental Health & Safety	500-60	1,490	2,352	2,504	
7	Operations Governance	500-70	1,515	1,692	1,800	
8						
9	<b>General Operations Total</b>	<b>500</b>	<b>21,679</b>	<b>26,025</b>	<b>26,903</b>	
10						
11	Energy Efficiency	600-10	\$ 1,624	\$ -	\$ -	
12	Marketing - Supervision	600-20	1,208	621	634	
13	Corporate & Marketing Communications	600-30	2,574	3,593	3,673	
14	Marketing Planning & Development	600-40	749	655	669	
15	<b>Marketing Total</b>	<b>600</b>	<b>6,156</b>	<b>4,868</b>	<b>4,976</b>	
16						
17	Customer Care - Supervision	700-10	1,089	2,069	2,126	
18	Customer Contact - ABSU contract	700-20	47,127	48,470	49,422	
19	Bad Debt Management and Administration	700-30	6,112	5,874	6,018	
20	Customer Management & Sales	700-40	3,349	3,949	4,176	
21	<b>Customer Care Total</b>	<b>700</b>	<b>57,677</b>	<b>60,361</b>	<b>61,742</b>	
22						
23	Business & IT Services - Supervision	800-10	1,419	1,239	1,268	
24	Application Management	800-20	9,313	12,682	13,512	
25	Infrastructure Management	800-30	5,208	6,461	6,775	
26	Procurement Services	800-40	736	824	874	
27	<b>Business &amp; IT Services Total</b>	<b>800</b>	<b>16,675</b>	<b>21,205</b>	<b>22,428</b>	
28						
29	Administration & General	900-11	3,229	(207)	(1,185)	
30	Insurance	900-12	4,725	4,410	4,631	
31	Finance and Regulatory Affairs	900-13	9,585	9,641	9,994	
32	Shared Services Agreement	900-14	3,541	2,116	1,899	
33	Corporate Administration Total	900-10	21,080	15,960	15,339	
34	Forecasting	900-20	1,022	1,632	1,672	
35	Public Affairs	900-30	1,375	1,731	1,762	
36	Business Development	900-40	1,416	3,123	3,183	
37	Human Resources	900-50	5,440	6,687	6,930	
38	Other Post Employment Benefits (OPEB)	900-60	5,991	3,389	4,111	
39	<b>Administration &amp; General Total</b>	<b>900</b>	<b>36,324</b>	<b>32,522</b>	<b>32,996</b>	
40						
41	<b>Total Gross O&amp;M Expenses</b>		<b>195,078</b>	<b>206,464</b>	<b>214,680</b>	
42						
43	Less: Vehicle Lease Reclass		(1,804)	-	-	
44	Less: Capitalized Overhead		(28,113)	(28,905)	(30,055)	
45						(X-Ref - Tab C-13, Schedule 4)
46	<b>Total O&amp;M Expenses</b>		<b>\$ 165,162</b>	<b>\$ 177,559</b>	<b>\$ 184,625</b>	(X-Ref - Tab C-13, Schedule 5)

\* Note : Line 29 "Administration and General" expenses show a reduction of \$1.0 million. The allocation of this \$1.0 million reduction will be determined at a later date.

TERASEN GAS INC.

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Section C

Tab 13

PROPERTY AND SUNDRY TAXES  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Schedule 31

Line No.	Particulars (1)	June 15, 2009 Application (2)	2010		Change (5)	Reference (6)
			Total Expenses (3)	Revised Revenue, Total Expenses (4)		
1	Property Taxes					
2						
3	1% in Lieu of General Municipal Tax	\$16,187	\$16,187	\$16,187	\$0	
4						
5	General, School and Other	33,006	33,006	33,006	-	
6						(X-Ref - Tab C-13, Schedule 4)
7	Total	<u>\$49,193</u>	<u>\$49,193</u>	<u>\$49,193</u>	<u>\$0</u>	(X-Ref - Tab C-13, Schedule 12)

TERASEN GAS INC.

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Section C  
Tab 13  
Schedule 32

PROPERTY AND SUNDRY TAXES  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars (1)	June 15, 2009 Application (2)	2011		Change (5)	Reference (6)
			Total Expenses (3)	Revised Revenue, Total Expenses (4)		
1	Property Taxes					
2						
3	1% in Lieu of General Municipal Tax	\$16,067	\$16,067	\$16,067	\$0	
4						
5	General, School and Other	34,144	34,144	34,144	-	(X-Ref - Tab C-13, Schedule 5)
6						
7	Total	<u>\$50,211</u>	<u>\$50,211</u>	<u>\$50,211</u>	<u>\$0</u>	(X-Ref - Tab C-13, Schedule 13)

TERASEN GAS INC.

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Section C

Tab 13

Schedule 33

DEPRECIATION AND AMORTIZATION EXPENSES  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars (1)	June 15, 2009 Application (2)	2010 (3)	Change (4)	Reference (5)
1	<b><u>Depreciation Provision</u></b>				
2					
3	Total Depreciation Expense	\$113,009	\$98,312	(\$14,697)	- Tab C-13, Schedule 49
4					
5	Less: Amortization of Contributions in Aid of Construction	<u>(6,849)</u>	<u>(6,850)</u>	<u>(1)</u>	- Tab C-13, Schedule 52
6		106,160	91,462	(14,698)	
7					
8	Add: Removal Cost Provision	-	8,038	8,038	(X-Ref - Tab C-13, Schedule 4)
9					
10		<u>106,160</u>	<u>99,500</u>	<u>(\$6,660)</u>	
11			(X-Ref - Tab C-13, Schedule 37)		
12	<b><u>Amortization Expense</u></b>				
13					
14	Amortization of Deferred Charges	(\$2,364)	(\$2,569)	(\$205)	- Tab C-13, Schedule 54
15					
16		<u>(2,364)</u>	<u>(2,569)</u>	<u>(205)</u>	
17					(X-Ref - Tab C-13, Schedule 4)
18	TOTAL	<u>\$103,796</u>	<u>96,931</u>	<u>(\$6,865)</u>	(X-Ref - Tab C-13, Schedule 12)

TERASEN GAS INC.

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Section C

Tab 13

Schedule 34

DEPRECIATION AND AMORTIZATION EXPENSES  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars (1)	June 15, 2009 Application (2)	2011 (3)	Change (4)	Reference (5)
1	<b><u>Depreciation Provision</u></b>				
2					
3	Total Depreciation Expense	\$115,696	\$100,534	(\$15,162)	- Tab C-13, Schedule 51
4					
5	Less: Amortization of Contributions in Aid of Construction	(6,674)	(6,677)	(3)	- Tab C-13, Schedule 53
6		109,022	93,857	(15,165)	
7					
8	Add: Removal Cost Provision	-	11,290	11,290	(X-Ref - Tab C-13, Schedule 5)
9					
10		109,022	105,147	(15,165)	
11			(X-Ref - Tab C-13, Schedule 38)		
12	<b><u>Amortization Expense</u></b>				
13					
14	Amortization of Deferred Charges	\$1,474	(\$5,269)	(\$6,743)	- Tab C-13, Schedule 55
15					
16		1,474	(5,269)	(6,743)	
17					(X-Ref - Tab C-13, Schedule 5)
18	TOTAL	\$110,496	\$99,878	(\$21,908)	(X-Ref - Tab C-13, Schedule 13)

TERASEN GAS INC.

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Section C  
Tab 13  
Schedule 35

INCOME TAXES  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars (1)	June 15, 2009 Application (2)	2010			Change (6)	Reference (7)
			Existing Rates (3)	Revised Revenue (4)	Total (5)		
				----Revised Rates----			
1	CALCULATION OF INCOME TAXES						
2	Earned Return	\$185,254	\$184,217	\$0	\$184,217	(\$1,037)	- Tab C-13, Schedule 4
3	Deduct - Interest on Debt	(110,056)	(109,062)	-	(109,062)	994	- Tab C-13, Schedule 10
4	Add- Non-Tax Ded. Expense (Net)	(1,864)	(2,069)	-	(2,069)	(205)	- Tab C-13, Schedule 37
5	Accounting Income After Tax	73,334	73,086	-	73,086	(248)	
6	Add (Deduct) - Timing Differences	5,999	(4,958)	-	(4,958)	(10,957)	- Tab C-13, Schedule 37
7	Taxable Income After Tax	79,333	68,128	-	68,128	(11,205)	
8	Taxable Income Adj - SCP Landscaping Deduction	-	(7,834)	-	(7,834)	(7,834)	
9	Taxable Income Adj - Tax on SCP Landscaping	-	2,233	-	2,233	2,233	
10	Adjusted Taxable Income After Tax	<u>\$79,333</u>	<u>\$62,527</u>	<u>\$0</u>	<u>\$62,527</u>	<u>(\$16,806)</u>	
11							
12		28.500%	28.500%	28.500%	28.500%	0.000%	
13	1 - Current Income Tax Rate	71.500%	71.500%	71.500%	71.500%	0.000%	
14							
15	Taxable Income	<u>110,955</u>	<u>\$87,450</u>	<u>\$0</u>	<u>\$87,450</u>	<u>(\$23,505)</u>	(X-Ref - Tab C-13, Schedule 4)
16							
17	<b>Total Income Tax</b>	<u>\$31,622</u>	<u>\$24,923</u>	<u>\$0</u>	<u>\$24,923</u>	<u>(\$6,699)</u>	(X-Ref - Tab C-13, Schedule 12)

TERASEN GAS INC.

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Section C  
Tab 13  
Schedule 36

INCOME TAXES  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars	June 15, 2009 Application	2011			Change	Reference
			Existing Rates	Revised Revenue	Total		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	CALCULATION OF INCOME TAXES						
2	Earned Return	\$193,132	\$184,295	\$8,639	\$192,934	(\$198)	- Tab C-13, Schedule 5
3	Deduct - Interest on Debt	(115,430)	(114,982)	-	(114,982)	448	- Tab C-13, Schedule 11
4	Add- Non-Tax Ded. Expense (Net)	1,974	(4,769)	-	(4,769)	(6,743)	- Tab C-13, Schedule 38
5	Accounting Income After Tax	79,676	64,544	8,639	73,183	(6,493)	
6	Add (Deduct) - Timing Differences	8,118	(5,053)	-	(5,053)	(13,171)	- Tab C-13, Schedule 38
7	Taxable Income After Tax	87,794	59,491	8,639	68,130	(19,664)	
8	Taxable Income Adjustment	-	-	-	-	-	
9	Taxable Income Adjustment	-	-	-	-	-	
10	Adjusted Taxable Income After Tax	<u>\$87,794</u>	<u>\$59,491</u>	<u>\$8,639</u>	<u>\$68,130</u>	<u>(\$19,664)</u>	
11							
12		26.500%	26.500%	26.500%	26.500%	0.000%	
13	1 - Current Income Tax Rate	73.500%	73.500%	73.500%	73.500%	0.000%	
14							
15	Taxable Income	<u>119,448</u>	<u>\$80,940</u>	<u>\$11,754</u>	<u>\$92,694</u>	<u>(\$26,754)</u>	(X-Ref - Tab C-13, Schedule 5)
16							
17	<b>Total Income Tax</b>	<u>\$31,654</u>	<u>\$21,449</u>	<u>\$3,115</u>	<u>\$24,564</u>	<u>(\$1,767)</u>	(X-Ref - Tab C-13, Schedule 13)

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Section C

Tab 13

Schedule 37

NON-TAX DEDUCTIBLE EXPENSES (NET) AND TIMING DIFFERENCE ADJUSTMENTS  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars	June 15, 2009 Application	2010	Change	Reference
	(1)	(2)	(3)	(4)	(5)
1	<b>ITEMS OF A PERMANENT NATURE INCREASING TAXABLE INCOME</b>				
2					
3	Amortization of Deferred Charges	(\$2,364)	(\$2,569)	(\$205)	- Tab C-13, Schedule 54
4					
5	Non-tax Deductible Expenses	500	500	-	
6					
7	Total Permanent Differences	<u>(\$1,864)</u>	<u>(\$2,069)</u>	<u>(\$205)</u>	(X-Ref - Tab C-13, Schedule 35)
8					(X-Ref - Tab C-13, Schedule 6)
9	<b>TIMING DIFFERENCE ADJUSTMENTS</b>				
10					
11	Addbacks:				
12	Depreciation & Removal Cost Provision	\$106,160	99,500	(\$6,660)	- Tab C-13, Schedule 33
13	Amortization of Debt Issue Expenses	721	721	-	
14	Vehicle Capital Lease: Interest & Capitalized Depreciation	1,597	1,597	-	
15	Pension Expense	4,779	4,779	-	
16	OPEB Expense	5,320	5,320	-	
17	2010 Revenue Surplus (Net of Tax)	-	6,537	6,537	
18					
19	Deductions:				
20	Capital Cost Allowance	(98,544)	(96,990)	1,554	- Tab C-13, Schedule 39
21	Cumulative Eligible Capital Allowance	(1,001)	(1,001)	-	
22	Debt Issue Costs	(1,206)	(1,206)	-	
23	Vehicle Lease Payment	(3,149)	(3,149)	-	
24	Pension Contributions	(7,115)	(7,115)	-	
25	OPEB Contributions	(503)	(503)	-	
26	Overheads Capitalized Expensed for Tax Purposes	-	(12,388)	(12,388)	
27	Overhead Capitalization Rate Change	-	-	-	
28	CCA Rate Change of 2007 & 2008	-	-	-	
29	Long Term Compensation	-	-	-	
30	Discounts on Debt Issue and Other	-	-	-	
31	Major Inspection Costs	(1,060)	(1,060)	-	
32					
33	Total Timing Differences	<u>\$5,999</u>	<u>(\$4,958)</u>	<u>(\$10,957)</u>	(X-Ref - Tab C-13, Schedule 35) (X-Ref - Tab C-13, Schedule 6)



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Schedule 38

NON-TAX DEDUCTIBLE EXPENSES (NET) AND TIMING DIFFERENCE ADJUSTMENTS  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars (1)	June 15, 2009 Application (2)	2011 (3)	Change (4)	Reference (5)
1	<b>ITEMS OF A PERMANENT NATURE INCREASING TAXABLE INCOME</b>				
2					
3	Amortization of Deferred Charges	\$1,474	(\$5,269)	(\$6,743)	- Tab C-13, Schedule 55
4					
5	Non-tax Deductible Expenses	500	500	-	
6					
7	Total Permanent Differences	<u>\$1,974</u>	<u>(\$4,769)</u>	<u>(\$6,743)</u>	(X-Ref - Tab C-13, Schedule 36)
8					(X-Ref - Tab C-13, Schedule 6)
9	<b>TIMING DIFFERENCE ADJUSTMENTS</b>				
10					
11	Addbacks:				
12	Depreciation & Removal Cost Provision	\$109,022	105,147	(\$3,875)	- Tab C-13, Schedule 34
13	Amortization of Debt Issue Expenses	721	721	-	
14	Vehicle Capital Lease: Interest & Capitalized Depreciation	2,029	2,029	-	
15	Pension Expense	5,704	5,704	-	
16	OPEB Expense	5,297	5,297	-	
17	2010 Revenue Surplus	-	-	-	
18					
19	Deductions:				
20	Capital Cost Allowance	(100,844)	(97,259)	3,585	- Tab C-13, Schedule 40
21	Cumulative Eligible Capital Allowance	(937)	(937)	-	
22	Debt Issue Costs	(1,003)	(1,003)	-	
23	Vehicle Lease Payment	(3,736)	(3,736)	-	
24	Pension Contributions	(7,322)	(7,322)	-	
25	OPEB Contributions	(503)	(503)	-	
26	Overheads Capitalized Expensed for Tax Purposes	-	(12,881)	(12,881)	
27	Overhead Capitalization Rate Change	-	-	-	
28	CCA Rate Change of 2007 & 2008	-	-	-	
29	Long Term Compensation	-	-	-	
30	Discounts on Debt Issue and Other	-	-	-	
31	Major Inspection Costs	(310)	(310)	-	
32					
33	Total Timing Differences	<u>\$8,118</u>	<u>(\$5,053)</u>	<u>(\$13,171)</u>	(X-Ref - Tab C-13, Schedule 36) (X-Ref - Tab C-13, Schedule 7)

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CAPITAL COST ALLOWANCE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Class	CCA Rate %	12/31/2009 UCC Balance	Adjustments	2010 Net Additions	2010 CCA	12/31/2010 UCC Balance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	1	4%	\$1,190,923	(\$7,834)	\$371	(\$47,331)	\$1,136,129
2	1.3	6%	8,120	-	2,755	(570)	10,305
3	2	6%	164,165	-	-	(9,850)	154,315
4	3	5%	2,826	-	-	(141)	2,685
5	6	10%	206	-	-	(21)	185
6	7	15%	3,824	-	2,188	(738)	5,274
7	8	20%	15,184	-	2,441	(3,281)	14,344
8	10	30%	3,135	-	1,629	(1,185)	3,579
9	12	100%	-	3,087	11,604	(8,889)	5,802
10	13	Manual	2,682	-	167	(890)	1,959
11	14	Manual	2	-	-	(2)	-
12	17	8%	223	-	-	(18)	205
13	38	30%	225	-	30	(72)	183
14	39	25%	-	-	-	-	-
15	45	45%	891	-	-	(401)	490
16	47	8%	4,798	-	451	(402)	4,847
17	49	8%	65,970	-	12,903	(5,794)	73,079
18	50 / 52	55% / 100%	1,432	-	4,489	(5,276)	645
19	51	6%	168,386	-	67,541	(12,129)	223,798
20							
21		Total	<u>\$1,632,992</u>	<u>(\$4,747)</u>	<u>\$106,569</u>	<u>(\$96,990)</u>	<u>\$1,637,824</u>
22						(X-Ref - Tab C-13, Schedule 37)	

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CAPITAL COST ALLOWANCE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Class (1)	CCA Rate % (2)	12/31/2010 UCC Balance (3)	Adjustments (4)	2011 Net Additions (5)	2011 CCA (6)	12/31/2011 UCC Balance (7)
1	1	4%	\$1,136,129	\$0	\$0	(\$45,445)	\$1,090,684
2	1.3	6%	10,305	-	3,590	(726)	13,169
3	2	6%	154,315	-	-	(9,259)	145,056
4	3	5%	2,685	-	-	(134)	2,551
5	6	10%	185	-	-	(19)	166
6	7	15%	5,274	-	1,617	(912)	5,979
7	8	20%	14,344	-	2,214	(3,090)	13,468
8	10	30%	3,579	-	1,607	(1,315)	3,871
9	12	100%	5,802	-	11,000	(11,302)	5,500
10	13	Manual	1,959	-	51	(883)	1,127
11	14	Manual	-	-	-	-	-
12	17	8%	205	-	-	(17)	188
13	38	30%	183	-	30	(59)	154
14	39	25%	-	-	-	-	-
15	45	45%	490	-	-	(220)	270
16	47	8%	4,847	-	1,651	(454)	6,044
17	49	8%	73,079	-	6,024	(6,087)	73,016
18	50 / 52	55% / 100%	645	-	5,000	(1,729)	3,916
19	51	6%	223,798	-	72,667	(15,608)	280,857
20							
21		Total	<u>\$1,637,824</u>	<u>\$0</u>	<u>\$105,451</u>	<u>(\$97,259)</u>	<u>\$1,646,016</u>
22						(X-Ref - Tab C-13, Schedule 38)	

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UTILITY RATE BASE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars (1)	June 15, 2009 Application (2)	2010		Revised Rates (5)	Change (6)	Reference (7)
			Existing 2009 Rates (3)	Adjustments (4)			
1	Gas Plant in Service, Beginning	\$3,317,590	\$3,315,365	\$0	\$3,315,365	(\$2,225)	- Tab C-13, Schedule 45
2	Adjustment - CPCNs	-				-	- Tab C-13, Schedule 43
3	Gas Plant in Service, Ending	3,449,336	3,453,394	-	3,453,394	4,058	- Tab C-13, Schedule 45
4							
5	Accumulated Depreciation Beginning - Plant	(\$779,187)	(\$780,174)	\$0	(\$780,174)	(\$987)	- Tab C-13, Schedule 49
6	Accumulated Depreciation Ending - Plant	(840,835)	(835,365)	-	(835,365)	5,470	- Tab C-13, Schedule 49
7							
8	CIAC, Beginning	(\$176,845)	(\$176,845)	\$0	(\$176,845)	\$0	- Tab C-13, Schedule 52
9	CIAC, Ending	(183,817)	(183,885)	-	(183,885)	(68)	- Tab C-13, Schedule 52
10							
11	Accumulated Amortization Beginning - CIAC	\$44,146	\$44,146	\$0	\$44,146	\$0	- Tab C-13, Schedule 52
12	Accumulated Amortization Ending - CIAC	47,061	47,062	-	47,062	1	- Tab C-13, Schedule 52
13							
14	Net Plant in Service, Mid-Year	<u>\$2,438,725</u>	<u>\$2,441,849</u>	<u>\$0</u>	<u>\$2,441,849</u>	<u>\$3,125</u>	
15							
16	Adjustment to 13-Month Average	13,537	13,537	-	13,537	-	
17	Work in Progress, No AFUDC	15,627	15,627	-	15,627	-	
18	Unamortized Deferred Charges	(27,015)	(30,797)	-	(30,797)	(3,782)	- Tab C-13, Schedule 54
19	Cash Working Capital	(6,778)	(7,563)	-	(7,563)	(785)	- Tab C-13, Schedule 56
20	Other Working Capital (incl. Construction Advances)	103,439	103,439	-	103,439	-	- Tab C-13, Schedule 56
21	Future Income Taxes Regulatory Asset	284,455	284,455	-	284,455	-	- Tab C-13, Schedule 61
22	Future Income Taxes Regulatory Liability	(284,455)	(284,455)	-	(284,455)	-	- Tab C-13, Schedule 61
23	LIFO Benefit	(1,648)	(1,648)	-	(1,648)	-	
24	<b>Utility Rate Base</b>	<u>\$2,535,887</u>	<u>\$2,534,444</u>	<u>\$0</u>	<u>\$2,534,444</u>	<u>(\$1,442)</u>	(X-Ref - Tab C-13, Schedule 10)

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UTILITY RATE BASE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars	June 15, 2009 Application	2011		Revised Rates	Change	Reference
			Existing 2009 Rates	Adjustments			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Gas Plant in Service, Beginning	\$3,449,336	\$3,453,394	\$0	\$3,453,394	\$4,058	- Tab C-13, Schedule 47
2	Adjustment - CPCNs	-				-	
3	Gas Plant in Service, Ending	3,535,828	3,538,378	-	3,538,378	2,550	- Tab C-13, Schedule 47
4							
5	Accumulated Depreciation Beginning - Plant	(\$840,835)	(\$835,365)	\$0	(\$835,365)	\$5,470	- Tab C-13, Schedule 51
6	Accumulated Depreciation Ending - Plant	(899,386)	(885,651)	-	(885,651)	13,735	- Tab C-13, Schedule 51
7							
8	CIAC, Beginning	(\$183,817)	(\$183,885)	\$0	(\$183,885)	(\$68)	- Tab C-13, Schedule 53
9	CIAC, Ending	(194,646)	(194,753)	-	(194,753)	(107)	- Tab C-13, Schedule 53
10							
11	Accumulated Amortization Beginning - CIAC	\$47,061	\$47,062	\$0	\$47,062	\$1	- Tab C-13, Schedule 53
12	Accumulated Amortization Ending - CIAC	50,241	50,245	-	50,245	4	- Tab C-13, Schedule 53
13							
14	Net Plant in Service, Mid-Year	<u>\$2,481,891</u>	<u>\$2,494,713</u>	<u>\$0</u>	<u>\$2,494,713</u>	<u>\$12,822</u>	
15							
16	Adjustment to 13-Month Average	0	-	-	-	-	
17	Work in Progress, No AFUDC	15,627	15,627	-	15,627	-	
18	Unamortized Deferred Charges	10,347	6,770	-	6,770	(3,577)	- Tab C-13, Schedule 55
19	Cash Working Capital	(6,133)	(6,953)	6	(6,947)	(814)	- Tab C-13, Schedule 57
20	Other Working Capital (incl. Construction Advances)	120,091	120,091	-	120,091	-	- Tab C-13, Schedule 57
21	Future Income Taxes Regulatory Asset	292,155	292,155	-	292,155	-	- Tab C-13, Schedule 61
22	Future Income Taxes Regulatory Liability	(292,155)	(292,155)	-	(292,155)	-	- Tab C-13, Schedule 61
23	LIFO Benefit	(1,482)	(1,482)	-	(1,482)	-	
24	<b>Utility Rate Base</b>	<u>\$2,620,341</u>	<u>\$2,628,766</u>	<u>\$6</u>	<u>\$2,628,772</u>	<u>\$8,431</u>	(X-Ref - Tab C-13, Schedule 11)

CAPITAL EXPENDITURES AND PLANT ADDITIONS  
FOR THE YEARS ENDING DECEMBER 31, 2009 - 2011  
(\$000)

Line No.	Particulars	Projected 2009	Forecast 2010	Forecast 2011	Reference
	(1)	(2)	(3)	(4)	(5)
1	<b>CAPITAL EXPENDITURES</b>				
2					
3	<u>Regular Capital Expenditures</u>				
4	Regular Capital Expenditures	85,425	93,511	93,597	
5	Gateway Project *	11,174	6,750	10,433	
6					
7	Total Regular Capital Expenditures	<u>\$ 96,599</u>	<u>\$ 100,261</u>	<u>\$ 104,030</u>	
8					
9	<u>Special Projects - CPCN's</u>				
10	Vancouver LP Replacement	250	-	-	
11	Fraser River SBSA Rehabilitation	25,000	520	-	
12	Okanagan Reinforcement Project	500	500	500	
13	CCE CPCN	7,476	49,662	57,761	
14	Kootenay River Crossing	-	2,000	4,000	
15	Huntingdon Bypass	-	200	12,000	
16		0.00	0	0	
17	Total CPCN's	<u>\$ 33,226</u>	<u>\$ 52,882</u>	<u>\$ 74,261</u>	
18					
19					
20	TOTAL CAPITAL EXPENDITURES	<u>\$ 129,825</u>	<u>\$ 153,143</u>	<u>\$ 178,291</u>	
21					
22					
23	<b>RECONCILIATION OF CAPITAL EXPENDITURES TO PLANT ADDITIONS</b>				
24					
25	<u>Regular Capital</u>				
26	Regular Capital Expenditures	96,599	100,260	104,030	
27	Add - Opening WIP	18,760	26,434	24,877	
28	Less - Opening WIP Adjustment	-	-	-	
29	Less - Closing WIP	(26,434)	(24,877)	(25,706)	
30	Capital Spares Inventory Reclassification	8,593	-	-	
31	Capital Vehicle Lease Addition	-	3,869	2,735	
32	Add - AFUDC	267	230	241	- Tab C-13, Schedule 45
33	Add - Overhead Capitalized	28,113	28,905	30,055	- Tab C-13, Schedule 47
34					
35	TOTAL REGULAR CAPITAL ADDITIONS TO GAS PLANT IN SERVICE	<u>\$ 125,898</u>	<u>\$ 134,821</u>	<u>\$ 136,232</u>	
36					
37	<u>Special Projects - CPCN's</u>				
38	CPCN Expenditures	33,226	52,882	74,261	
39	Add - Opening WIP	14,676	35,291	62,672	
40	Less - Closing WIP	(35,291)	(62,672)	(143,095)	
41	Less: Vancouver LP Removal costs (added to Accumulated Depreciation)	(394)	-	-	
42	Add - AFUDC	662	2,102	6,162	
43					- Tab C-13, Schedule 45
44	TOTAL CPCN ADDITIONS TO OPENING GAS PLANT IN SERVICE	<u>\$ 12,879</u>	<u>\$ 27,603</u>	<u>\$ 0</u>	- Tab C-13, Schedule 47
45	(X-Ref - Tab C-13, Schedule 41)				
46	TOTAL PLANT ADDITIONS	<u>\$ 138,777</u>	<u>\$ 162,424</u>	<u>\$ 136,232</u>	
47					
48	Capital Vehicle Lease Opening Adjustment	-	26,103	-	- Tab C-13, Schedule 45
49					
50	TOTAL PLANT ADDITIONS and OPENING ADJUSTMENTS	<u>\$ 138,777</u>	<u>\$ 188,527</u>	<u>\$ 136,232</u>	
51					
52					
53	* Spending associated with the Gateway Project is expected to be fully recovered via a contribution in aid of construction.				

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Tab 13

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GAS PLANT IN SERVICE CONTINUITY SCHEDULE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars (1)	Balance 12/31/2009 (2)	CPCN'S (3)	2010 Additions (4)	2010 AFUDC (5)	Retirements (6)	Transfers/ Recovery (7)	Balance 12/31/2010 (8)	Mid-year GPIS for Depreciation (9)
1	<b>INTANGIBLE PLANT</b>								
2	117-00 Utility Plant Acquisition Adjustment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3	175-00 Unamortized Conversion Expense	109	-	-	-	-	-	109	109
4	175-00 Unamortized Conversion Expense - Squamish	777	-	-	-	-	-	777	777
5	178-00 Organization Expense	728	-	-	-	-	-	728	728
6	179-01 Other Deferred Charges	-	-	-	-	-	-	-	-
7	401-00 Franchise and Consents	99	-	-	-	-	-	99	99
8	402-00 Utility Plant Acquisition Adjustment	63	-	-	-	-	-	63	63
9	402-00 Other Intangible Plant	688	-	-	-	-	-	688	688
10	461-00 Land Rights - Transmission	43,782	-	121	-	-	-	43,903	43,843
11	461-10 Land Rights - Transmission - Byron Creek	16	-	-	-	-	-	16	16
12	471-00 Land Rights - Distribution	1,065	-	-	-	-	-	1,065	1,065
13	471-10 Land Rights - Distribution - Byron Creek	-	-	-	-	-	-	-	-
14	402-01 Application Software - 12.5%	55,628	-	11,604	66	(8,954)	-	58,344	56,986
15	402-02 Application Software - 20%	8,051	-	-	-	(1,847)	-	6,204	7,128
16	<b>TOTAL INTANGIBLE PLANT</b>	<b>111,006</b>	<b>-</b>	<b>11,725</b>	<b>66</b>	<b>(10,801)</b>	<b>-</b>	<b>111,996</b>	<b>111,501</b>
17									
18	<b>MANUFACTURED GAS / LOCAL STORAGE</b>								
19	430 Manufact'd Gas - Land	31	-	-	-	-	-	31	31
20	432 Manufact'd Gas - Struct. & Improvements	475	-	-	-	-	-	475	475
21	433 Manufact'd Gas - Equipment	425	-	425	-	-	-	850	638
22	434 Manufact'd Gas - Gas Holders	663	-	-	-	-	-	663	663
23	436 Manufact'd Gas - Compressor Equipment	53	-	-	-	-	-	53	53
24	437 Manufact'd Gas - Measuring & Regulating Equipment	309	-	-	-	-	-	309	309
25	440/441 Land in Fee Simple	928	-	-	-	-	-	928	928
26	442 Structures & Improvements	4,885	-	-	-	-	-	4,885	4,885
27	443 Gas Holders - Storage	16,655	-	519	4	-	-	17,178	16,917
28	446 Compressor Equipment	-	-	-	-	-	-	-	-
29	447 Measuring & Regulating Equipment	-	-	-	-	-	-	-	-
30	448 Purification Equipment	-	-	-	-	-	-	-	-
31	449 Local Storage Equipment	23,410	-	-	-	-	-	23,410	23,410
32	<b>TOTAL MANUFACTURED GAS / LOCAL STORAGE</b>	<b>47,834</b>	<b>-</b>	<b>944</b>	<b>4</b>	<b>-</b>	<b>-</b>	<b>48,782</b>	<b>48,308</b>
33									
34	<b>TRANSMISSION PLANT</b>								
35	460-00 Land in Fee Simple	7,408	-	-	-	-	-	7,408	7,408
36	462-00 Compressor Structures	14,690	-	-	-	-	-	14,690	14,690
37	463-00 Measuring Structures	4,949	-	-	-	-	-	4,949	4,949
38	464-00 Other Structures & Improvements	5,960	-	-	-	-	-	5,960	5,960
39	465-00 Mains	736,398	27,349	21,172	79	(1,063)	(1,985)	781,950	772,849 *
40	465-00 Mains - Inspection	-	-	1,505	6	-	1,985	3,496	1,748
41	465-10 Mains - Byron Creek	932	-	-	-	-	-	932	932
42	466-00 Compressor Equipment	111,042	-	1,769	7	-	-	112,818	111,930
43	466-00 Compressor Equipment - Overhaul	-	-	-	-	-	-	-	-
44	467-00 Measuring & Regulating Equipment	29,409	-	-	-	-	-	29,409	29,409
45	467-10 Telemetering	8,494	-	106	-	-	-	8,600	8,547
46	467-20 Measuring & Regulating Equipment - Byron Creek	39	-	-	-	-	-	39	39
47	468-00 Communication Structures & Equipment	346	-	-	-	-	-	346	346
48	469-00 Other Transmission Equipment	-	-	-	-	-	-	-	-
49	<b>TOTAL TRANSMISSION PLANT</b>	<b>919,667</b>	<b>27,349</b>	<b>24,552</b>	<b>92</b>	<b>(1,063)</b>	<b>-</b>	<b>970,597</b>	<b>958,807</b>

\* Adjusted for full year impact of 2009 Fraser River SBSA CPCN.

TERASEN GAS INC.

Nov 5, 2009 NSP Agreement

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Schedule 45

GAS PLANT IN SERVICE CONTINUITY SCHEDULE (Continued)  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars (1)	Balance 12/31/2009 (2)	CPCN'S (3)	2010 Additions (4)	2010 AFUDC (5)	Retirements (6)	Transfers/ Recovery (7)	Balance 12/31/2010 (8)	Mid-year GPIS for Depreciation (9)
1	<b>DISTRIBUTION PLANT</b>								
2	470-00 Land in Fee Simple	\$3,418	\$0	\$0	\$0	\$0	\$0	\$3,418	\$3,418
3	472-00 Structures & Improvements	14,697	-	-	-	-	-	14,697	14,697
4	472-10 Structures & Improvements - Byron Creek	107	-	-	-	-	-	107	107
5	473-00 Services	640,145	254	31,160	-	(7,790)	-	663,769	652,084 **
6	473-00 Services - LILO	43,229	-	-	-	-	-	43,229	43,229
7	474-00 House Regulators & Meter Installations	134,325	-	13,786	3	(11,032)	-	137,082	135,704
8	474-00 House Regulators & Meter Installations - LILO	16,070	-	-	-	-	-	16,070	16,070
9	475-00 Mains	844,063	-	21,883	31	(2,192)	-	863,785	853,924
10	475-00 Mains - LILO	39,704	-	-	-	-	-	39,704	39,704
11	476-00 Compressor Equipment	571	-	-	-	-	-	571	571
12	477-00 Measuring & Regulating Equipment	82,546	-	5,423	21	(817)	-	87,173	84,860
13	477-00 Telemetering	5,916	-	256	1	(13)	-	6,160	6,038
14	477-10 Measuring & Regulating Equipment - Byron Creek	163	-	-	-	-	-	163	163
15	478-10 Meters	184,767	-	9,883	-	(7,907)	-	186,743	185,755
16	478-11 Meters - LILO	10,027	-	-	-	-	-	10,027	10,027
17	478-20 Instruments	11,251	-	-	-	-	-	11,251	11,251
18	479-00 Other Distribution Equipment	-	-	-	-	-	-	-	-
19	<b>TOTAL DISTRIBUTION PLANT</b>	<b>2,030,999</b>	<b>254</b>	<b>82,391</b>	<b>56</b>	<b>(29,751)</b>	<b>-</b>	<b>2,083,949</b>	<b>2,057,601</b>
20									
21	<b>GENERAL PLANT &amp; EQUIPMENT</b>								
22	480-00 Land in Fee Simple	21,905	-	126	-	-	-	22,031	21,968
23	481-00 Land Rights	-	-	-	-	-	-	-	-
24	482-00 Structures & Improvements	-	-	-	-	-	-	-	-
25	- Frame Buildings	5,286	-	-	-	-	-	5,286	5,286
26	- Masonry Buildings	83,527	-	2,228	-	-	-	85,755	84,641
27	- Leasehold Improvement	473	-	167	1	-	-	641	557
28	Office Equipment & Furniture	-	-	-	-	-	-	-	-
29	483-30 GP Office Equipment	4,480	-	87	-	(90)	-	4,477	4,479
30	483-40 GP Furniture	19,730	-	509	1	(5)	-	20,235	19,983
31	483-10 GP Computer Hardware	18,220	-	4,489	10	(6,245)	-	16,474	17,347
32	483-20 GP Computer Software	853	-	-	-	(20)	-	833	843
33	483-21 GP Computer Software	-	-	-	-	-	-	-	-
34	484-00 Transportation Equipment	2,279	-	1,629	-	-	-	3,908	3,094
35	484-00 Vehicles - Leased	-	-	3,869	-	(2,321)	26,103	27,651	26,877
36	485-10 Heavy Work Equipment	209	-	-	-	-	-	209	209
37	485-20 Heavy Mobile Equipment	561	-	30	-	-	-	591	576
38	486-00 Small Tools & Equipment	32,177	-	1,137	-	-	-	33,314	32,746
39	487-00 Equipment on Customer's Premises	24	-	-	-	-	-	24	24
40	- VRA Compressor Installation Costs	-	-	-	-	-	-	-	-
41	488-00 Communications Equipment	-	-	-	-	-	-	-	-
42	- Telephone	11,239	-	504	-	(202)	-	11,541	11,390
43	- Radio	4,896	-	204	-	-	-	5,100	4,998
44	489-00 Other General Equipment	-	-	-	-	-	-	-	-
45	<b>TOTAL GENERAL PLANT</b>	<b>205,859</b>	<b>-</b>	<b>14,979</b>	<b>12</b>	<b>(8,883)</b>	<b>26,103</b>	<b>238,070</b>	<b>235,016</b>
46									
47	<b>UNCLASSIFIED PLANT</b>								
48	499 Plant Suspense	-	-	-	-	-	-	-	-
49	<b>TOTAL UNCLASSIFIED PLANT</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
50									
51									
52									
53									
54	<b>TOTAL CAPITAL</b>	<b>\$3,315,365</b>	<b>\$27,603</b>	<b>\$134,591</b>	<b>\$230</b>	<b>(\$50,498)</b>	<b>\$26,103</b>	<b>\$3,453,394</b>	<b>\$3,411,233</b>
55		(X-Ref - Tab C-13, Schedule 8)	(X-Ref - Tab C-13, Schedule 43)					(X-Ref - Tab C-13, Schedule 49)	
56	** Adjusted for full year impact of 2009 Vancouver LP Replacement CPCN.							(X-Ref - Tab C-13, Schedule 8)	



TERASEN GAS INC.

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Schedule 46

GAS PLANT IN SERVICE CONTINUITY SCHEDULE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	B.C.U.C. Account (1)	Balance 12/31/2010 (2)	CPCN'S (3)	2011 Additions (4)	2011 AFUDC (5)	Retirements (6)	Transfers/ Recovery (7)	Balance 12/31/2011 (8)	Mid-year GPIS for Depreciation (9)
1	<b>INTANGIBLE PLANT</b>								
2	117-00 Utility Plant Acquisition Adjustment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3	175-00 Unamortized Conversion Expense	109	-	-	-	-	-	109	109
4	175-00 Unamortized Conversion Expense - Squamish	777	-	-	-	-	-	777	777
5	178-00 Organization Expense	728	-	-	-	-	-	728	728
6	179-01 Other Deferred Charges	-	-	-	-	-	-	-	-
7	401-00 Franchise and Consents	99	-	-	-	-	-	99	99
8	402-00 Utility Plant Acquisition Adjustment	63	-	-	-	-	-	63	63
9	402-00 Other Intangible Plant	688	-	-	-	-	-	688	688
10	461-00 Land Rights - Transmission	43,903	-	124	-	-	-	44,027	43,965
11	461-10 Land Rights - Transmission - Byron Creek	16	-	-	-	-	-	16	16
12	471-00 Land Rights - Distribution	1,065	-	-	-	-	-	1,065	1,065
13	471-10 Land Rights - Distribution - Byron Creek	-	-	-	-	-	-	-	-
14	402-01 Application Software - 12.5%	58,344	-	11,000	66	(10,840)	-	58,570	58,457
15	402-02 Application Software - 20%	6,204	-	-	-	(1,147)	-	5,057	5,631
16	TOTAL INTANGIBLE PLANT	111,996	-	11,124	66	(11,987)	-	111,199	111,598
17									
18	<b>MANUFACTURED GAS / LOCAL STORAGE</b>								
19	430 Manufact'd Gas - Land	31	-	-	-	-	-	31	31
20	432 Manufact'd Gas - Struct. & Improvements	475	-	-	-	-	-	475	475
21	433 Manufact'd Gas - Equipment	850	-	-	-	-	-	850	850
22	434 Manufact'd Gas - Gas Holders	663	-	-	-	-	-	663	663
23	436 Manufact'd Gas - Compressor Equipment	53	-	-	-	-	-	53	53
24	437 Manufact'd Gas - Measuring & Regulating Equipment	309	-	-	-	-	-	309	309
25	440/441 Land in Fee Simple	928	-	-	-	-	-	928	928
26	442 Structures & Improvements	4,885	-	-	-	-	-	4,885	4,885
27	443 Gas Holders - Storage	17,178	-	1,894	17	-	-	19,089	18,134
28	446 Compressor Equipment	-	-	-	-	-	-	-	-
29	447 Measuring & Regulating Equipment	-	-	-	-	-	-	-	-
30	448 Purification Equipment	-	-	-	-	-	-	-	-
31	449 Local Storage Equipment	23,410	-	-	-	-	-	23,410	23,410
32	TOTAL MANUFACTURED GAS / LOCAL STORAGE	48,782	-	1,894	17	-	-	50,693	49,738
33									
34	<b>TRANSMISSION PLANT</b>								
35	460-00 Land in Fee Simple	7,408	-	-	-	-	-	7,408	7,408
36	462-00 Compressor Structures	14,690	-	-	-	-	-	14,690	14,690
37	463-00 Measuring Structures	4,949	-	-	-	-	-	4,949	4,949
38	464-00 Other Structures & Improvements	5,960	-	-	-	-	-	5,960	5,960
39	465-00 Mains	781,950	-	18,761	78	(942)	-	799,847	790,899
40	465-00 Mains - Inspection	3,496	-	444	2	-	-	3,942	3,719
41	465-10 Mains - Byron Creek	932	-	-	-	-	-	932	932
42	466-00 Compressor Equipment	112,818	-	1,851	8	-	-	114,677	113,748
43	466-00 Compressor Equipment - Overhaul	-	-	-	-	-	-	-	-
44	467-00 Measuring & Regulating Equipment	29,409	-	-	-	-	-	29,409	29,409
45	467-10 Telemetry	8,600	-	71	-	-	-	8,671	8,636
46	467-20 Measuring & Regulating Equipment - Byron Creek	39	-	-	-	-	-	39	39
47	468-00 Communication Structures & Equipment	346	-	-	-	-	-	346	346
48	469-00 Other Transmission Equipment	-	-	-	-	-	-	-	-
49	TOTAL TRANSMISSION PLANT	970,597	-	21,127	88	(942)	-	990,870	980,734

TERASEN GAS INC.

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Schedule 47

GAS PLANT IN SERVICE CONTINUITY SCHEDULE (Continued)  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	B.C.U.C. Account (1)	Balance 12/31/2010 (2)	CPCN'S (3)	2011 Additions (4)	2011 AFUDC (5)	Retirements (6)	Transfers/ Recovery (7)	Balance 12/31/2011 (8)	Mid-year GPIS for Depreciation (9)
1	<b>DISTRIBUTION PLANT</b>								
2	470-00 Land in Fee Simple	\$3,418	\$0	\$0	\$0	\$0	\$0	\$3,418	\$3,418
3	472-00 Structures & Improvements	14,697	-	-	-	-	-	14,697	14,697
4	472-10 Structures & Improvements - Byron Creek	107	-	-	-	-	-	107	107
5	473-00 Services	663,769	-	33,776	-	(8,444)	-	689,101	676,435
6	473-00 Services - LILO	43,229	-	-	-	-	-	43,229	43,229
7	474-00 House Regulators & Meter Installations	137,082	-	14,821	3	(11,859)	-	140,047	138,565
8	474-00 House Regulators & Meter Installations - LILO	16,070	-	-	-	-	-	16,070	16,070
9	475-00 Mains	863,785	-	22,408	31	(2,244)	-	883,980	873,883
10	475-00 Mains - LILO	39,704	-	-	-	-	-	39,704	39,704
11	476-00 Compressor Equipment	571	-	-	-	-	-	571	571
12	477-00 Measuring & Regulating Equipment	87,173	-	5,560	24	(838)	-	91,919	89,546
13	477-00 Telemetry	6,160	-	258	1	(13)	-	6,406	6,283
14	477-10 Measuring & Regulating Equipment - Byron Creek	163	-	-	-	-	-	163	163
15	478-10 Meters	186,743	-	10,391	-	(8,313)	-	188,821	187,782
16	478-11 Meters - LILO	10,027	-	-	-	-	-	10,027	10,027
17	478-20 Instruments	11,251	-	-	-	-	-	11,251	11,251
18	479-00 Other Distribution Equipment	-	-	-	-	-	-	-	-
19	TOTAL DISTRIBUTION PLANT	2,083,949	-	87,214	59	(31,711)	-	2,139,511	2,111,730
20									
21	<b>GENERAL PLANT &amp; EQUIPMENT</b>								
22	480-00 Land in Fee Simple	22,031	-	129	-	-	-	22,160	22,096
23	481-00 Land Rights	-	-	-	-	-	-	-	-
24	482-00 Structures & Improvements	-	-	-	-	-	-	-	-
25	- Frame Buildings	5,286	-	-	-	-	-	5,286	5,286
26	- Masonry Buildings	85,755	-	2,869	-	-	-	88,624	87,190
27	- Leasehold Improvement	641	-	51	-	-	-	692	667
28	Office Equipment & Furniture	-	-	-	-	-	-	-	-
29	483-30 GP Office Equipment	4,477	-	60	-	(991)	-	3,546	4,012
30	483-40 GP Furniture	20,235	-	418	1	(1,230)	-	19,424	19,830
31	483-10 GP Computer Hardware	16,474	-	5,000	10	-	-	21,484	18,979
32	483-20 GP Computer Software	833	-	-	-	(198)	-	635	734
33	483-21 GP Computer Software	-	-	-	-	-	-	-	-
34	484-00 Transportation Equipment	3,908	-	1,607	-	-	-	5,515	4,712
35	484-00 Vehicles - Leased	27,651	-	2,735	-	(1,641)	-	28,745	28,198
36	485-10 Heavy Work Equipment	209	-	-	-	-	-	209	209
37	485-20 Heavy Mobile Equipment	591	-	30	-	-	-	621	606
38	486-00 Small Tools & Equipment	33,314	-	1,105	-	-	-	34,419	33,867
39	487-00 Equipment on Customer's Premises	24	-	-	-	-	-	24	24
40	- VRA Compressor Installation Costs	-	-	-	-	-	-	-	-
41	488-00 Communications Equipment	-	-	-	-	-	-	-	-
42	- Telephone	11,541	-	464	-	(1,596)	-	10,409	10,975
43	- Radio	5,100	-	166	-	(954)	-	4,312	4,706
44	489-00 Other General Equipment	-	-	-	-	-	-	-	-
45	TOTAL GENERAL PLANT	238,070	-	14,634	11	(6,610)	-	246,105	242,088
46									
47	<b>UNCLASSIFIED PLANT</b>								
48	499 Plant Suspense	-	-	-	-	-	-	-	-
49	TOTAL UNCLASSIFIED PLANT	-	-	-	-	-	-	-	-
50									
51									
52									
53									
54	TOTAL CAPITAL	\$3,453,394	\$0	\$135,993	\$241	(\$51,250)	\$0	\$3,538,378	\$3,495,886
55	(X-Ref - Tab C-13, Schedule 9)		(X-Ref - Tab C-13, Schedule 43)				(X-Ref - Tab C-13, Schedule 51)		(X-Ref - Tab C-13, Schedule 9)

\* Adjusted for full year impact of 2009 Fraser River SBSA CPCN.

TERASEN GAS INC.

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Schedule 49

DEPRECIATION AND AMORTIZATION CONTINUITY SCHEDULE (Continued)  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Account	Mid-year GPIS for Depreciation (2)	Annual Depreciation Rate % (3)	Provision				Accumulated	
				2010 (Cr.) (4)	Adjustments (5)	Retirements (6)	Retirement Costs (7)	12/31/2009 (8)	12/31/2010 (9)
1	<b>DISTRIBUTION PLANT</b>								
2	470-00 Land in Fee Simple	\$3,418	0.00%	\$0	\$0	\$0	\$0	\$30	\$30
3	472-00 Structures & Improvements	14,697	3.60%	529	-	-	-	3,231	3,760
4	472-10 Structures & Improvements - Byron Creek	107	5.00%	5	-	-	-	16	21
5	473-00 Services	652,084 **	2.25%	14,672	-	(7,790)	-	78,219	85,101
6	473-00 Services - LILO	43,229	2.20%	951	-	-	-	16,079	17,030
7	474-00 House Regulators & Meter Installations	135,704	5.21%	7,070	-	(11,032)	-	(2,418)	(6,380)
8	474-00 House Regulators & Meter Installations - LILO	16,070	2.19%	352	-	-	-	8,272	8,624
9	475-00 Mains	853,924	1.89%	16,139	-	(2,192)	-	235,807	249,754
10	475-00 Mains - LILO	39,704	2.00%	794	-	-	-	15,605	16,399
11	476-00 Compressor Equipment	571	25.04%	143	-	-	-	403	546
12	477-00 Measuring & Regulating Equipment	84,860	5.72%	4,854	-	(817)	-	12,756	16,793
13	477-00 Telemetry	6,038	0.25%	15	-	(13)	-	6,386	6,388
14	477-10 Measuring & Regulating Equipment - Byron Creek	163	0.00%	-	-	-	-	200	200
15	478-10 Meters	185,755	5.31%	9,864	-	(7,907)	-	38,504	40,461
16	478-11 Meters - LILO	10,027	3.29%	330	-	-	-	4,067	4,397
17	478-20 Instruments	11,251	4.03%	453	-	-	-	2,815	3,268
18	479-00 Other Distribution Equipment	-	0.00%	-	-	-	-	-	-
19		<u>2,057,601</u>		<u>56,171</u>	<u>-</u>	<u>(29,751)</u>	<u>-</u>	<u>419,972</u>	<u>446,392</u>
20									
21	<b>GENERAL PLANT &amp; EQUIPMENT</b>								
22	480-00 Land in Fee Simple	21,968	0.00%	-	-	-	-	13	13
23	481-00 Land Rights	-	0.00%	-	-	-	-	-	-
24	482-00 Structures & Improvements	-	0.00%	-	-	-	-	-	-
25	- Frame Buildings	5,286	3.67%	194	4,633	-	-	(3,059)	1,768
26	- Masonry Buildings	84,641	2.50%	2,116	1,048	-	-	7,996	11,160
27	- Leasehold Improvement	557	10.00%	56	218	-	-	88	362
28	Office Equipment & Furniture	-	0.00%	-	-	-	-	-	-
29	483-30 GP Office Equipment	4,479	6.67%	299	726	(90)	-	1,937	2,872
30	483-40 GP Furniture	19,983	5.00%	999	(824)	(5)	-	12,176	12,346
31	483-10 GP Computer Hardware	17,347	20.00%	3,469	(7,882)	(6,245)	-	17,871	7,213
32	483-20 GP Computer Software	843	20.00%	169	-	(20)	-	445	594
33	483-21 GP Computer Software	-	0.00%	-	-	-	-	-	-
34	484-00 Transportation Equipment	3,094	7.70%	238	(2,099)	-	-	2,832	971
35	484-00 Vehicles - Leased	26,877	Lease Term	2,464	14,066	(2,321)	-	-	14,209
36	485-10 Heavy Work Equipment	209	6.64%	14	39	-	-	73	126
37	485-20 Heavy Mobile Equipment	576	8.48%	49	424	-	-	(332)	141
38	486-00 Small Tools & Equipment	32,746	5.00%	1,637	570	-	-	14,380	16,587
39	487-00 Equipment on Customer's Premises	24	6.67%	2	-	-	-	6	8
40	- VRA Compressor Installation Costs	-	0.00%	-	-	-	-	-	-
41	488-00 Communications Equipment	-	0.00%	-	-	-	-	-	-
42	- Telephone	11,390	6.67%	760	506	(202)	-	5,647	6,711
43	- Radio	4,998	6.67%	333	(696)	-	-	2,527	2,164
44	489-00 Other General Equipment	-	0.00%	-	-	-	-	-	-
45	<b>TOTAL GENERAL PLANT</b>	<u>235,016</u>		<u>12,799</u>	<u>10,729</u>	<u>(8,883)</u>	<u>-</u>	<u>62,600</u>	<u>77,245</u>
46									
47	<b>UNCLASSIFIED PLANT</b>								
48	499 Plant Suspense	-	0.00%	-	-	-	-	(7)	(7)
49	<b>TOTAL UNCLASSIFIED PLANT</b>	<u>-</u>		<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>(7)</u>	<u>(7)</u>
50									
51	<b>TOTALS</b>	<u>\$3,411,233</u>		<u>\$99,224</u>	<u>\$6,465</u>	<u>(\$50,498)</u>	<u>\$0</u>	<u>\$780,174</u>	<u>\$835,365</u>
52	(X-Ref - Tab C-13, Schedule 45)						(X-Ref - Tab C-13, Schedule 8)		
53	Less: Capital Lease Vehicle Depreciation allocated to Capital Projects			(912)					
54									
55	<b>Net Depreciation Expense</b>			<u>\$98,312</u>					
56	(X-Ref - Tab C-13, Schedule 33)								
57	** Adjusted for full year impact of 2009 Vancouver LP Replacement CPCN.								

TERASEN GAS INC.

Nov 5, 2009 NSP Agreement

Section C

Tab 13

Schedule 50

DEPRECIATION AND AMORTIZATION CONTINUITY SCHEDULE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Account	Mid-year GPIS for Depreciation	Annual Depreciation Rate %	Provision				Accumulated	
				2011 (Cr.)	Adjustments	Retirements	Retirement Costs	12/31/2010	12/31/2011
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	<b>INTANGIBLE PLANT</b>								
2	117-00 Utility Plant Acquisition Adjustment	\$0	1.00%	\$0	\$0	\$0	\$0	\$0	\$0
3	175-00 Unamortized Conversion Expense	109	1.00%	1	-	-	-	366	367
4	175-00 Unamortized Conversion Expense - Squamish	777	10.00%	78	-	-	-	234	312
5	178-00 Organization Expense	728	1.00%	7	-	-	-	376	383
6	179-01 Other Deferred Charges	-	0.00%	-	-	-	-	-	-
7	401-00 Franchise and Consents	99	19.76%	20	-	-	-	69	89
8	402-00 Utility Plant Acquisition Adjustment	63	23.66%	15	-	-	-	42	57
9	402-00 Other Intangible Plant	688	2.14%	15	-	-	-	166	181
10	461-00 Land Rights - Transmission	43,965	0.00%	-	-	-	-	651	651
11	461-10 Land Rights - Transmission - Byron Creek	16	0.00%	-	-	-	\$0	\$19	19
12	471-00 Land Rights - Distribution	1,065	0.00%	-	-	-	-	2	2
13	471-10 Land Rights - Distribution - Byron Creek	-	0.00%	-	-	-	-	1	1
14	402-01 Application Software - 12.5%	58,457	12.50%	7,307	-	(10,840)	-	25,102	21,569
15	402-02 Application Software - 20%	5,631	20.00%	1,126	-	(1,147)	-	3,739	3,718
16	TOTAL INTANGIBLE PLANT	111,598		8,569	-	(11,987)	-	30,767	27,349
17									
18	<b>MANUFACTURED GAS / LOCAL STORAGE</b>								
19	430 Manufact'd Gas - Land	31	0.00%	-	-	-	-	-	-
20	432 Manufact'd Gas - Struct. & Improvements	475	3.28%	16	-	-	-	105	121
21	433 Manufact'd Gas - Equipment	850	6.30%	54	-	-	-	91	145
22	434 Manufact'd Gas - Gas Holders	663	3.90%	26	-	-	-	199	225
23	436 Manufact'd Gas - Compressor Equipment	53	4.96%	3	-	-	-	27	30
24	437 Manufact'd Gas - Measuring & Regulating Equipment	309	19.50%	60	-	-	-	212	272
25	440/441 Land in Fee Simple and Land Rights	928	0.00%	-	-	-	-	1	1
26	442 Structures & Improvements	4,885	3.65%	178	-	-	-	2,430	2,608
27	443 Gas Holders - Storage	18,134	2.18%	395	-	-	-	10,053	10,448
28	446 Compressor Equipment	-	0.00%	-	-	-	-	-	-
29	447 Measuring & Regulating Equipment	-	0.00%	-	-	-	-	-	-
30	448 Purification Equipment	-	0.00%	-	-	-	-	-	-
31	449 Local Storage Equipment	23,410	3.36%	787	-	-	-	9,123	9,910
32	TOTAL MANUFACTURED GAS / LOCAL STORAGE	49,738		1,519	-	-	-	22,241	23,760
33									
34	<b>TRANSMISSION PLANT</b>								
35	460-00 Land in Fee Simple	7,408	0.00%	-	-	-	-	401	401
36	462-00 Compressor Structures	14,690	3.84%	564	-	-	-	5,828	6,392
37	463-00 Measuring Structures	4,949	4.27%	211	-	-	-	1,525	1,736
38	464-00 Other Structures & Improvements	5,960	2.88%	172	-	-	-	1,537	1,709
39	465-00 Mains	790,899	1.63%	12,892	-	(942)	-	194,389	206,339
40	465-00 Mains - INSPECTION	3,719	Term	553	-	-	-	691	1,244
41	465-10 Mains - Byron Creek	932	5.00%	47	-	-	-	841	888
42	466-00 Compressor Equipment	113,748	3.18%	3,617	-	-	-	38,633	42,250
43	466-00 Compressor Equipment - OVERHAUL	-	Term	-	-	-	-	-	-
44	467-00 Measuring & Regulating Equipment	29,409	7.19%	2,115	-	-	-	8,381	10,496
45	467-10 Telemetering	8,636	1.33%	115	-	-	-	6,197	6,312
46	467-20 Measuring & Regulating Equipment - Byron Cr	39	4.01%	2	-	-	-	9	11
47	468-00 Communication Structures & Equipment	346	5.32%	18	-	-	-	295	313
48	469-00 Other Transmission Equipment	-	0.00%	-	-	-	-	-	-
49	TOTAL TRANSMISSION PLANT	980,734		20,306	-	(942)	-	258,727	278,091

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Tab 13

Schedule 51

DEPRECIATION AND AMORTIZATION CONTINUITY SCHEDULE (Continued)  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Account	Mid-year GPIS for Depreciation (2)	Annual Depreciation Rate % (3)	Provision				Accumulated	
				2011 (Cr.) (4)	Adjustments (5)	Retirements (6)	Retirement Costs (7)	12/31/2010 (8)	12/31/2011 (9)
1	<b>DISTRIBUTION PLANT</b>								
2	470-00 Land in Fee Simple	\$3,418	0.00%	\$0	\$0	\$0	\$0	\$30	\$30
3	472-00 Structures & Improvements	14,697	3.60%	529	-	-	-	3,760	4,289
4	472-10 Structures & Improvements - Byron Creek	107	5.00%	5	-	-	-	21	26
5	473-00 Services	676,435	2.25%	15,220	-	(8,444)	-	85,101	91,877
6	473-00 Services - LILO	43,229	2.20%	951	-	-	-	17,030	17,981
7	474-00 House Regulators & Meter Installations	138,565	5.21%	7,219	-	(11,859)	-	(6,380)	(11,020)
8	474-00 House Regulators & Meter Installations - LILO	16,070	2.19%	352	-	-	-	8,624	8,976
9	475-00 Mains	873,883	1.89%	16,516	-	(2,244)	-	249,754	264,026
10	475-00 Mains - LILO	39,704	2.00%	794	-	-	-	16,399	17,193
11	476-00 Compressor Equipment	571	25.04%	143	-	-	-	546	689
12	477-00 Measuring & Regulating Equipment	89,546	5.72%	5,122	-	(838)	-	16,793	21,077
13	477-00 Telemetering	6,283	0.25%	16	-	(13)	-	6,388	6,391
14	477-10 Measuring & Regulating Equipment - Byron Creek	163	0.00%	-	-	-	-	200	200
15	478-10 Meters	187,782	5.31%	9,971	-	(8,313)	-	40,461	42,119
16	478-11 Meters - LILO	10,027	3.29%	330	-	-	-	4,397	4,727
17	478-20 Instruments	11,251	4.03%	453	-	-	-	3,268	3,721
18	479-00 Other Distribution Equipment	-	0.00%	-	-	-	-	-	-
19		<u>2,111,730</u>		<u>57,621</u>	<u>-</u>	<u>(31,711)</u>	<u>-</u>	<u>446,392</u>	<u>472,302</u>
20									
21	<b>GENERAL PLANT &amp; EQUIPMENT</b>								
22	480-00 Land in Fee Simple	22,096	0.00%	-	-	-	-	13	13
23	481-00 Land Rights	-	0.00%	-	-	-	-	-	-
24	482-00 Structures & Improvements	-	0.00%	-	-	-	-	-	-
25	- Frame Buildings	5,286	3.67%	194	-	-	-	1,768	1,962
26	- Masonry Buildings	87,190	2.50%	2,180	-	-	-	11,160	13,340
27	- Leasehold Improvement	667	10.00%	67	-	-	-	362	429
28	Office Equipment & Furniture	-	0.00%	-	-	-	-	-	-
29	483-30 GP Office Equipment	4,012	6.67%	268	-	(991)	-	2,872	2,149
30	483-40 GP Furniture	19,830	5.00%	991	-	(1,230)	-	12,346	12,107
31	483-10 GP Computer Hardware	18,979	20.00%	3,796	-	-	-	7,213	11,009
32	483-20 GP Computer Software	734	20.00%	147	-	(198)	-	594	543
33	483-21 GP Computer Software	-	0.00%	-	-	-	-	-	-
34	484-00 Transportation Equipment	4,712	7.70%	363	-	-	-	971	1,334
35	484-00 Vehicles - Leased	28,198	Lease Term	2,709	-	(1,641)	-	14,209	15,277
36	485-10 Heavy Work Equipment	209	6.64%	14	-	-	-	126	140
37	485-20 Heavy Mobile Equipment	606	8.48%	51	-	-	-	141	192
38	486-00 Small Tools & Equipment	33,867	5.00%	1,693	-	-	-	16,587	18,280
39	487-00 Equipment on Customer's Premises	24	6.67%	2	-	-	-	8	10
40	- VRA Compressor Installation Costs	-	0.00%	-	-	-	-	-	-
41	488-00 Communications Equipment	-	0.00%	-	-	-	-	-	-
42	- Telephone	10,975	6.67%	732	-	(1,596)	-	6,711	5,847
43	- Radio	4,706	6.67%	314	-	(954)	-	2,164	1,524
44	489-00 Other General Equipment	-	0.00%	-	-	-	-	-	-
45	<b>TOTAL GENERAL PLANT</b>	<u>242,088</u>		<u>13,521</u>	<u>-</u>	<u>(6,610)</u>	<u>-</u>	<u>77,245</u>	<u>84,156</u>
46									
47	<b>UNCLASSIFIED PLANT</b>								
48	499 Plant Suspense	-	0.00%	-	-	-	-	(7)	(7)
49	<b>TOTAL UNCLASSIFIED PLANT</b>	<u>-</u>		<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>(7)</u>	<u>(7)</u>
50									
51	<b>TOTALS</b>	<u>\$3,495,886</u>		<u>\$101,536</u>	<u>\$0</u>	<u>(\$51,250)</u>	<u>\$0</u>	<u>\$835,365</u>	<u>\$885,651</u>
52		(X-Ref - Tab C-13, Schedule 47)					(X-Ref - Tab C-13, Schedule 9)		
53	Less: Capital Lease Vehicle Depreciation allocated to Capital Projects			(1,002)					
54									
55	<b>Net Depreciation Expense</b>			<u>\$100,534</u>					
56				(X-Ref - Tab C-13, Schedule 34)					

TERASEN GAS INC.

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Section C

Tab 13

Schedule 52

CONTRIBUTIONS IN AID OF CONSTRUCTION  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars	Balance 12/31/2009	Adjustment	2010		Balance 12/31/2010	Reference
	(1)	(2)	(3)	Additions	Retirements	(6)	(7)
1	<b>CIAC</b>						
2							
3	Distribution Contributions	\$141,389	\$0	\$6,424	\$0	\$147,813	
4							
5	Transmission Contributions	10,915	-	4,550	-	15,465	
6							
7	Others	-	-	-	-	-	
8							
9	Software Tax Savings - Non-Infrastructure	-	-	-	-	-	
10	- Infrastructure/Custom	24,541	-	-	(3,934)	20,607	
11							
12	TOTAL Contributions	176,845	-	10,974	(3,934)	183,885	(X-Ref - Tab C-13, Schedule 8)
13							(X-Ref - Tab C-13, Schedule 41)
14							
15							
16	<b>Amortization</b>						
17							
18	Distribution Contributions	(32,291)	-	(3,765)	-	(36,056)	
19							
20	Transmission Contributions	-	-	(263)	-	(263)	
21							
22	Others	(1)	-	-	-	(1)	
23							
24	Software Tax Savings - Non-Infrastructure	-	-	-	-	-	
25	- Infrastructure/Custom	(11,854)	-	(2,822)	3,934	(10,742)	
26							
27	TOTAL Amortization	(44,146)	-	(6,850)	3,934	(47,062)	(X-Ref - Tab C-13, Schedule 8)
28							(X-Ref - Tab C-13, Schedule 41)
29	<b>NET CONTRIBUTIONS</b>	<u>\$132,699</u>	<u>\$0</u>	<u>\$4,124</u>	<u>\$0</u>	<u>\$136,823</u>	

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Schedule 53

CONTRIBUTIONS IN AID OF CONSTRUCTION  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars	Balance 12/31/2010	Adjustment	2011		Balance 12/31/2011	Reference
	(1)	(2)	(3)	Additions	Retirements	(6)	(7)
1	<b>CIAC</b>						
2							
3	Distribution Contributions	\$147,813	\$0	\$6,029	\$0	\$153,842	
4							
5	Transmission Contributions	15,465	-	8,333	-	23,798	
6							
7	Others	-	-	-	-	-	
8							
9	Software Tax Savings - Non-Infrastructure	-	-	-	-	-	
10	- Infrastructure/Custom	20,607	-	-	(3,494)	17,113	
11							
12	TOTAL Contributions	183,885	-	14,362	(3,494)	194,753	(X-Ref - Tab C-13, Schedule 9)
13							(X-Ref - Tab C-13, Schedule 42)
14							
15							
16	<b>Amortization</b>						
17							
18	Distribution Contributions	(36,056)	-	(3,928)	-	(39,984)	
19							
20	Transmission Contributions	(263)	-	(391)	-	(654)	
21							
22	Others	(1)	-	-	-	(1)	
23							
24	Software Tax Savings - Non-Infrastructure	-	-	-	-	-	
25	- Infrastructure/Custom	(10,742)	-	(2,358)	3,494	(9,606)	
26							
27	TOTAL Amortization	(47,062)	-	(6,677)	3,494	(50,245)	(X-Ref - Tab C-13, Schedule 9)
28							(X-Ref - Tab C-13, Schedule 42)
29	<b>NET CONTRIBUTIONS</b>	<u>\$136,823</u>	<u>\$0</u>	<u>\$7,685</u>	<u>\$0</u>	<u>\$144,508</u>	



UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION  
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Line No.	Particulars	Forecast Balance 12/31/2009	Opening Balance Adjustment	Gross Additions	Less-Taxes	Net Additions	Amortization Expense	Recoveries Rider	Tax on Rider	Balance 12/31/2010	Mid-Year Average 2010
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	<u>Margin Related</u>										
2	Commodity Cost Reconciliation Account (CCRA)	(\$22,742.7)	\$0.0	\$31,808.0	(\$9,065.3)	\$22,742.7	\$0.0	\$0.0	\$0.0	\$0.0	(\$11,371.4)
3	CCRA Interest	(895.9)		1,253.0	(357.1)	895.9	-	-	-	(0.0)	(448.0)
4	Midstream Cost Reconciliation Account (MCRA)	36,423.3		(50,941.7)	14,518.4	(36,423.3)	-	-	-	(0.0)	18,211.7
5	MCRA Interest	(1,779.2)		2,488.4	(709.2)	1,779.2	-	-	-	-	(889.6)
6	Revenue Stabilization Adjustment Mechanism (RSAM)	(13,165.6)		-	-	-	-	6,137.8	(1,749.3)	(8,777.1)	(10,971.4)
7	RSAM Interest	(38.4)		(5.3)	1.5	(3.8)	-	18.3	(5.2)	(29.1)	(33.8)
8	Revelstoke Propane Cost Deferral Account	(38.8)		54.3	(15.5)	38.8	-	-	-	(0.0)	(19.4)
9	SCP Mitigation Revenues Variance Account	(4,118.1)	(1,538.2)	-	-	-	1,723.2	-	-	(3,933.1)	(4,794.7)
10	SCP West to East Transmission	(1,538.2)	1,538.2	-	-	-	-	-	-	-	-
11											
12	<u>Energy Policy Related</u>										
13	Energy Efficiency & Conservation (EEC)	6,370.2		25,845.0	(7,365.8)	18,479.2	(1,012.0)	-	-	23,837.4	15,103.8
14	NGV Conversion Grants	136.9		77.5	(22.1)	55.4	(43.5)	-	-	148.8	142.9
15											
16	<u>Non-Controllable Items</u>										
17	Property Tax Deferral	(743.8)		-	-	-	398.1	-	-	(345.7)	(544.8)
18	Insurance Variance	(686.0)		-	-	-	686.0	-	-	-	(343.0)
19	Pension & OPEB Variance	(686.4)		-	-	-	686.4	-	-	-	(343.2)
20	BCUC Levies Variance	(262.0)		-	-	-	262.0	-	-	-	(131.0)
21	Interest Variance	(2,232.2)		-	-	-	633.9	-	-	(1,598.3)	(1,915.3)
22	Interest Variance - Funding benefits via Customer Deposits	214.2		-	-	-	(13.1)	-	-	201.1	207.7
23	Income Tax Rate Variance	(615.9)		-	-	-	205.3	-	-	(410.6)	(513.3)
24	Olympics Security Costs Deferral	522.8		2,651.6	(755.7)	1,895.9	-	-	-	2,418.7	1,470.8
25	IFRS Conversion Costs	399.5		265.3	(75.6)	189.7	-	-	-	589.2	494.4
26											
27	<u>Cost of Current Applications</u>										
28	2009 ROE & Cost of Capital Application	\$441.0		\$0.0	\$0.0	\$0.0	(\$88.2)	\$0.0	\$0.0	\$352.8	\$396.9
29	2010-2011 Revenue Requirement Application	795.2		-	-	-	(397.6)	-	-	397.6	596.4
30	CCE CPCN Application	189.0		-	-	-	(37.8)	-	-	151.2	170.1
31											
32	<u>Other</u>										
33	IFRS Transitional Adjustments	-		(7,602.7)	-	(7,602.7)	-	-	-	(7,602.7)	(7,602.7)
34	OPEB Funding	(32,551.8)	32,551.8	-	-	-	-	-	-	-	(16,275.9)
35	Pension & OPEB Funding	-	(32,551.8)	20,476.7	-	20,476.7	-	-	-	(12,075.1)	(6,037.6)
36	2010 Revenue Surplus Deferral Account	-		(6,537.0)	-	(6,537.0)	-	-	-	(6,537.0)	(3,268.5)
37											
38	<u>Residual Deferred Charges</u>										
39	SCP Tax Reassessment	7,408.3		-	-	-	-	-	-	7,408.3	7,408.3
40	Deferred Service Line Installation Fee	1,442.9		(1,442.9)	-	(1,442.9)	-	-	-	-	-
41	Earnings Sharing Mechanism	(13,123.6)		3,372.0	(961.0)	2,411.0	-	6,168.7	(1,758.1)	(6,302.0)	(9,712.8)
42	CCT Assessment	(2.5)		-	-	-	2.5	-	-	-	(1.3)
43	Carbon Tax Implementation	(95.0)		-	-	-	95.0	-	-	-	(47.5)
44	TGS Amalgamation	132.0		-	-	-	(132.0)	-	-	-	66.0
45	TGS O&M Variance	352.0		-	-	-	(352.0)	-	-	-	176.0
46	Carbon Tax Cost of Service	(44.0)		-	-	-	44.0	-	-	(0.0)	(22.0)
47	OSC Certification Compliance	91.1		-	-	-	(91.1)	-	-	-	45.6
48	Bad Debt Allowance for Rates 14 & 14A	(140.2)	140.2	-	-	-	-	-	-	-	-
49											
50	Total Deferred Charges for Rate Base	(\$40,581.9)	\$140.2	\$21,762.2	(\$4,807.4)	\$16,954.8	\$2,569.1	\$12,324.8	(\$3,512.6)	(\$12,105.6)	(\$30,796.6)

(X-Ref - Tab C-13, Schedule 33)

(X-Ref - Tab C-13, Schedule 8)

UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION  
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Line No.	Particulars	Forecast Balance 12/31/2010	Gross Additions	Less-Taxes	Net Additions	Amortization Expense	Recoveries		Balance 12/31/2011	Mid-Year Average 2011
	(1)	(2)	(3)	(4)	(5)	(6)	Rider	Tax on Rider	(9)	(10)
1	<u>Margin Related</u>									
2	Commodity Cost Reconciliation Account (CCRA)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
3	CCRA Interest	(0.0)	-	-	-	-	-	-	(0.0)	-
4	Midstream Cost Reconciliation Account (MCRA)	(0.0)	-	-	-	-	-	-	(0.0)	-
5	MCRA Interest	-	-	-	-	-	-	-	-	-
6	Revenue Stabilization Adjustment Mechanism (RSAM)	(8,777.1)	-	-	-	-	5,970.8	(1,582.3)	(4,388.6)	(6,582.9)
7	RSAM Interest	(29.1)	199.0	(52.7)	146.3	-	19.3	(5.1)	131.4	51.2
8	Revelstoke Propane Cost Deferral Account	(0.0)	-	-	-	-	-	-	(0.0)	-
9	SCP Mitigation Revenues Variance Account	(3,933.1)	-	-	-	1,735.9	-	-	(2,197.2)	(3,065.2)
10	SCP West to East Transmission	-	-	-	-	-	-	-	-	-
11										
12	<u>Energy Policy Related</u>									
13	Energy Efficiency & Conservation (EEC)	23,837.4	29,619.0	(7,849.0)	21,770.0	(2,524.9)	-	-	43,082.5	33,460.0
14	NGV Conversion Grants	148.8	255.0	(67.6)	187.4	(51.1)	-	-	285.1	217.0
15										
16	<u>Non-Controllable Items</u>									
17	Property Tax Deferral	(345.7)	-	-	-	184.2	-	-	(161.5)	(253.6)
18	Insurance Variance	-	-	-	-	-	-	-	-	-
19	Pension & OPEB Variance	-	-	-	-	-	-	-	-	-
20	BCUC Levies Variance	-	-	-	-	-	-	-	-	-
21	Interest Variance	(1,598.3)	-	-	-	721.6	-	-	(876.7)	(1,237.5)
22	Interest Variance - Funding benefits via Customer Deposits	201.1	-	-	-	(13.1)	-	-	188.0	194.6
23	Income Tax Rate Variance	(410.6)	-	-	-	205.3	-	-	(205.3)	(308.0)
24	Olympics Security Costs Deferral	2,418.7	-	-	-	(806.2)	-	-	1,612.5	2,015.6
25	IFRS Conversion Costs	589.2	119.3	(31.6)	87.7	(196.4)	-	-	480.5	534.9
26										
27	<u>Cost of Current Applications</u>									
28	2009 ROE & Cost of Capital Application	\$352.8	\$0.0	\$0.0	\$0.0	(\$88.2)	\$0.0	\$0.0	\$264.6	\$308.7
29	2010-2011 Revenue Requirement Application	397.6	-	-	-	(397.6)	-	-	-	198.8
30	CCE CPCN Application	151.2	-	-	-	(37.8)	-	-	113.4	132.3
31										
32	<u>Other</u>									
33	IFRS Transitional Adjustments	(7,602.7)	68,819.0	-	68,819.0	-	-	-	61,216.3	26,806.8
34	OPEB Funding	-	-	-	-	-	-	-	-	-
35	Pension & OPEB Funding	(12,075.1)	(69,232.0)	-	(69,232.0)	-	-	-	(81,307.1)	(46,691.1)
36	2010 Revenue Surplus Deferral Account	(6,537.0)	-	-	-	6,537.0	-	-	-	(3,268.5)
37										
38	<u>Residual Deferred Charges</u>									
39	SCP Tax Reassessment	7,408.3	-	-	-	-	-	-	7,408.3	7,408.3
40	Deferred Service Line Installation Fee	-	-	-	-	-	-	-	-	-
41	Earnings Sharing Mechanism	(6,302.0)	1,686.0	(446.8)	1,239.2	-	6,888.2	(1,825.4)	-	(3,151.0)
42	CCT Assessment	-	-	-	-	-	-	-	-	-
43	Carbon Tax Implementation	-	-	-	-	-	-	-	-	-
44	TGS Amalgamation	-	-	-	-	-	-	-	-	-
45	TGS O&M Variance	-	-	-	-	-	-	-	-	-
46	Carbon Tax Cost of Service	(0.0)	-	-	-	-	-	-	(0.0)	-
47	OSC Certification Compliance	-	-	-	-	-	-	-	-	-
48	Bad Debt Allowance for Rates 14 & 14A	-	-	-	-	-	-	-	-	-
49										
50	Total Deferred Charges for Rate Base	(\$12,105.6)	\$31,465.3	(\$8,447.7)	\$23,017.6	\$5,268.7	\$12,878.3	(\$3,412.8)	\$25,646.2	\$6,770.4

(X-Ref - Tab C-13, Schedule 34)

(X-Ref - Tab C-13, Schedule 9)

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WORKING CAPITAL ALLOWANCE  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars	June 15, 2009 Application	2010		Change	Reference
			Existing 2009 Rates	Revised Revenue		
	(1)	(2)	(3)	(4)	(5)	(6)
1	<b>Cash Working Capital</b>					
2	Cash Required for					
3	Operating Expenses	\$2,324	\$1,539	\$1,539	(\$785)	- Tab C-13, Schedule 58
4						
5	Customer Deposits	-	0	-	-	
6						
7	Less - Funds Available:					
8						
9	Reserve for Bad Debts	(5,940)	(5,940)	(5,940)	-	
10						
11	Withholdings From Employees	(3,162)	(3,162)	(3,162)	-	
12						
13	Subtotal	<u>(6,778)</u>	<u>(7,563)</u>	<u>(7,563)</u>	<u>(785)</u>	(X-Ref - Tab C-13, Schedule 8)
14						(X-Ref - Tab C-13, Schedule 41)
15	<b>Other Working Capital Items</b>					
16	Construction Advances	(670)	(670)	(670)	-	
17	Transmission Line Pack Gas	2,413	2,413	2,413	-	
18	Gas in Storage	100,494	100,494	100,494	-	
19	Inventory - Materials & Supplies	1,202	1,202	1,202	-	
20						
21	Subtotal	<u>103,439</u>	<u>103,439</u>	<u>103,439</u>	<u>0</u>	(X-Ref - Tab C-13, Schedule 8)
22						(X-Ref - Tab C-13, Schedule 41)
23	Total	<u>\$96,661</u>	<u>\$95,876</u>	<u>\$95,876</u>	<u>(\$785)</u>	

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WORKING CAPITAL ALLOWANCE  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars (1)	June 15, 2009 Application (2)	2011		Change (5)	Reference (6)
			Existing 2009 Rates (3)	Revised Revenue (4)		
1	<b>Cash Working Capital</b>					
2	Cash Required for					
3	Operating Expenses	\$3,186	\$2,366	\$2,372	(\$814)	- Tab C-13, Schedule 58
4						
5	Customer Deposits	-	0	-	0	
6						
7	Less - Funds Available:					
8						
9	Reserve for Bad Debts	(6,063)	(6,063)	(6,063)	0	
10						
11	Withholdings From Employees	(3,256)	(3,256)	(3,256)	0	
12						
13	Subtotal	<u>(6,133)</u>	<u>(6,953)</u>	<u>(6,947)</u>	<u>(814)</u>	(X-Ref - Tab C-13, Schedule 9)
14						(X-Ref - Tab C-13, Schedule 42)
15	<b>Other Working Capital Items</b>					
16	Construction Advances	(670)	(670)	(670)	0	
17	Transmission Line Pack Gas	4,731	4,731	4,731	-	
18	Gas in Storage	114,804	114,804	114,804	0	
19	Inventory - Materials & Supplies	1,226	1,226	1,226	0	
20						
21	Subtotal	<u>120,091</u>	<u>120,091</u>	<u>120,091</u>	<u>0</u>	(X-Ref - Tab C-13, Schedule 9)
22						(X-Ref - Tab C-13, Schedule 42)
23	Total	<u>\$113,958</u>	<u>\$113,138</u>	<u>\$113,144</u>	<u>(\$814)</u>	



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CASH WORKING CAPITAL  
LAG TIME FROM DATE OF PAYMENT TO RECEIPT OF CASH  
FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011  
(\$000s)

Line No.	Particulars	2009			2010			2011			Reference
		Revenue At 2009 Rates (2)	Lag Days Service to Collection (3)	Dollar Days (4)	Revenue At 2009 Rates (5)	Lag Days Service to Collection (6)	Dollar Days (7)	Revenue At 2009 Rates (8)	Lag Days Service to Collection (9)	Dollar Days (10)	
1	<b>REVENUE</b>										
2											
3	Gas Sales and Transportation Service Revenue										- Tab C-13, Schedule 22 - Tab C-13, Schedule 24
4	Residential and Commercial	\$1,344,218	34.6	\$46,509,939	\$1,399,982	38.3	\$53,675,914	\$1,402,286	38.3	\$53,763,147	
5	Industrials & Others: Rates 4, 5, 7, 23, 25 and 27	78,860	41.0	3,233,260	77,496	45.0	3,489,083	77,608	45.0	3,494,126	
6	NGV Fuel - Stations	1,076	38.7	41,657	1,044	41.7	43,552	1,044	41.7	43,552	
7											
8	Rates 22, Burrard, TGVl (Oth Rev), SCP (Oth Rev)	40,576	37.8	1,533,765	42,054	42.5	1,788,524	44,031	42.3	1,864,247	
9											
10	Total Gas Sales	1,464,730	35.0	51,318,621	1,520,576	38.8	58,997,073	1,524,969	38.8	59,165,072	
11					(X-Ref - Tab C-13, Schedule 2)		(X-Ref - Tab C-13, Schedule 3)				- Tab C-13, Schedule 26 - Tab C-13, Schedule 27
12	Other Revenues										
13	Late Payment Charges	2,878	26.7	76,843	3,014	38.3	115,444	3,020	38.3	115,681	
14	Returned Cheque Charges	84	31.8	2,671	82	38.3	3,140	82	38.3	3,140	
15	Connection Charges	2,926	37.3	109,140	2,880	38.3	110,315	2,907	38.3	111,323	
16	Other Utility Income	277	34.9	9,667	203	38.4	7,791	132	38.2	5,040	
17											
18											
19	Total Revenue	\$1,470,895	35.0	\$51,516,942	\$1,526,755	38.8	\$59,233,763	\$1,531,110	38.8	\$59,400,256	
20											
21											
22	<b>REVENUE, REVISED RATES</b>										
23											
24	Gas Sales and Transportation Service Revenue										- Tab C-13, Schedule 22 - Tab C-13, Schedule 24
25	Residential and Commercial	\$1,344,218	34.6	\$46,509,939	\$1,399,982	38.3	\$53,675,914	\$1,412,450	38.3	\$54,152,948	
26	Industrials & Others: Rates 4, 5, 7, 23, 25 and 27	78,860	41.0	3,233,260	77,496	45.0	3,489,083	78,866	45.0	3,550,934	
27	NGV Fuel - Stations	1,076	38.7	41,657	1,044	41.7	43,552	1,053	41.7	43,927	
28											
29	Rates 22, Burrard, TGVl, SCP (Other)	40,576	37.8	1,533,765	42,054	42.5	1,788,524	44,354	42.4	1,878,846	
30											
31	Total Gas Sales	1,464,730	35.0	51,318,621	1,520,576	38.8	58,997,073	1,536,723	38.8	59,626,655	
32											- Tab C-13, Schedule 26 - Tab C-13, Schedule 27
33	Other Revenues										
34	Late Payment Charges	2,878	26.7	76,843	3,014	38.3	115,444	3,020	38.3	115,681	
35	Returned Cheque Charges	84	31.8	2,671	82	38.3	3,140	82	38.3	3,140	
36	Connection Charges	2,926	37.3	109,140	2,880	38.3	110,315	2,907	38.3	111,323	
37	Other Utility Income	277	34.9	9,667	203	38.4	7,791	132	38.2	5,040	
38											
39											
40	Total Revenue	\$1,470,895	35.0	\$51,516,942	\$1,526,755	38.8	\$59,233,763	\$1,542,864	38.8	\$59,861,839	

TERASEN GAS INC.

CASH WORKING CAPITAL  
 LEAD TIME IN PAYMENT OF EXPENSES  
 FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011  
 (\$000s)

Line No.	Particulars	2009			2010			2011			Reference
		Amount	Lead Days Expense to Payment	Dollar Days	Amount	Lead Days Expense to Payment	Dollar Days	Amount	Lead Days Expense to Payment	Dollar Days	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	<b>EXPENSES</b>										
2											
3	Operating And Maintenance										- Tab C-13, Schedule 4
4	Expenses	\$166,966	19.3	\$3,222,444	\$177,559	25.5	\$4,527,755	\$184,625	25.5	\$4,707,938	- Tab C-13, Schedule 5
5											- Tab C-13, Schedule 4
6	Gas Purchases	930,677	40.7	37,878,554	987,970	40.2	39,716,394	989,627	40.2	39,783,006	- Tab C-13, Schedule 5
7											
8	Taxes Other Than Income										- Tab C-13, Schedule 31
9	Property Taxes	47,593	4.0	190,372	49,193	2.0	98,386	50,211	2.0	100,422	- Tab C-13, Schedule 32
10	Franchise Fees	10,044	430.0	4,318,920	10,259	420.3	4,311,858	10,292	420.3	4,325,728	
11	Carbon Tax	71,753	43.6	3,128,449	98,953	29.1	2,879,519	127,206	29.1	3,701,686	
12	GST - Net	12,520	7.2	90,131	12,997	38.8	504,291	13,034	38.8	505,738	
13	PST	40,647	43.6	1,772,209	42,437	37.1	1,574,413	43,101	37.1	1,599,047	
14	Income Tax	26,096	15.2	396,659	24,923	15.2	378,830	21,449	15.2	326,025	- Tab C-13, Schedule 6
15											- Tab C-13, Schedule 7
16	Total	<u>\$1,306,296</u>	<u>39.0</u>	<u>\$50,997,738</u>	<u>\$1,404,291</u>	<u>38.4</u>	<u>\$53,991,446</u>	<u>\$1,439,545</u>	<u>38.2</u>	<u>\$55,049,590</u>	
17											
18											
19	<b>EXPENSES, REVISED RATES</b>										
20											
21	Operating And Maintenance										- Tab C-13, Schedule 4
22	Expenses	\$166,966	19.3	\$3,222,444	\$177,559	25.5	\$4,527,755	\$184,625	25.5	\$4,707,938	- Tab C-13, Schedule 5
23											- Tab C-13, Schedule 4
24	Gas Purchases	930,677	40.7	37,878,554	987,970	40.2	39,716,394	989,627	40.2	39,783,006	- Tab C-13, Schedule 5
25											
26	Taxes Other Than Income										- Tab C-13, Schedule 31
27	Property Taxes	47,593	4.0	190,372	49,193	2.0	98,386	50,211	2.0	100,422	- Tab C-13, Schedule 32
28	Franchise Fees	10,044	430.0	4,318,920	10,259	420.3	4,311,858	10,376	420.3	4,361,033	
29	Carbon Tax	71,753	43.6	3,128,449	98,953	29.1	2,879,519	127,206	29.1	3,701,686	
30	GST - Net	12,520	7.2	90,131	12,997	38.8	504,291	13,136	38.8	509,665	
31	PST	40,647	43.6	1,772,209	42,437	37.1	1,574,413	43,420	37.1	1,610,882	
32	Income Tax	26,096	15.2	396,659	24,923	15.2	378,830	24,564	15.2	373,373	- Tab C-13, Schedule 6
33											- Tab C-13, Schedule 7
34	Total	<u>\$1,306,296</u>	<u>39.0</u>	<u>\$50,997,738</u>	<u>\$1,404,291</u>	<u>38.4</u>	<u>\$53,991,446</u>	<u>\$1,443,164</u>	<u>38.2</u>	<u>\$55,148,005</u>	

TERASEN GAS INC.

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FUTURE INCOME TAX LIABILITY / ASSET  
FOR THE YEARS ENDING DECEMBER 31, 2009 TO 2011  
(\$000s)

Line No.	Particulars	2009	2010	2011
	(1)	(2)	(3)	(4)
1	Property Plant & Equipment			
2	Net Book Value *	(\$2,447,020)	(\$2,535,462)	(\$2,625,708)
3	Less: Undepreciated Capital Cost	(1,712,991)	(1,760,477)	(1,853,515)
4		<u>(734,029)</u>	<u>(774,985)</u>	<u>(772,193)</u>
5	Weighted Average Future Tax Rate	25%	25%	25%
6		<u>(184,037)</u>	<u>(194,075)</u>	<u>(193,048)</u>
7				
8	Total FIT Liability- After Tax (PP&E)	(184,037)	(194,075)	(193,048)
9	Total FIT Liability- After Tax (Non-PP&E)	<u>(24,298)</u>	<u>(23,948)</u>	<u>(27,038)</u>
10	Total FIT Liability- After Tax	(208,335)	(218,023)	(220,086)
11				
12	Tax Gross Up	<u>(69,713)</u>	<u>(72,839)</u>	<u>(73,362)</u>
13				
14	FIT Liability/Asset - End of Year	(278,048)	(290,862)	(293,448)
15				
16	FIT Liability/Asset - Opening Balance	(278,048)	(278,048)	(290,862)
17				
18	FIT Liability/Asset - Mid Year	<u>(278,048)</u>	<u>(284,455)</u>	<u>(292,155)</u>
19		(X-Ref - Tab C-13, Schedule 8)	(X-Ref - Tab C-13, Schedule 9)	
20			(X-Ref - Tab C-13, Schedule 41)	
21	Note: * Excludes Land, Software CIAC, and WIP.		(X-Ref - Tab C-13, Schedule 42)	



TERASEN GAS INC.  
RETURN ON CAPITAL  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

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Line No.	Particulars	Reference	----- Capitalization ----- Amount	%	Average Embedded Cost	Cost Component	Earned Return	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	2010 AT 2009 RATES							
2	Long-Term Debt	- Tab C-13, Schedule 64	\$1,558,326	61.490%	6.870%	4.220%	\$107,064	
3	Unfunded Debt		88,809	3.500%	2.250%	0.080%	1,998	
4	Common Equity		<u>887,309</u>	<u>35.010%</u>	8.483%	<u>2.970%</u>	<u>75,270</u>	
5								
6		- Tab C-13, Schedule 8	<u>\$2,534,444</u>	<u>100.000%</u>		<u>7.270%</u>	<u>\$184,332</u>	
7								
8	2010 REVISED RATES - FORECAST							
9	Long-Term Debt		\$1,558,326	61.490%	6.870%	4.220%	\$107,064	
10	Unfunded Debt		\$88,809					
11	Adjustment, Revised Rates	0	88,809	3.500%	2.250%	0.080%	1,998	
12	Common Equity		<u>887,309</u>	<u>35.010%</u>	8.470%	<u>2.970%</u>	<u>75,155</u>	
13								
14		- Tab C-13, Schedule 8	<u>\$2,534,444</u>	<u>100.000%</u>		<u>7.269%</u>	<u>\$184,217</u>	
15						(X-Ref - Tab C-13, Schedule 4)		

TERASEN GAS INC.  
RETURN ON CAPITAL  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

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					Average		
Line			----- Capitalization -----		Embedded	Cost	Earned
No.	Particulars	Reference	Amount	%	Cost	Component	Return
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(8)						
1	2011 At 2010 Rates						
2	Long-Term Debt	- Tab C-13, Schedule 65	\$1,631,453	62.060%	6.836%	4.242%	\$111,518
3	Unfunded Debt		76,982	2.930%	4.500%	0.132%	3,464
4	Common Equity		920,331	35.010%	7.529%	2.636%	69,292
5							
6		- Tab C-13, Schedule 9	\$2,628,766	100.000%		7.010%	\$184,274
7							
8	2011 REVISED RATES - FORECAST						
9	Long-Term Debt		\$1,631,453	62.060%	6.836%	4.242%	\$111,518
10	Unfunded Debt		\$76,982				
11	Adjustment, Revised Rates	4	76,986	2.930%	4.500%	0.132%	3,464
12	Common Equity		920,333	35.010%	8.470%	2.965%	77,952
13							
14		- Tab C-13, Schedule 9	\$2,628,772	100.000%		7.339%	\$192,934
15						(X-Ref - Tab C-13, Schedule 5)	

TERASEN GAS INC.

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EMBEDDED COST OF LONG-TERM DEBT  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars	Issue Date	Maturity Date	Coupon Rate	Principal Amount of Issue	Issue Expense	Net Proceeds of Issue	Effective Interest Cost	Average Principal Outstanding	Annual Cost	Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	Series A Purchase Money Mortgage	3-Dec-1990	30-Sep-2015	11.800%	\$58,943	\$855 *	\$65,598	12.054%	\$66,453	\$8,010	
2	Series B Purchase Money Mortgage	30-Nov-1991	30-Nov-2016	10.300%	157,274	2,228	155,046	10.461%	157,274	16,452	
3											
4	Medium Term Note - Series 11	21-Sep-1999	21-Sep-2029	6.950%	150,000	2,290	147,710	7.073%	150,000	10,610	
5	2004 Long Term Debt Issue - Series 18	29-Apr-2004	1-May-2034	6.500%	150,000	1,915	148,085	6.598%	150,000	9,897	
6	2005 Long Term Debt Issue - Series 19	25-Feb-2005	25-Feb-2035	5.900%	150,000	1,663	148,337	5.980%	150,000	8,970	
7	2006 Long Term Debt Issue - Series 21	25-Sep-2006	25-Sep-2036	5.550%	120,000	784	119,216	5.595%	120,000	6,714	
8	2007 Medium Term Debt Issue - Series 22	2-Oct-2007	2-Oct-2037	6.000%	250,000	2,303	247,697	6.067%	250,000	15,168	
9	2008 Medium Term Debt Issue - Series 23	13-May-2008	13-May-2038	5.800%	250,000	2,389	247,611	5.868%	250,000	14,670	
10	2009 Medium Term Debt Issue- Series 24 (includes replacement for Series E)	24-Feb-2009	24-Feb-2039	6.550%	100,000	1,000	99,000	6.627%	100,000	6,627	
11	2009 Medium Term Debt Issue- Series 25	1-Apr-2010	1-Apr-2020	5.188%	100,000	1,000	99,000	5.318%	75,342	4,007	
12									-	-	
13											
14	LILO Obligations - Kelowna							5.905%	26,735	1,579	
15	LILO Obligations - Nelson							7.011%	4,258	299	
16	LILO Obligations - Vernon							8.150%	12,731	1,038	
17	LILO Obligations - Prince George							7.171%	32,685	2,344	
18	LILO Obligations - Creston							6.418%	3,098	199	
19											
20	Vehicle Lease Obligation							5.380%	12,740	685	
21											
22									<u>\$1,561,316</u>	<u>\$107,269</u>	
23											
24	Sub-Total								\$1,561,316	\$107,269	
25	Less - Fort Nelson Division Portion of Long Term Debt								(2,990)	(205)	
26	Total								<u>\$1,558,326</u>	<u>\$107,064</u>	
27											
28	*Includes adjustment of \$5,049 for BC Hydro Premium										

(X-Ref - Tab C-13, Schedule 10) , (X-Ref - Tab C-13, Schedule 62)  
Average Embedded Cost 6.870%

TERASEN GAS INC.

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EMBEDDED COST OF LONG-TERM DEBT  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars	Issue Date	Maturity Date	Coupon Rate	Principal Amount of Issue	Issue Expense	Net Proceeds of Issue	Effective Interest Cost	Average Principal Outstanding	Annual Cost	Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	Series A Purchase Money Mortgage	3-Dec-1990	30-Sep-2015	11.800%	\$58,943	\$855	\$65,990 *	12.054%	\$66,845	\$8,057	
2	Series B Purchase Money Mortgage	30-Nov-1991	30-Nov-2016	10.300%	157,274	2,228	155,046	10.461%	157,274	16,452	
3											
4	Medium Term Note - Series 11	21-Sep-1999	21-Sep-2029	6.950%	150,000	2,290	147,710	7.073%	150,000	10,610	
5	2004 Long Term Debt Issue - Series 18	29-Apr-2004	1-May-2034	6.500%	150,000	1,915	148,085	6.598%	150,000	9,897	
6	2005 Long Term Debt Issue - Series 19	25-Feb-2005	25-Feb-2035	5.900%	150,000	1,663	148,337	5.980%	150,000	8,970	
7	2006 Long Term Debt Issue - Series 21	25-Sep-2006	25-Sep-2036	5.550%	120,000	784	119,216	5.595%	120,000	6,714	
8	2007 Medium Term Debt Issue - Series 22	2-Oct-2007	2-Oct-2037	6.000%	250,000	2,303	247,697	6.067%	250,000	15,168	
9	2008 Medium Term Debt Issue - Series 23	13-May-2008	13-May-2038	5.800%	250,000	2,389	247,611	5.868%	250,000	14,670	
10	2009 Medium Term Debt Issue- Series 24 (includes replacement for Series E)	24-Feb-2009	24-Feb-2039	6.550%	100,000	1,000	99,000	6.627%	100,000	6,627	
11	2009 Medium Term Debt Issue- Series 25	1-Apr-2010	1-Apr-2020	5.188%	100,000	1,000	99,000	5.318%	100,000	5,318	
12	2011 Medium Term Debt Issue- Series 26	1-Jul-2011	1-Jul-2021	5.650%	100,000	1,000	99,000	5.783%	50,411	2,915	
13											
14	LILO Obligations - Kelowna							5.919%	25,729	1,523	
15	LILO Obligations - Nelson							7.093%	4,110	292	
16	LILO Obligations - Vernon							8.242%	12,267	1,011	
17	LILO Obligations - Prince George							7.256%	31,571	2,291	
18	LILO Obligations - Creston							6.496%	2,996	195	
19											
20	Vehicle Lease Obligation							7.631%	13,455	1,027	
21											
22									<u>\$1,634,658</u>	<u>\$111,737</u>	
23											
24	Sub-Total								\$1,634,658	\$111,737	
25	Less - Fort Nelson Division Portion of Long Term Debt								(3,205)	(219)	
26	Total								<u>\$1,631,453</u>	<u>\$111,518</u>	
27											
28	*Includes adjustment of \$7,772 for BC Hydro Premium										

(X-Ref - Tab C-13, Schedule 11) (X-Ref - Tab C-13, Schedule 63)  
Average Embedded Cost 6.836%

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Section C

GROSS MARGIN RECONCILIATION WITH 2010 RATES  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Tab 13  
Schedule 66

Line No.	Particulars	Proposed Base Delivery Rate			Approved Basic Charge & Admin Fee				Proposed Demand Charge			Collected	Required	Margin
	(1)	Rate	Terajoules	(\$000)	Rate	Customers	Adj Factor	(\$000)	Rate	Terajoules	(\$000)	Margin	Margin	Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	NON-BYPASS													
2	Core Sales													
3	Schedule 1 - Residential	2.961	69,174.3	\$204,825	11.840	754,076	-1.20%	\$105,858	-	-	\$0	\$310,683	\$310,678	\$5
4	Schedule 2 - Small Commercial	2.479	24,374.3	60,424	24.840	76,536	-4.54%	21,777	-	-	-	82,201.3	82,199.7	1.6
5	Schedule 3 - Large Commercial	2.136	16,818.6	35,925	132.520	5,022	-0.50%	7,945	-	-	-	43,869.8	43,869.5	0.3
6	Total Schedules 1, 2 and 3		110,367.2	301,174		835,633		135,580		-	-	436,753.7	436,747.0	6.7
7														
8	Schedule 4 - Seasonal Service	0.762	184.6	141	439.000	16		83	-	-	-	224.1	247.9	(23.8)
9	Schedule 5 - General Firm Service	0.593	3,184.6	1,888	587.000	281		1,979	14.655	207	3,033	6,900.5	6,900.5	0.0
10														
11	Industrials													
12	Schedule 7 - Interruptible	0.990	22.7	22	880.000	2		21	-	-	-	43.6	44.0	(0.4)
13														
14	Schedule 6 - N G V Fuel - Stations	3.398	103.8	353	61.000	32		23	-	-	-	376.1	376.6	(0.5)
15														
16	Total Industrials		103.8	353		32		23		-	-	376.1	376.6	(0.5)
17														
18	Total Core Sales		113,862.9	303,578		835,964		137,666		207	3,033	444,298.0	444,316.0	(18.0)
19														
20	Transportation Service													
21	Schedule 22 - Firm Service	0.081	8,103.2	659.3	4,783.000	13		746	11.174	255.8	2,858.3	4,263.7	4,885.4	(621.7)
22	- Interruptible Service	0.739	11,080.5	8,190.3	3,742.000	22		988	-	14.5	-	9,178.2	9,078.6	99.5
23	Schedule 23 - Large Commercial	2.136	6,134.0	13,102	210.520	1,309		3,308	-	-	-	16,410.1	16,348.0	62.1
24	Schedule 25 - Firm Service	0.593	12,944.4	7,676	665.000	573		4,573	14.655	813	11,910	24,158.5	23,819.5	339.0
25	Schedule 27 - Interruptible Service	0.990	5,587.4	5,532	958.000	98		1,127	-	-	-	6,658.1	6,607.2	50.9
26														
27	Total T-Service		43,849.5	35,159		2,015		10,741		1,083	14,768	60,668.7	60,738.7	(70.0)
28														
29	Total Non-Bypass Sales & Transportation Service		157,712.4	338,737.2		837,979		148,407.4		1,290	17,800.9	504,966.7	505,054.7	(88.0)
30			(X-Ref - Tab C-13, Schedule 14)			(X-Ref - Tab C-13, Schedule 22)					(X-Ref - Tab C-13, Schedule 22 Columns 6 + 8, line 27)			

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Tab 13  
Schedule 67

GROSS MARGIN RECONCILIATION WITH 2011 RATES  
FOR THE YEAR ENDING DECEMBER 31, 2011  
(\$000s)

Line No.	Particulars (1)	Proposed Base Delivery Rate			Approved Basic Charge & Admin Fee				Proposed Demand Charge			Collected Margin (12)	Required Margin (13)	Margin Difference (14)
		Rate (2)	Terajoules (3)	(\$000) (4)	Rate (5)	Customers (6)	Adj Factor (7)	(\$000) (8)	Rate (9)	Terajoules (10)	(\$000) (11)			
1	<b>NON-BYPASS</b>													
2	Core Sales													
3	Schedule 1 - Residential	3.066	68,578.9	\$210,263	11.840	759,267	-1.20%	\$106,586	-	-	\$0	316,848.9	316,838.8	10.1
4	Schedule 2 - Small Commercial	2.557	24,603.1	62,910	24.840	77,252	-4.54%	21,981	-	-	-	84,891.4	84,899.5	(8.1)
5	Schedule 3 - Large Commercial	2.197	17,168.5	37,719	132.520	5,126	-0.51%	8,110	-	-	-	45,828.8	45,820.9	7.9
6	Total Schedules 1, 2 and 3		<u>110,350.5</u>	<u>310,892</u>		<u>841,644</u>		<u>136,677</u>		<u>-</u>	<u>-</u>	<u>447,569.1</u>	<u>447,559.2</u>	<u>9.9</u>
7														
8	Schedule 4 - Seasonal Service	0.790	184.6	146	256.080	16		49	-	-	-	194.5	253.9	(59.4)
9	Schedule 5 - General Firm Service	0.611	3,184.3	1,946	587.000	281		1,979	15.134	207	3,132	7,056.8	7,061.3	(4.5)
10														
11	Industrials													
12	Schedule 7 - Interruptible	1.018	22.7	23	880.000	2		21	-	-	-	44.2	45.0	(0.8)
13														
14	Schedule 6 - N G V Fuel - Stations	3.485	103.8	362	61.000	32		23	-	-	-	385.2	385.6	(0.4)
15														
16	Total Industrials		<u>103.8</u>	<u>362</u>		<u>32</u>		<u>23</u>		<u>-</u>	<u>-</u>	<u>385.2</u>	<u>385.6</u>	<u>(0.4)</u>
17														
18	Total Core Sales		<u>113,845.9</u>	<u>313,345</u>		<u>841,975</u>		<u>138,728</u>		<u>207</u>	<u>3,132</u>	<u>455,249.7</u>	<u>455,305.0</u>	<u>(55.3)</u>
19														
20	Transportation Service													
21	Schedule 22 - Firm Service	0.083	8,103.2	675	4,783.000	13		746	11.618	256	2,972	4,393.4	4,998.4	(605.0)
22	- Interruptible Service	0.757	11,080.5	8,384	3,742.000	22		988	1.702	15	25	9,396.3	9,288.6	107.7
23	Schedule 23 - Large Commercial	2.197	6,177.2	13,571	210.520	1,318		3,331	-	-	-	16,901.9	16,845.4	56.5
24	Schedule 25 - Firm Service	0.611	12,944.1	7,909	665.000	573		4,573	15.134	813	12,299	24,780.6	24,373.3	407.3
25	Schedule 27 - Interruptible Service	1.018	5,587.4	5,688	958.000	98		1,127	-	-	-	6,814.6	6,760.2	54.4
26														
27	Total T-Service		<u>43,892.4</u>	<u>36,227</u>		<u>2,024</u>		<u>10,764</u>		<u>1,083</u>	<u>15,296</u>	<u>62,286.9</u>	<u>62,265.9</u>	<u>21.0</u>
28														
29	Total Non-Bypass Sales & Transportation Service		<u>157,738.3</u>	<u>349,572.8</u>		<u>843,999</u>		<u>149,492.1</u>		<u>1,290</u>	<u>18,427.5</u>	<u>517,536.6</u>	<u>517,570.9</u>	<u>(34.3)</u>
30			(X-Ref - Tab C-13, Schedule 15)			(X-Ref - Tab C-13, Schedule 24)				(X-Ref - Tab C-13, Schedule 24 Columns 6 + 8, line 27)				

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Section C  
Tab 13  
Schedule 68

EARNINGS SHARING CALCULATION - 2009  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Description (1)	2009 (2)	Reference (3)
1	Utility rate base	\$2,453,485	- Tab C-13, Schedule 74
2			
3	Common Equity Component (35.01%)	858,965	- Tab C-13, Schedule 75
4			
5			
6	Achieved ROE on Common Equity	11.41%	- Tab C-13, Schedule 75
7			
8	Authorized ROE on Common Equity	8.47%	
9			
10	ROE Surplus / (Deficit)	2.94%	
11			
12	After Tax Surplus Available for Sharing	\$25,254	
13			
14			
15	Customers' 50% Share of Surplus (net-of-tax)	\$12,627	(X-Ref - Tab C-13, Schedule 70)
16			
17			
18	<b>Customers' 50% Share of Surplus (pre-tax)</b>	<b>\$18,038</b>	(X-Ref - Tab C-13, Schedule 70)

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Section C  
Tab 13  
Schedule 69

END-OF-TERM CAPITAL INCENTIVE MECHANISM  
FOR THE YEARS ENDING DECEMBER 31, 2004 TO 2011  
(\$000s)

Line. No.	Particulars	Actual 2004	Actual 2005	Actual 2006	Actual 2007	Actual 2008	Projection 2009	2010	2011	2012	Reference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	a) Formula Base Capital Expenditure Spending (with Actual Customer adds)										
2	Customer Addition Driven CapEx	\$24,283	\$26,319	\$21,896	\$21,441	\$20,133	\$13,420				
3	Other Base Capital CapEx	67,361	69,090	70,588	72,278	73,595	74,850				
4	Total Base Capital Expenditures - Formula	91,644	95,409	92,484	93,719	93,728	88,270				
5											
6	b) Actual Base Capital Expenditures										
7	Customer Addition Driven CapEx	\$21,896	\$25,194	\$28,820	\$28,903	\$32,288	\$25,428				
8	Other Base Capital CapEx	48,717	50,840	55,269	44,417	57,859	63,360				
9	Total Base Capital Expenditures - Actual	70,613	76,034	84,089	73,320	90,147	88,788				
10											
11	c) Capital Incentive	\$21,031	\$19,375	\$8,395	\$20,399	\$3,581	(\$518)				
12	Cumulative Capital Incentive for Phase-Out	\$21,031	\$40,406	\$48,801	\$69,200	\$72,781	\$72,263				
13											
14	d) Capital Incentive @ 14%	\$2,944	\$5,657	\$6,832	\$9,688	\$10,189	\$10,117				
15											
16	Customer Portion (50/50 during term. Total benefit less Phase-Out after)	\$1,472	\$2,828	\$3,416	\$4,844	\$5,095	\$5,058	\$6,745	\$8,431	\$10,117	
17											
18	Company Portion (50/50 during term. 2/3 & 1/3 Phase-Out in 2010 and 2011)	\$1,472	\$2,828	\$3,416	\$4,844	\$5,095	\$5,058	\$3,372	\$1,686	\$0	
19											
20											

(X-Ref - Tab C-13, Schedule 70)



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Section C  
Tab 13  
Schedule 70

CALCULATION OF EARNING SHARING MECHANISM (RIDER 3)  
FOR THE YEARS ENDING DECEMBER 31, 2010 TO 2011  
(\$000s)

Line No.	Particulars	2010 Volumes (TJ)	2011 Volumes (TJ)	TOTAL Volumes (TJ)	2010 Margin (\$000s)	2011 Margin (\$000s)	TOTAL Margin (\$000s)	2010 True-up & Res Amortization (\$000s)	2010 & 2011 ESM Amortization (\$000s)	2010 & 2011 Capital Incentive Amortization (\$000s)	2010 ESM Unit Rider (\$/GJ)	2011 ESM Unit Rider (\$/GJ)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	<b>Earnings Sharing Mechanism (ESM) Rider 3 Calculation</b>											
2												
3												
4	<b>Non-Bypass</b>											
5	Rate 1 - Residential	67,829.2	67,190.5	135,019.7	\$ 306,966	\$ 305,757	\$612,724	(\$304)	(\$7,715)	\$2,232	(\$0.040)	(\$0.046)
6	Rate 2 - Small Commercial	24,374.3	24,603.1	48,977.4	82,200	82,972	165,171	(83)	(2,081)	599	(\$0.029)	(\$0.034)
7	Rate 3 / 23 - Large Commercial	22,952.6	23,345.7	46,298.3	60,218	61,243	121,461	(60)	(1,529)	441	(\$0.023)	(\$0.027)
8	Rate 4 - Seasonal Service	184.6	184.6	369.2	248	248	496	-	(6)	2	(\$0.011)	(\$0.011)
9	Rate 5 / 25 - General Firm Service	15,565.0	15,470.1	31,035.1	30,469	30,413	60,882	(30)	(767)	222	(\$0.017)	(\$0.020)
10	Rate 6 - NGV	103.8	103.8	207.6	377	377	753	-	(9)	3	(\$0.024)	(\$0.033)
11	Rate 7 / 27 - Interruptible	5,197.7	5,186.1	10,383.8	6,258	6,247	12,505	(6)	(157)	45	(\$0.010)	(\$0.012)
12	Rate 22 - Large Industrial Transportation	11,579.4	11,560.2	23,139.6	9,332	9,318	18,651	(9)	(235)	68	(\$0.007)	(\$0.008)
13	Rate 22A - Inland	4,904.7	4,904.7	9,809.4	3,920	3,920	7,841	(4)	(99)	29	(\$0.007)	(\$0.008)
14	Rate 22B - Elkview Coal	646.1	646.1	1,292.2	112	112	224	-	(3)	1	\$0.000	(\$0.002)
15	Rate 22B - All Other	1,856.3	1,856.3	3,712.6	1,037	1,037	2,075	(1)	(26)	8	(\$0.005)	(\$0.005)
16												
17	<b>Total Non-Bypass</b>	<b>155,193.7</b>	<b>155,051.2</b>	<b>310,244.9</b>	<b>\$501,138</b>	<b>\$501,645</b>	<b>\$1,002,783</b>	<b>(\$497)</b>	<b>(\$12,627)</b>	<b>\$3,650</b> <sup>(1)</sup>		
18	(X-Ref - Tab C-13, Schedule 22; - Tab C-13, Schedule 24)											

**Note 1:**

Terasen Gas is projecting a 2009 return on equity of 11.41%, which is 2.94% higher than the allowed ROE of 8.47%. Under the earnings sharing mechanism, Terasen Gas is to share equally with its customers, earnings variances between the authorized level of earnings as determined annually under the settlement and the actual earnings of the utility. Accordingly, customer's portion of the 2009 earnings surplus is \$18.038 million. The detailed calculations for 2009 are as follows:

After Tax surplus available for sharing = \$858.965 million x (11.41% - 8.47%) = \$25,254 million  
Customers' 50% share (Net-of-Tax) = \$12.627 million  
Customers' 50% share (Pre-Tax) = \$18.038 million

The total amortization balance of \$13.690 is made up of:

		2010		2011		Total		
	Amortization Period	Pre-tax	Net-Of-Tax	Pre-tax	Net-Of-Tax	Pre-tax	Net-Of-Tax	
2008 true-up (\$12.029m per '07 A/Review, \$12.739m per '08 A/Rpt)	2011	\$710	\$508	\$0	\$0	\$710	\$508	
Tax Adjustment on 2008 ESM True Up		(15)	(11)			(15)	(11)	
		695	497	-	-	695	497	(Column 8, Line 17)
2009 pre-tax Customers' 50% share	2010 and 2011	9,036	6,461	9,003	6,617	18,039	13,078	
Tax Adjustment on 2009 ESM		(190)	(136)	(429)	(315)	(618)	(451)	(Column 9, Line 17)
		8,846	6,325	8,574	6,302	17,420	12,627	(X-Ref - Tab C-13, Schedule 68)
2009 End Of Term Capital Incentive Mechanism	2010 and 2011	(3,372)	(2,411)	(1,686)	(1,239)	(5,058)	(3,650)	(Column 10, Line 17)
								(X-Ref - Tab C-13, Schedule 69)
Total Balance - Refund to Customers in 2010 and 2011		\$6,169	\$4,411	\$6,888	\$5,063	\$13,057	\$9,474	(X-Ref - Tab C-13, Schedule 54; Schedule 55 line 39, columns 8 & 9)

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Section C  
Tab 13  
Schedule 71

CALCULATION OF AMORTIZATION OF RSAM (RIDER 5)  
FOR THE YEAR ENDING DECEMBER 31, 2010  
(\$000s)

Line No.	Particulars	2010 Volumes (TJ) (2)	2011 Volumes (TJ) (3)	2010 Amortization (\$000s) (4)	2011 Amortization (\$000s) (5)	2010 Amortization of RSAM Unit Rider (\$/GJ) (6)	2011 Amortization of RSAM Unit Rider (\$/GJ) (7)
1	<b><u>RSAM (Rider 5) Calculation</u></b>						
2							
3	Rate 1 - Residential	67,829.2	67,190.5			(\$0.053)	(\$0.052)
4	Rate 2 - Small Commercial	24,374.3	24,603.1			(\$0.053)	(\$0.052)
5	Rate 3 - Large Commercial	16,818.6	17,168.5			(\$0.053)	(\$0.052)
6	Rate 23 - Large Commercial Transportation	6,134.0	6,177.2			(\$0.053)	(\$0.052)
7		<u>115,156.1</u>	<u>115,139.3</u>	<u>(\$6,156)</u>	<u>(\$5,990) <sup>(1)</sup></u>		
8				(X-Ref - Tab C-13, Schedule 54; - Tab C-13, Schedule 55, sum of lines 6 & 7 and columns 8 & 9)			
9							
10	<b><u>Note 1: RSAM Rider Change</u></b>						
11							
12	Terasen Gas forecasts that there will be approximately -\$5.6 million (net-of-tax) of RSAM additions by the end of						
13	2009. After offsetting the 2009 RSAM Rider recovery, the RSAM account including interest is now projected to be a						
14	credit balance of \$13,204,000 on a net-of-tax basis by the end of 2009. In accordance with the 2004-2009 Extended						
15	PBR Settlement, the RSAM balance is to be amortized over three years. Accordingly, the net-of-tax RSAM balance to						
16	be amortized in 2010 is a credit of \$4,402,000. On a pre-tax basis, this amounts to \$6,156,000 or a refund to the						
17	customer of \$0.053/GJ, which is a \$.054 reduction from the existing charge of \$0.001/GJ. The corresponding 2011						
18	refund to the customer is \$0.052/GJ.						
19							
20	2010 Net-Of-Tax Amortization = 1/3 of Projected December 31, 2009 RSAM Balance						
21	= 1/3 * (\$-13,166 RSAM + \$-38 RSAM Interest)						
22	= 1/3 * \$-13,204						
23	= \$-4,402 Net-of-tax amortization						
24							
25	2010 Pre-Tax Amortization = Net-of-tax amortization / (1 - tax rate) + Amortization on Prior years' balances						
26	= \$-4,402 / (1 - 28.5%)						
27	= \$-6,156						
28							
29	2011 Net-of-Tax Amortization = 1/2 of Projected December 31, 2010 RSAM Balance						
30	= 1/2 * (\$-8,777 RSAM + \$-29 RSAM Interest)						
31	= 1/2 * \$-8,806						
32	= \$-4,402 Net-of-tax amortization						
33							
34	2011 Pre-Tax Amortization = Net-of-tax amortization / (1 - tax rate) + Amortization on Prior years' balances						
35	= \$-4,402 / (1 - 26.5%)						
36	= \$-5,990						

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Section C  
Tab 13  
Schedule 72

UTILITY INCOME AND EARNED RETURN  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Particulars	2009 APPROVED (2)	Existing 2009 Rates (3)	2009 ----Revised Rates----- Revised Revenue (4)		Total (5)	Change (6)	Reference (7)	I
1	ENERGY VOLUMES (TJ)								
2	Sales	108,575	115,723	-		115,723	7,148		
3	Transportation	85,478	89,214	-		89,214	3,736		
4		<u>194,053</u>	<u>204,937</u>	<u>-</u>		<u>204,937</u>	<u>10,884</u>		
5									
6	Average Rate per GJ								
7	Sales	\$14.892	\$11.902	\$0.000		\$11.902	(\$2.990)		
8	Transportation	\$0.848	\$0.830	\$0.000		\$0.830	(\$0.018)		
9	Average	\$8.706	\$7.000	\$0.000		\$7.000	(\$1.706)		
10									
11	UTILITY REVENUE								
12	Sales - Existing Rates	\$1,591,039	\$1,377,376	\$0		\$1,377,376	(\$213,663)		
13	- Increase / (Decrease)	25,852	-	-		-	(25,852)		
14	RSAM Revenue		(17,004)	-		(17,004)	(17,004)		
15	Transportation - Existing Rates	68,993	74,087	-		74,087	5,094		
16	- Increase / (Decrease)	3,535		-		-	(3,535)		
17	<b>Total</b>	<u>1,689,419</u>	<u>1,434,459</u>	<u>-</u>		<u>1,434,459</u>	<u>(254,960)</u>		
18									
19	Cost of Gas Sold (Including Gas Lost)	1,187,999	931,546	-		931,546	(256,453)		
20									
21	<b>Gross Margin</b>	<u>501,420</u>	<u>502,913</u>	<u>-</u>		<u>502,913</u>	<u>1,493</u>		
22									
23	Operation and Maintenance	173,138	165,162	-		165,162	(7,976)	- Tab C-13, Schedule 28	
24	Vehicle Lease	1,804	1,804	-		1,804	-	- Tab C-13, Schedule 28	
25	Property and Sundry Taxes	47,593	47,593	-		47,593	-	- Tab C-13, Schedule 31	
26	Depreciation and Amortization	89,685	79,725	-		79,725	(9,960)	- Tab C-13, Schedule 33	
27	Other Operating Revenue	(23,444)	(20,906)	-		(20,906)	2,538	- Tab C-13, Schedule 26	
28		<u>288,776</u>	<u>273,378</u>	<u>-</u>		<u>273,378</u>	<u>(15,398)</u>		
29	Utility Income Before Income Taxes	212,644	229,535	(1)		229,535	16,891		
30									
31	Income Taxes	26,331	23,010	1		23,010	(3,321)		
32									
33	<b>EARNED RETURN</b>	<u>\$186,313</u>	<u>\$206,525</u>	<u>\$0</u>		<u>\$206,525</u>	<u>\$20,212</u>	(X-Ref - Tab C-13, Schedule 73)	
34									
35									
36	<b>UTILITY RATE BASE</b>	<u>\$2,541,358</u>	<u>\$2,453,485</u>	<u>\$0</u>		<u>\$2,453,485</u>	<u>(\$87,873)</u>	- Tab C-13, Schedule 74	
37									
38	<b>RATE OF RETURN ON UTILITY RATE BASE</b>	<u>7.33%</u>	<u>8.42%</u>			<u>8.42%</u>	<u>1.09%</u>		

TERASEN GAS INC.

June 1 , 2009 A

INCOME TAXES  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Particulars	2009				Reference
		2009 APPROVED	Existing 2009 Rates	Revised Revenue	Total	
	(1)	(2)	(3)	(4)	(5)	(6)
1	CALCULATION OF INCOME TAXES					
2	Earned Return	\$186,313	\$206,525	\$0	\$206,525	\$20,212
3	Deduct - Interest on Debt	(110,953)	(108,525)	-	(108,525)	2,428
4	Add- Non-Tax Ded. Expense (Net)	328	428	-	428	100
5						
6	Accounting Income After Tax	75,688	98,428	-	98,428	22,740
7	Add (Deduct) - Timing Differences	(14,248)	(44,736)	-	(44,736)	(30,488)
8						
9	Taxable Income After Tax	<u>\$61,440</u>	<u>\$53,692</u>	<u>\$0</u>	<u>\$53,692</u>	<u>(\$7,748)</u>
10						
11		30.000%	30.000%	30.000%	30.000%	0.000%
12	1 - Current Income Tax Rate	70.000%	70.000%	70.000%	70.000%	0.000%
13						
14	Taxable Income	<u>\$87,771</u>	<u>\$76,703</u>	<u>\$0</u>	<u>\$76,703</u>	<u>(\$11,068)</u>
15						
16	<b>Total Income Tax</b>	<u>\$26,331</u>	<u>\$23,011</u>	<u>\$0</u>	<u>\$23,011</u>	<u>(\$3,320)</u>
17						

TERASEN GAS INC.

June 1 , 2009 A

Section C  
Tab 13  
Schedule 74

UTILITY RATE BASE  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

Line No.	Particulars	2009 APPROVED (2)	2009		Revised Rates (5)	Change (6)	Reference (7)
			Existing 2009 Rates (3)	Adjustments (4)			
1	Gas Plant in Service, Beginning	\$3,339,098	\$3,215,664	\$0	\$3,215,664	(\$123,434)	
2	Adjustment - CPCNs	12,855	12,879	-	12,879	24	
3	Gas Plant in Service, Ending	3,442,274	3,317,590	-	3,317,590	(124,684)	- Tab C-13, Schedule 45
4							
5	Accumulated Depreciation Beginning - Plant	(\$808,588)	(\$743,486)	\$0	(\$743,486)	\$65,102	
6	Accumulated Depreciation Ending - Plant	(869,177)	(779,187)	-	(779,187)	89,990	- Tab C-13, Schedule 49
7							
8	CIAC, Beginning	(\$148,423)	(\$161,636)	\$0	(\$161,636)	(\$13,213)	
9	CIAC, Ending	(146,828)	(176,845)	-	(176,845)	(30,017)	- Tab C-13, Schedule 52
10							
11	Accumulated Amortization Beginning - CIAC	\$46,175	\$45,381	\$0	\$45,381	(\$794)	
12	Accumulated Amortization Ending - CIAC	44,846	44,146	-	44,146	(700)	- Tab C-13, Schedule 52
13							
14	Net Plant in Service, Mid-Year	<u>\$2,456,116</u>	<u>\$2,387,253</u>	<u>\$0</u>	<u>\$2,387,253</u>	<u>(\$68,863)</u>	
15							
16							
17	Adjustment to 13-Month Average	-	(10,554)	-	(10,554)	(10,554)	
18	Work in Progress, No AFUDC	15,773	15,627	-	15,627	(146)	
19	Unamortized Deferred Charges*	(32,644)	(25,545)	-	(25,545)	7,100	- Tab C-13, Schedule 76
20	Cash Working Capital	(33,719)	(27,183)	-	(27,183)	6,536	- Tab C-13, Schedule 56
21	Other Working Capital (incl. Construction Advances)	138,198	115,701	-	115,701	(22,497)	- Tab C-13, Schedule 56
22	Future Income Taxes Regulatory Asset	-	278,048	-	278,048	278,048	- Tab C-13, Schedule 61
23	Future Income Taxes Regulatory Liability	(552)	(278,048)	-	(278,048)	(277,496)	- Tab C-13, Schedule 61
24	LIFO Benefit	(1,814)	(1,814)	-	(1,814)	-	
25	<b>Utility Rate Base</b>	<u>\$2,541,358</u>	<u>\$2,453,485</u>	<u>\$0</u>	<u>\$2,453,485</u>	<u>(\$87,873)</u>	(X-Ref - Tab C-13, Schedule 68, Schedule 72, Schedule 75)

\*Not equal to Schedule 8, column (2), line 19 because of differences in MCRA, CCRA and ESM balances for ESM calculation purposes

TERASEN GAS INC.

June 1 , 2009

Section C

RETURN ON CAPITAL  
FOR THE YEAR ENDING DECEMBER 31, 2009  
(\$000s)

**APPENDIX A**

Tab 13

**to Order G-141-09** Schedule 75

**Page 96 of 110**

Line No.	Particulars	Reference	----- Capitalization ----- Amount	%	Embedded Cost	Cost Component	Earned Return
	(1)	(2)	(3) (4)	(5)	(6)	(7)	(8)
1	2009 RATES						
2	Long-Term Debt		\$1,504,299	62.36%	6.959%	4.34%	
3	Unfunded Debt		90,221	2.63%	4.250%	0.11%	
4	Preference Shares		-	0.00%	0.000%	0.00%	
5	Common Equity		858,965	35.01%	11.740%	4.11%	
6							
7		- Tab C-13, Schedule 74	<u>\$2,453,485</u>	<u>100.00%</u>		<u>8.56%</u>	
8							
9	2009 REVISED RATES						
10	Long-Term Debt		\$1,504,299	61.31%	6.959%	4.27%	\$104,691
11	Unfunded Debt	\$90,221					
12	Adjustment, Revised Rates	-	90,221	3.68%	4.250%	0.16%	3,834
13	Preference Shares		-	0.00%	0.000%	0.00%	-
14	Common Equity		858,965	35.01%	11.409%	3.99%	97,999
15		(X-Ref - Tab C-13, Schedule 72)					
16		- Tab C-13, Schedule 74	<u>\$2,453,485</u>	<u>100.00%</u>		<u>8.42%</u>	<u>\$206,525</u>

Line No.	Particulars	Balance 12/31/2008	Gross Additions	Less-Taxes	Net Additions	Amortization Expense	Recoveries		Balance 12/31/2009	Mid-Year Average 2009
	(1)	(2)	(3)	(4)	(5)	(6)	Rider	Tax on Rider	(9)	(10)
1	Margin Related									
2	Commodity Cost Reconciliation Account (CCRA)	(\$23,164.7)	\$602.9	(\$180.9)	\$422.0	\$0.0	\$0.0	\$0.0	(\$22,742.7)	(\$22,953.7)
3	CCRA Interest	(596.2)	(428.2)	128.5	(299.7)	-	-	-	(895.9)	(746.1)
4	Midstream Cost Reconciliation Account (MCRA)	(23,588.7)	85,731.4	(25,719.4)	60,012.0	-	-	-	36,423.3	6,417.3
5	MCRA Interest	(1,812.2)	47.2	(14.2)	33.0	-	-	-	(1,779.2)	(1,795.7)
6	Revenue Stabilization Adjustment Mechanism (RSAM)	(7,917.2)	(7,902.9)	2,370.9	(5,532.0)	-	405.1	(121.5)	(13,165.6)	(10,541.4)
7	RSAM Interest	35.3	(133.2)	40.0	(93.2)	-	27.8	(8.3)	(38.4)	(1.6)
8	Revelstoke Propane Cost Deferral Account	(477.8)	627.1	(188.1)	439.0	-	-	-	(38.8)	(258.3)
9	SCP Mitigation Revenues Variance Account	(4,539.0)	(981.7)	324.5	(657.2)	1,078.1	-	-	(4,118.1)	(4,328.6)
10	SCP West to East Transmission	(1,658.0)	(376.1)	124.7	(251.4)	371.2	-	-	(1,538.2)	(1,598.1)
11										
12	Energy Policy Related									
13	Energy Efficiency & Conservation (EEC)	1,205.0	8,002.0	(2,400.6)	5,601.4	(436.2)	-	-	6,370.2	3,787.6
14	NGV Conversion Grants	124.0	80.0	(24.0)	56.0	(43.1)	-	-	136.9	130.5
15										
16	Non-Controllable Items									
17	Property Tax Deferral	(732.0)	(700.0)	210.0	(490.0)	478.2	-	-	(743.8)	(737.9)
18	Insurance Variance	(259.0)	(479.5)	143.9	(335.6)	(91.4)	-	-	(686.0)	(472.5)
19	Pension & OPEB Variance	207.0	(581.4)	-	(581.4)	(312.0)	-	-	(686.4)	(239.7)
20	BCUC Levies Variance	(295.0)	(383.7)	115.1	(268.6)	301.6	-	-	(262.0)	(278.5)
21	Interest Variance	(1,629.0)	(790.1)	237.0	(553.1)	(50.1)	-	-	(2,232.2)	(1,930.6)
22	Interest Variance - Funding benefits via Customer Deposits	161.0	76.9	(23.1)	53.8	(0.6)	-	-	214.2	187.6
24	Olympics Security Costs Deferral	-	746.9	(224.1)	522.8	-	-	-	522.8	261.4
25	IFRS Conversion Costs	98.0	430.7	(129.2)	301.5	-	-	-	399.5	248.8
26										
27	Cost of Current Applications									
28	2009 ROE & Cost of Capital Application	\$0.0	\$630.0	(\$189.0)	\$441.0	\$0.0	\$0.0	\$0.0	\$441.0	\$220.5
29	2010-2011 Revenue Requirement Application	55.0	1,057.5	(317.3)	740.2	-	-	-	795.2	425.1
30	CCE CPCN Application	-	270.0	(81.0)	189.0	-	-	-	189.0	94.5
31										
32	Other									
33	IFRS Transitional Adjustments	-	-	-	-	-	-	-	-	-
34	OPEB Funding	(28,644.0)	(5,582.6)	1,674.8	(3,907.8)	-	-	-	(32,551.8)	(30,597.9)
35	Pension & OPEB Funding	-	-	-	-	-	-	-	-	-
36										
37	Residual Deferred Charges									
38	SCP Tax Reassessment	7,292.8	165.0	(49.5)	115.5	-	-	-	7,408.3	7,350.6
39	Deferred Service Line Installation Fee	-	1,442.9	-	1,442.9	-	-	-	1,442.9	1,442.9
40	Earnings Sharing Mechanism	(9,879.1)	(18,748.0)	5,624.4	(13,123.6)	-	14,113.0	(4,233.9)	(13,123.6)	(11,501.4)
41	CCT Assessment	(16.0)	-	-	-	13.5	-	-	(2.5)	(9.3)
42	Carbon Tax Implementation	103.0	-	-	-	(198.0)	-	-	(95.0)	4.0
43	TGS Amalgamation	132.0	-	-	-	-	-	-	132.0	132.0
44	TGS O&M Variance	233.0	170.0	(51.0)	119.0	-	-	-	352.0	292.5
45	Carbon Tax Cost of Service	(384.0)	326.0	(97.8)	228.2	111.8	-	-	(44.0)	(214.0)
46	OSC Certification Compliance	90.0	110.7	(33.2)	77.5	(76.4)	-	-	91.1	90.6
47	Bad Debt Allowance for Rates 14 & 14A	(114.0)	(26.6)	0.4	(26.2)	-	-	-	(140.2)	(127.1)
48	2005 ROE Hearing	150.0	-	-	-	(150.0)	-	-	-	75.0
49	2006 LCT Elimination	14.0	-	-	-	(14.0)	-	-	-	7.0
50	NGV Compression Equipment Recovery	249.0	-	-	-	(249.0)	-	-	-	124.5
51	SCP PG&E Contract Cancellation	661.8	-	-	-	(661.8)	-	-	-	330.9
52										
53										
54	Total Deferred Charges for Rate Base	(\$94,895.0)	\$63,403.2	(\$18,728.2)	\$44,675.0	\$71.8	\$14,545.9	(\$4,363.7)	(\$39,966.0)	(\$66,709.1)
55										
56	Reconciliation with Mid Year Deferred Charges for ESM calculation:									
57										
58	Less:				Add:					
59	Projected Mid Year MCRA balance (+ interest)	4,621.6			Approved Mid Year MCRA balance (+ interest)			7,961.3		
60	Projected Mid Year CCRA balance (+ interest)	(23,699.8)			Approved Mid Year CCRA balance (+ interest)			(12,224.5)		
61	Projected Mid Year Revelstoke Propane balance	(258.3)			Approved Mid Year Revelstoke Propane balance			16.7		
62	Projected Mid Year ESM balance	(11,501.4)			Approved Mid Year Approved balance			3,916.2		
63	Projected Mid Year RSAM balance (+ interest)	(10,543.0)	(41,380.9)		Approved Mid Year RSAM balance (+ interest)			113.7	(216.6)	
64										
65					Net Mid-Year Reconciling items for ESM purposes					41,164.3
66					Mid Year Deferred Charges balance for ESM purposes					(\$25,544.8)
67										
68										(X-Ref - Tab C-13, Schedule 74)

Terasen Gas Inc. 2010-2011 Revenue Requirements Application  
Negotiated Settlement Process  
Issues of Particular Concern to the Commission Panel

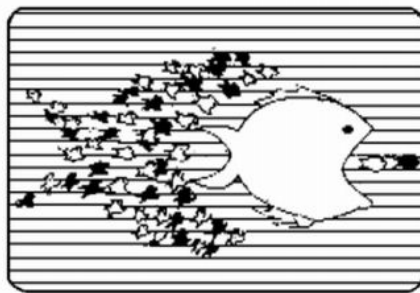
In accordance with sections 3 and 9 of the Negotiated Settlement Process-Policy, Procedures and Guidelines, the Commission Panel has identified the following issues of particular concern that parties should be aware of during the negotiations:

1. EEC Program-TGI is to provide results of the programs approved by the EEC Decision and expectations for new programs before the Commission Panel will approve additional EEC program funding.
2. Natural Gas for Vehicles ("NGV")-if NGV is to proceed why should the natural gas ratepayer fund this initiative rather than Terasen's non-regulated businesses or the competitive market?
3. Biogas-to be reviewed by a CPCN which demonstrates market uptake of customers that are willing to pay the full cost.
4. International Financial Reporting Standards ("IFRS")-no IFRS impact in 2010.
5. 2010 Rate Changes-in the event that a 2010 rate reduction were to occur as a result of the negotiations, the current rates should remain unchanged and place the revenue surplus into a deferral account to apply against 2011 and future rate increases with a phase in amortization that strives for rate stability.
6. CPCN threshold-stay at \$5million.
7. Unrealized losses in rate base-should some of these losses be to the shareholder? Parties should present a separate settlement package.



# The British Columbia Public Interest Advocacy Centre

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Ros Salvador	488-1315
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Barristers & Solicitors

Peggy Lee  
Article Student

Our file: 7432

November 12, 2009

## VIA EMAIL

Erica M. Hamilton  
Commission Secretary  
BC Utilities Commission  
Sixth Floor, 900 Howe Street  
Vancouver, BC V6Z 2N3

**Re: Terasen Gas Inc. Revenue Requirements 2010-2011  
Negotiated Settlement**

This is to confirm that we are satisfied that the draft Settlement Agreement circulated by Mr. Thompson and Mr. Loski on November 5, 2009 accurately captures the consensus reached by the parties to the Negotiated Settlement Process in this proceeding, and that we have been instructed by our clients, BCOAPO et al., to endorse it.

Accordingly, we ask that the Commission incorporate it into a consent Order for the resolution of all issues in the Application.

Our only further comments, made here only "for the record" and in no way detracting from our clients' endorsement of the Settlement, concern the "Alternative Energy Solutions" addressed under heading 13 of the document. While we believe that the ultimately appropriate corporate and regulatory formats for these lines of business are subject-matters which may require eventual determination by the Commission, our clients are content with the treatment of these issues in the Settlement Agreement over its term, in that it provides a "firewall" to ensure that the utility's natural gas distribution customers do not subsidize or otherwise contribute to these nascent programs through their rates.

Yours truly,

**BC PUBLIC INTEREST ADVOCACY CENTRE**

*Original in file signed by:*

Jim Quail  
Executive Director

cc: parties of record

William E Ireland, QC  
Douglas R Johnson+  
Allison R Kuchta+  
James L Carpick+  
Michael P Vaughan  
Terence W Yu+  
Michael F Robson+  
Scott H Stephens  
Edith A Ryan

D Barry Kirkham, QC+  
James D Burns+  
Susan E Lloyd+  
Christopher P Weafer+  
Gregory J Tucker+  
Harley J Harris+  
James H McBeath+  
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James W Zaitsoff

Robin C Macfarlane+  
Duncan J Manson+  
Daniel W Burnett+  
Paul J Brown+  
Karen S Thompson+  
Gary M Yaffe  
Paul A Brackstone+  
Zachary J Ansley

J David Dunn+  
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Our File: 23841/0040

Carl J Pines, Associate Counsel+  
R Keith Thompson, Associate Counsel+  
Rose-Mary L Basham, QC, Associate Counsel+

Hon Walter S Owen, QC, QC, LLD (1981)  
John I Bird, QC (2005)

+ Law Corporation  
\* Also of the Yukon Bar

November 13, 2009

## VIA ELECTRONIC MAIL

British Columbia Utilities Commission  
6<sup>th</sup> Floor, 900 Howe Street  
Vancouver, B.C. V6Z 2N3

**Attention: Erica M. Hamilton,  
Commission Secretary**

Dear Sirs/Mesdames:

**Re: Terasen Gas Inc. ("Terasen") 2010 and 2011 Revenue Requirements and Delivery  
Rates Application, Project No. 3698562**

We are counsel to the Commercial Energy Consumers Association of British Columbia (the "CEC"). We confirm that the CEC accepts the terms of the final version of the Negotiated Settlement Agreement on the above-noted Application circulated by Terasen on November 5, 2009 and have no comments on that draft.

The CEC thanks the Commission staff and facilitator, Terasen and the other customer representatives for their efforts during these negotiations.

If you have any questions regarding the foregoing, please do not hesitate to contact the undersigned.

Yours truly,

**OWEN BIRD LAW CORPORATION**



Christopher P. Weafer

CPW/jlb

cc: CEC

cc: Terasen

cc: Registered Intervenors

November 13, 2009

Mr. Philip Nakoneshny  
Director of Rates and Finance  
British Columbia Utilities Commission

**RE: Negotiated Settlement Terasen Gas Inc. (TGI) Revenue Requirements  
Settlement 2010/2011**

Dear Mr. Nakoneshny:

On November 5, 2009, TGI forwarded a Draft Agreement and requested that edits and comments be forwarded to TGI. Ministry of Energy, Mines and Petroleum Resources staff have reviewed the Draft Agreement and from a policy perspective, have an interest in 5 items:

11. Energy Efficiency and Conservation ("EEC") Funding for 2010
12. EEC Funding for 2011
13. Alternative Energy Solutions
14. Natural Gas for Vehicles
15. Biogas

Other components of the negotiated settlement such as capital cost structure, interest rates, depreciation rates, salvage values, etc., are outside the purview of the Ministry's interests in this agreement. However, we note that, in the future, Use per Customer Rates (8) and Industrial Demand Forecast (9) may be lower depending on the implementation of TGI's EEC programs.

The 2007 Energy Plan and Climate Action Plan, 2008 amendments to the *Utilities Commission Act*, Ministerial Order B.C. Reg. 326/2008, and the Ministry's involvement in the 2008/09 TGI/TGVI Energy Efficiency and Conservation Application indicate the Province's intent to require electric and natural gas utilities to pursue energy efficiency.

The Ministry is particularly pleased with the reallocation of funds for low income and rental housing programs to \$2.4 million for 2010 and 2011. The Ministry also appreciates the increase in industrial energy efficiency program funding in 2011.

.../2

- 2 -

We believe there is great potential for a significant amount of this industrial funding to be applied collaboratively with existing demand side management programs at electric utilities, especially at BC Hydro, in order to minimize duplication of structural costs and to maximize energy savings benefits at industrial facilities.

Appropriate oversight of EEC funding is maintained through the TRC requirements and annual reporting to the Commission. As a result, the Ministry supports Option 12.1 (a) and (b) to maintain program continuity and effectiveness.

Alternative Energy Solutions is a new type of service that TGI proposes to offer to existing and new customers. Geo-exchange, solar-thermal and district energy systems offer the potential to reduce greenhouse gas emissions, and as such, the Ministry is encouraged that TGI is proposing to offer this new type of service.

The Ministry supports the expanded use of natural gas for vehicles (NGV) and biogas, and is encouraged that TGI intends to apply to the Commission for appropriate rates.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Paul Wieringa', with a stylized, cursive script.

Paul Wieringa  
Executive Director  
Renewable Energy and Energy Efficiency Branches  
Ministry of Energy, Mines and Petroleum Resources  
Telephone: 250-952-0243  
Facsimile: 250-952-0258

---

**From:** Nakoneshny, Philip BCUC:EX  
**Sent:** Friday, November 13, 2009 12:59 PM  
**To:** Commission Secretary BCUC:EX  
**Subject:** FW: Terasen Gas -Revenue Requirements-Negotiated Settlement

-----Original Message-----

From: Dave Newlands [mailto:dnewlands@telus.net]  
Sent: Friday, November 13, 2009 9:40 AM  
To: 'Al Kleinschmidt'; Brownell, Bob BCUC:EX; Bystrom, Chris; Chris Weafer; J. David Newlands; Roy, Diane; David Craig (dwcraig@allstream.net); Domingo, Yolanda BCUC:EX; Stout, Douglas; 'Eugene Kung'; 'Frederick Metcalfe'; 'Leigha Worth'; McMahon, Claudia BCUC:EX; Carman, Michelle; Nakoneshny, Philip BCUC:EX; 'Paul Cassidy'; Hill, Shawn; Loski, Tom; Wieringa, Paul EMPR:EX; Ghikas, Matt; Sue, Suzanne BCUC:EX; Thomson, Scott - TGI; James L. Quail (JimQuail@bcpiac.com)  
Cc: Bernadet Mark SPO  
Subject: Terasen Gas -Revenue Requirements-Negotiated Settlement

Philip Nakoneshny  
Director of Rates and Finance  
British Columbia Utilities Commission

Dear Philip

Terasen Gas Revenue Requirements Application-2010/2011  
Negotiated Settlement

I write on behalf of Teck Coal.

Teck Coal participated in the Negotiated Settlement Process ("NSP"), facilitated by the Staff of the British Columbia Utilities Commission, and held in the offices of the Commission, which commenced on October 21, 2009.

Teck Coal in the negotiations took into consideration the 7 "Issues of Particular Concern to the Commission Panel", as provided by the Commission Panel at the commencement of the negotiation.

Issue Number 5 stated " 2010 Rate Changes- in the event that a 2010 rate reduction were to occur as a result of the negotiations, the current rates should remain unchanged and place the revenue surplus into a deferred account to apply against 2011 and future rate increases with a phase in amortization that strives for rate stability"

Teck Coal supports the Negotiated Settlement Agreement Package ("TGI NSP Agreement Package") dated and circulated by Terasen Gas Inc incorporating a decrease of (1.73%) in the Fiscal Year commencing January 1, 2010, previously an increase of 5.3%. and an increase of 3.93% in the Fiscal Year Commencing January 1, 2011, previously an increase of 4.1% .

The Negotiated Settlement Agreement Package, incorporates, amongst others, Issues of Particular Concern to the Commission Panel No. 5

Teck Coal recognizes and emphasizes that this Agreement is the product of compromise on the part of all Parties, yielding an overall package that the Parties consider to be fair, just and reasonable. The Parties agreed that any compromises resulting from this Agreement are without prejudice to the Parties<sup>1</sup> ability to take different positions after 2011 and without prejudice to the Parties right to intervene in any applications contemplated in or resulting from this Agreement.

Yours Truly

J.David Newlands

Cc Mark Bernadet ,General Manager ,Business Improvement,Teck Coal



PHILIP W. NAKONESHNY  
DIRECTOR, RATES AND FINANCE  
Philip.Nakoneshny@bcuc.com  
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VANCOUVER, B.C. CANADA V6Z 2N3  
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November 13, 2009

Erica M. Hamilton  
Commission Secretary  
British Columbia Utilities Commission  
Sixth floor, 900 Howe Street, Box 250  
Vancouver, BC V6Z 2N3

Dear Ms. Hamilton:

Re: Terasen Gas Inc.  
2010 and 2011 Revenue Requirements Application  
Negotiated Settlement Agreement  
Letter of Comment

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Commission staff participated in the settlement discussions that led to a Negotiated Settlement Agreement ("Settlement Agreement") being reached between Terasen Gas Inc. ("Terasen Gas") and the registered Intervenor (collectively, the "Parties") in accordance with the *Negotiated Settlement Process-Policy, Procedures and Guidelines, January 2001* ("NSP Guidelines"). Commission staff has informed the Parties that the agreements reached on certain issues were not supported by Commission staff and that Commission staff intended to submit a Letter of Comment in respect of those issues. The Parties agreed to Commission staff adopting that course.

There are three items in the Settlement Agreement that Commission staff do not support:

**1. Item 10-Inclusion of SCP Capacity in MCRA**

Commission Order G-98-05 states that:

*"The Commission approves the debiting of the annual charge of \$3.6 million (based on the monthly instalments) against the Midstream Cost Reconciliation Account, with an equal and offsetting amount to be credited to the delivery margin the revenue account for a limited period as a unique and unusual transaction in the circumstances of the SCP and the termination of the BC Hydro TSA. The debiting and the crediting will commence on either November 1, 2005 or January 1, 2006, as consistent with the amount of the BC Hydro/Terasen Inc. TSA revenue that Terasen Gas forecast in its Annual Review submission for 2005 and will end on the earlier of the November 1, 2010 or such other date as the Commission may determine."*

The Settlement Agreement continues to include the annual charge of \$3.6 million against the MCRA with an offsetting credit to the delivery margin. In Commission staff's view, extending this treatment beyond November 1, 2010 as contemplated by Order G-98-05 requires a determination by the Commission Panel.

Commission staff accepts that such determination will occur if the Commission Panel approves the Settlement Agreement.

## **2. Item 13-Alternative Energy Solutions**

Terasen Gas added 9 enhanced sales and business development staff in 2009 estimated to cost \$1.35 million and proposes increases of \$3.0 million in 2010 for an additional 10 enhanced sales and business development staff including \$1.1 million for consultants and studies and a further \$0.6 million in 2011 for 4 enhanced sales and business development staff (BCUC IR 1.72.2 and IR 2.96.2 to 2.96.4; IR 1.114.7). The number of customers are expected to increase between 1.0 to 1.1 percent from 2009 to 2011, but the level of spending in Customer Solutions and Services increases by 17 percent, 27 percent and 8 percent respectively from 2009 to 2011 (BCUC IR 1.96.3).

The New Energy Solutions Deferral Account is to capture direct costs, sales and marketing O&M and other development costs by timesheets or other direct charge and an overhead allocation. In Commission staff's view, due to the modest growth in customer additions from 2009 to 2011, the additional enhanced sales and business development staff were primarily hired in 2009 to 2011 to develop and market Alternative Energy Solutions. The use of timesheets, direct charges and overhead allocations may result in a proper reallocation of costs from the gas utility to the New Energy Solutions Deferral Account.

The down time or idle time that will likely be experienced while the Alternative Energy is being marketed may not be captured by the timesheet allocation and could remain as a cost to the gas utility. In Commission staff's view, it would be preferable to directly charge the fully loaded cost of the additional enhanced sales and business development staff and the costs of consultants and studies to the New Energy Solutions Deferral Account to avoid any of these costs being borne by natural gas customers.

If Terasen Gas is able to demonstrate that the use of timesheets, direct charges and overhead allocations would result in none of the costs that are incurred for Alternative Energy Solutions including down time and the costs of consultants and studies to be borne by gas customers, then Commission staff's concern is addressed.

## **3. Item 14-Natural Gas for Vehicles ("NGV")**

Terasen Gas proposes to treat as general O&M, rather than track separately, NGV marketing and project development costs incurred prior to signing a contract with a customer for compression and refuelling service (BCUC IR 1.21.1).

Commission staff attempted to obtain information on the NGV marketing costs that are currently incurred through information requests, but were unsuccessful. In Commission staff's view, information on the incremental marketing costs being incurred will be required if Terasen Gas, during 2010 and 2011, applies



for approval of Rate Schedule 6 C NGV Compression and Refuelling Service and 6A NGV Refuelling Service , including recovery of the incremental marketing costs, and the Commission is to review the applications on a case-by-case basis as contemplated in the Settlement Agreement.

Yours truly,

*Original Signed by*

Philip W. Nakoneshny  
Director, Rates and Finance

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Regulatory Affairs Correspondence  
Email: [regulatory.affairs@terasengas.com](mailto:regulatory.affairs@terasengas.com)

November 13, 2009

British Columbia Utilities Commission  
Sixth Floor, 900 Howe Street  
Vancouver, B.C.  
V6Z 2N3

Attention: Mr. Philip Nakoneshny, Director, Rates and Finance

Dear Mr. Nakoneshny:

**Re: Terasen Gas Inc. ("Terasen Gas")  
2010 and 2011 Revenue Requirements Application  
Negotiated Settlement Agreement**

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On June 15, 2009, Terasen Gas filed its 2010 and 2011 Revenue Requirements Application, which was supplemented by a filing on July 9, 2009 and amended by filings on August 14 and September 18, 2009 (the "Application").

In accordance with Commission Order No. G-76-09 issued on June 19, 2009, a Workshop was held on July 6, 2009 for a review of the Application, a Procedural Conference was held on July 15, 2009, and Terasen Gas responded to two rounds of Information Requests. In accordance with Commission Order No. G-89-09 issued on July 20, 2009, a second Procedural Conference was held on September 25, 2009 and on October 2, 2009, the Commission issued Order G-119-09 establishing a Negotiated Settlement Process ("NSP") for the Application. In accordance with Order No. G-120-09, the NSP commenced on Wednesday, October 21, 2009 and concluded on Wednesday, November 4, 2009.

Terasen Gas has reviewed the attached settlement documents, including the Negotiated Settlement Agreement and associated financial schedules (collectively the "Negotiated Settlement") arising from the NSP. Terasen Gas recognizes the Negotiated Settlement as being the product of good faith compromises among parties with diverse interests in the issues raised by the Application. The Parties have expressly considered the Commission Panel's Issues. In fulfilling their role pursuant to the Commission's Negotiated Settlement Process Policy, Procedures and Guidelines (the "Guidelines"), Commission Staff made additional information available to the parties which they believed was in the public interest. The parties considered all such information in reaching the compromise Settlement Agreement and Terasen Gas considers the resulting Negotiated Settlement to be fair, just and reasonable. As the Negotiated Settlement represents compromises among the parties and an overall balance of interests, Terasen Gas stresses that the Negotiated Settlement should be considered as a package, with no part being severed unless otherwise stated in the Agreement. On that basis, Terasen Gas accepts the Negotiated Settlement.

Commission Staff have provided written comment on the NSP, and TGI responds to those comments below.

**Inclusion of Southern Crossing Pipeline ("SCP") Capacity in the Midstream Cost Reconciliation Account ("MCRA"):** TGI notes for reference that the evidence on the inclusion of the SCP costs in the MCRA is found in the Application on pages 314 to 315 and its response to BCUC IRs 1.68.1 and 2.92.1-7. The result of taking the approach in the Agreement is a lower delivery rate, all else equal, with an offsetting charge to the MCRA.

**Alternative Energy Solutions (Geothermal/District Energy Systems and Solar Thermal):** Staff's position on this issue turns on its view that, *"due to the modest growth in customer additions from 2009 to 2011, the additional enhanced sales and business development staff were primarily hired in 2009 to 2011 to develop and market Alternative Energy Solutions."* While that may be Staff's position, it is at odds with TGI's evidence. Staff's conclusion appears to rest on the notion that TGI could not truly require additional staff for marketing if there is only modest growth in customer additions, i.e. that there is a linear correlation between marketing effort and customer additions. TGI's evidence was that the competitive factors facing the gas business mean that it is necessary to invest more to maintain and grow the business, including the gas business.

Staff also identifies an issue relating to overhead allocation to the alternative energy class of service, so as to ensure gas customers are not bearing costs attributable to the pursuit of geothermal, solar thermal and district energy systems. The cost allocation methodology outlined in the Agreement is structured to avoid cross subsidization by gas customers. The Agreement contemplates a \$500,000 annual overhead allocation to alternative energy solutions, and a corresponding reduction in overhead allocated to gas customers. This is a direct benefit to gas customers. As a point of comparison, the allocation of overhead to alternative energy solutions is approximately two times the allocation to Terasen Gas (Whistler) Inc., suggesting that the issue of overhead allocation is addressed adequately. The risk of non-recovery lies with TGI's shareholder, not gas customers. Notably, the gas customers themselves have endorsed the Agreement.

**NGV Marketing Costs:** TGI notes that it has an existing NGV tariff and the amount of NGV marketing costs in the revenue requirements for 2010 and 2011 is very modest (see TGI's responses to BCUC IR 1.21.2 (last paragraph) and BCUC IR 2.96.2). Issues relating to NGV have been deferred by the terms of the Settlement Agreement. TGI respectfully submits that there is no need for the Panel to address Staff's issue at this time.

TGI wishes to make one final comment relating to our procedural concerns regarding the publication of Staff's comments. Commission Staff unquestionably plays an important role during the confidential settlement discussions in providing information and assisting the parties, and providing a perspective regarding their view on the public interest. That role is one sanctioned by, and described in, the Commission's Guidelines. However, under the Guidelines (at page 8) Commission Staff is precluded from, "endorsing a particular position". TGI therefore questions whether the letter provided by Commission Staff is consistent with the Guidelines.



TGI respectfully submits that the requirement for the Commission Staff not to take positions on issues makes good sense. Commission Staff is not a party to the resulting Agreement; rather, the Negotiated Settlement Agreement is simply an agreement among intervenors and the applicant that a certain outcome is acceptable to them and should be jointly submitted for consideration by the Panel. In this case, the Agreement is clear that the Parties, having fully considered the information provided by Staff during the course of the NSP, have reached a compromise agreement that they consider to be in all respects fair, just and reasonable. As is inherent in every compromise, there will be outcomes about which a particular party was only supportive in exchange for other concessions. By commenting on the Agreement reached, Commission Staff places the parties in the position of having to justify individual items without being able to detail the steps that led to the outcome (which would not be appropriate in any event). It similarly places focus on isolated issues in the absence of the whole context of the negotiation that occurred in confidence. As a means of highlighting the difficulty this type of commentary creates, it is not possible for TGI to address in this letter Staff's statements about the information on NGV provided by TGI with reference to any additional information provided in the course of the confidential discussions.

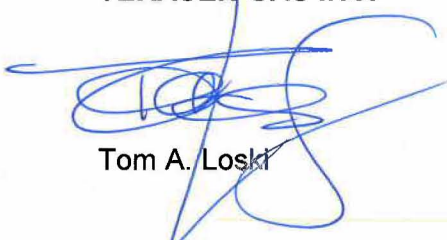
To the extent that Staff has decided to make its views known on the present Agreement, TGI appreciates Staff having done so in a transparent manner; the alternative of having these views being conveyed in a non-transparent manner without any ability to respond would have been unpalatable. TGI nevertheless respectfully submits that the overall Settlement Agreement package should be assessed without isolating for consideration three issues where Staff might potentially have preferred a different outcome.

With that comment, Terasen Gas would like to express sincere thanks to Commission Staff and Intervenor representatives for their active participation in achieving this Negotiated Settlement Agreement on the Application. Terasen Gas also wishes to thank the NSP facilitator, Mr. Paul Cassidy, for his leadership, guidance and assistance to all parties throughout the NSP process.

If there are any questions regarding the attached, please contact the undersigned.

Yours very truly,

**TERASEN GAS INC.**



Tom A. Loski

cc (e-mail only): Parties to the NSP

**Appendix D**

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**BC ENERGY EFFICIENCY ACT STANDARDS**

# B.C. ENERGY EFFICIENCY ACT STANDARDS: Gas Furnaces

## MEMPR ENFORCEMENT BULLETIN 09-03



**What products are you regulating?** The British Columbia *Energy Efficiency Act (EEA)* Automatic operating gas-fired central forced-air furnaces that use propane or natural gas and have an input rate not exceeding 66 kW (225 000 Btu/h). The regulation applies to residential and commercial furnaces.

**Are you forcing me to replace my furnace?** No. The regulation only applies to purchases of new or replacement furnaces. Individuals can keep their existing furnaces for as long as they wish.



**What is the regulated energy efficiency standard for those products?** Such products must achieve an Annual Fuel Utilization Efficiency (AFUE) equal to or greater than 90%, as tested under the standard CSA P.2-07: *Testing Method for Measuring the Annual Fuel Utilization Efficiency of Residential Gas-fired Furnaces and Boilers*. These products are commonly known as “condensing furnaces.”

### **When will the regulations take effect in British Columbia?**

For furnaces for new residential construction and all commercial buildings: January 1, 2008.

Replacement furnaces in existing dwellings: December 31, 2009.



**Can I sell my inventory of non-compliant products after the effective date?** For furnaces for new residential construction, any products manufactured after January 1, 2008 must comply with the regulation.

For replacement furnaces, any products manufactured after December 31, 2009 must comply with the regulation. If you have unsold inventory of products manufactured before the effective date, they can still be sold legally in British Columbia after the effective date.

**Are there any exemptions to these regulations?** Furnaces for recreational vehicles are exempted from the regulation. The Ministry is also providing an extended timeline for “through the wall” furnaces. A through-the-wall gas furnace is a gas-fired furnace that is designed and marketed to be installed in an opening in an exterior wall that is fitted with a weatherized sleeve. For through-the-wall gas-fired furnaces only, the 90% AFUE standard will come into effect on December 31, 2012.

# B.C. ENERGY EFFICIENCY ACT STANDARDS:

## Gas Furnaces

### MEMPR ENFORCEMENT BULLETIN 09-03



#### **How can I tell if a product is compliant with the energy efficiency regulations?**

Suppliers can demonstrate compliance with the standard by ensuring that the product is listed in the Natural Resources Canada furnace database, and that the database indicates an AFUE equal to, or greater than 90%: [www.oeenrcan.gc.ca/residential/business/manufacturers/search/gas-furnace-search.cfm?attr=4](http://www.oeenrcan.gc.ca/residential/business/manufacturers/search/gas-furnace-search.cfm?attr=4)

**Who enforces this regulation?** The Ministry of Energy, Mines and Petroleum Resources is responsible for enforcing all regulated standards under the *EEA*.

**What are the penalties for non-compliance?** Under the *EEA*, the Ministry can conduct inspections to verify compliance with the *Act* and regulations. *EEA* enforcement begins with education and voluntary compliance measures. Ministry staff follow up on all complaints and other information respecting non-compliance, and communicate directly with industry participants to develop a compliance plan.

The Ministry can also seek to have those who have contravened the legislation charged under the *Offence Act*. An offence can result in fines up to \$2,000.

**What do I do if I see a non-compliant product for sale or distribution?** Please circulate this enforcement bulletin to the retailer or distributor. You can also report infractions to Erik Kaye, Ministry of Energy, Mines and Petroleum Resources at 250-356-1507 or [Erik.Kaye@gov.bc.ca](mailto:Erik.Kaye@gov.bc.ca)

**For more information on B.C.'s Energy Efficiency Act:**  
[www.empr.gov.bc.ca/EAED/EnergyEfficiency/Pages/EEAct.aspx](http://www.empr.gov.bc.ca/EAED/EnergyEfficiency/Pages/EEAct.aspx)



## B.C. ENERGY EFFICIENCY ACT STANDARDS:

# Gas and Propane-Fired Water Heaters



The Best Place on Earth

### MEMPR INFORMATION BULLETIN 09-05



**What products are you regulating?** Storage-type water heaters with a rated storage capacity of 76 to 380 litres and an input of 75 000 Btu/h or less, for use with natural gas or propane.

**Are you forcing me to replace my water heater?** No. The regulation applies to voluntary purchases of new or replacement water heaters. Individuals can keep their existing water heaters for as long as they wish.

**What is the regulated energy efficiency standard for those products?** The Energy Factor (EF) must be greater or equal to<sup>1</sup> :  
 $0.70 - (0.0005 \times V)$

Here are the new minimum EF levels for several common sizes:

Rated Storage Capacity in litres (US gallons)	Minimum Energy Factor
114 L (30 US gal)	0.64
151 L (40 US gal)	0.62
181 L (48 US gal)	0.61
189 L (50 US gal)	0.61
246 L (65 US gal)	0.58
283 L (75 US gal)	0.56

For a lookup table with all sizes, go to:

[www.empr.gov.bc.ca/EAED/EnergyEfficiency/Pages/EEAct.aspx](http://www.empr.gov.bc.ca/EAED/EnergyEfficiency/Pages/EEAct.aspx)

**When will the regulation take effect?** September 1, 2010

**Can I sell my inventory of non-compliant products after the effective date?** Any water heaters manufactured after September 1, 2010 must comply with the regulation. If you have unsold inventory of products manufactured before the effective date, they can still be sold legally in British Columbia after the effective date.

**How can I tell if a product is compliant with efficiency regulations?** Suppliers can ensure compliance with the standard by stocking only products that meet the minimum EF level outlined above. If the manufacturer's product literature is not clear on this point, Natural Resources Canada has a gas water heater database which lists EF by model number, which can be found at [www.oee.nrcan.gc.ca/residential/business/manufacturers/search/gas-water-heaters-search.cfm?attr=4](http://www.oee.nrcan.gc.ca/residential/business/manufacturers/search/gas-water-heaters-search.cfm?attr=4)

<sup>1</sup> In this equation, V is the water heater's rated storage capacity in litres, as tested under the standard CAN/CSA-P.3-04: *Testing Method for Measuring Energy Consumption and Determining Efficiencies of Gas-Fired Storage Water Heaters*.



# Gas and Propane-Fired Water Heaters

## MEMPR INFORMATION BULLETIN 09-05



### Do ENERGY STAR water heaters meet the new standard?

As of September 1, 2010, all new ENERGY STAR water heaters will be compliant with the B.C. regulation. ENERGY STAR water heaters manufactured before September 1, 2010 may not meet the standard in all cases, please check the database referenced in the previous question to confirm. Note: the ENERGY STAR standard is the same for all water heater sizes, whereas the new B.C. requirements vary with the tank size.

**Who enforces this regulation?** The Ministry of Energy, Mines and Petroleum Resources is responsible for enforcing all regulated standards under the *EEA*.

**What are the penalties for non-compliance?** Under the *EEA*, the Ministry can conduct inspections to verify compliance with the *Act* and regulations. *EEA* enforcement begins with education and voluntary compliance measures. Ministry staff follow up on all complaints and other information respecting non-compliance, and communicate directly with industry participants to develop a compliance plan.

The Ministry can also seek to have those who have contravened the legislation charged under the *Offence Act*. An offence can result in fines up to \$2,000.

### What do I do if I see a non-compliant product for sale or distribution?

Please circulate this information bulletin to the retailer or distributor. You can also report infractions to [Erik Kaye](#), Ministry of Energy, Mines and Petroleum Resources at 250-356-1507 or [Erik.Kaye@gov.bc.ca](mailto:Erik.Kaye@gov.bc.ca).

For more information on B.C.'s *Energy Efficiency Act*:  
[www.empr.gov.bc.ca/EEC/Strategy/EEA/Pages/default.aspx](http://www.empr.gov.bc.ca/EEC/Strategy/EEA/Pages/default.aspx)

## **Appendix E**

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# **CONSERVATION EDUCATION AND OUTREACH EVENTS AND PARTICIPATING SCHOOLS**

## 2010 CEO Outreach Events and 2011 Proposed Events

<b>Event</b>	<b>Location</b>	<b>Residential</b>	<b>Commercial</b>	<b>Consumers Reached</b>	<b>Proposed 2011</b>
BC Association of School Business Officials	Penticton		x	50	x
BC Food Service Expo	Vancouver		x	200	x
BC Hydro Power Smart Forum	Vancouver		x	160	x
BCAMOA annual general meeting	Vancouver		x	50	x
BCAMOA semi-annual general meeting	Vancouver		x	200	x
BIA Kamloops meeting	Kamloops		x	20	x
BIA Maple Ridge regional meetings	Maple Ridge		x	80	x
BIA Victoria AGM	Victoria		x	20	x
British Columbia Recreation and Parks Association Symposium	Penticton		x	30	x
Buildex Vancouver	Vancouver		x	200	x
Canadian Federation of Apartments Association	Vancouver		x	200	x
Canadian Healthcare Engineering Society conference	Whistler		x	30	x
Kamloops Central BIA meeting	Kamloops		x	20	x
Pacific Agricultural Show	Abbotsford		x	50	x

<b>Event</b>	<b>Location</b>	<b>Residential</b>	<b>Commercial</b>	<b>Consumers Reached</b>	<b>Proposed 2011</b>
Recreation Facilities Association of British Columbia Annual Conference	Oliver		x	30	x
ROMS BC AGM	Victoria		x	40	x
Strathcona BIA expo	Vancouver		x	30	x
Sustainabuild	Vancouver		x	30	x
Union of BC Municipalities Conference	Whistler		x	200	x
Abbotsford Air Show	Abbotsford	x		300	x
BC Lions Terasen Sponsored Night	Vancouver	x		600	x
BCHL Cowichan Valley	Cowichan Valley	x		250	x
BCHL Nanaimo	Nanaimo	x		200	x
BCHL Penticton	Penticton	x		300	x
BCHL Port Alberni	Port Alberni	x		300	x
BCHL Powell River	Powell River	x		400	x
BCHL Trail	Trail	x		200	x
BCHL Vernon (fall)	Vernon	x		400	x
BCHL Vernon (spring)	Vernon	x		250	x
BCHL Victoria	Victoria	x		275	x
BCSEA Kamloops Energy Fair	Kamloops	x		200	x
BerryBeat Festival	Abbotsford				x
Burnaby Lake Biodiversity Scavenger	Burnaby	x		100	x

<b>Event</b>	<b>Location</b>	<b>Residential</b>	<b>Commercial</b>	<b>Consumers Reached</b>	<b>Proposed 2011</b>
Hunt					
Burnaby Multicultural Fest.	Burnaby	x		100	x
Capilano University Eco Fair	North Vancouver	x		25	x
CHBA Central Interior House and Home Residential Construction Trade Show	Kamloops	x		200	x
CHBA Central Vancouver Island Renovation Tradeshow	Nanaimo	x		300	x
CHBA Northern BC Home Show	Prince George	x		320	x
CHBA South Okanagan Spring Home Show	Penticton				x
CHBA Victoria Spring Home Show	Victoria				x
City of Richmond	Richmond				x
Collingwood Days	Vancouver	x		200	x
Coquitlam Energy Expo	Coquitlam	x		175	x
Earth Explo. School Fair	Abbotsford				x
EPIC Sustainable Living Expo	Vancouver	x		500	x
Fraser Health Authority roadshows	various	x			x

<b>Event</b>	<b>Location</b>	<b>Residential</b>	<b>Commercial</b>	<b>Consumers Reached</b>	<b>Proposed 2011</b>
GVHBA Fall Home Renovation Seminar	Vancouver	x		150	x
GVHBA Summer Home Renovation Seminar	Vancouver	x		50	x
Hastings Sunrise Festival	Vancouver	x		150	x
Kelowna Spring Home Show	Kelowna	x		500	x
Kensington Community Fair	Vancouver	x		50	
Killarney Slice of Summer	Vancouver	x		75	
Latincouver Summer Festival	Vancouver				x
Lonsdale Party on the Pier	North Vancouver	x		400	x
Maple Ridge Carribean Festival	Maple Ridge				x
Moody Elementary Fair	Port Moody	x		150	x
New Westminster Hyack Festival	New Westminster				x
Newton Community Festival	Surrey	x		200	x
North Delta Lions Day	North Delta	x		150	x
Northern Health Authority roadshow					x
Ocean Park Days	White Rock	x		180	x
Organic Islands	Victoria	x		600	x

<b>Event</b>	<b>Location</b>	<b>Residential</b>	<b>Commercial</b>	<b>Consumers Reached</b>	<b>Proposed 2011</b>
Sustainability Festival					
Pacific Blue Cross Eco Fair	Richmond	x		150	
Philippine Independence Day	North Vancouver	x		250	x
Play On Burnaby	Burnaby	x		200	
Play On Kelowna	Kelowna	x		400	x
Port Moody Fingerling	Port Moody	x		150	
Port Moody PAC	Port Moody	x		150	
Richmond Maritime Festival	Richmond	x		100	x
Salmon Arm Home Show	Salmon Arm	x		300	
SAP Eco Fair	Vancouver	x		130	
Sapperton Day	New Westminster	x		200	x
Spirit of the Sea	White Rock	x		400	x
SUCCESS Walk with Dragon	Vancouver	x		600	x
Surrey Canada Day	Surrey	x		400	x
Surrey Children's Festival	Surrey				x
Surrey Fusion Festival	Surrey	x		1000	x
Teddy Bear Festival	Coquitlam	x		500	x
Vancouver Canucks Superskills	Vancouver	x		450	x
Vancouver Canucks Wacky Tacky Sweater	Vancouver	x		300	

<b>Event</b>	<b>Location</b>	<b>Residential</b>	<b>Commercial</b>	<b>Consumers Reached</b>	<b>Proposed 2011</b>
(Jan 2010)					
Vancouver Canucks Ugly Sweater Night (Nov 2010)	Vancouver	x		600	x
Vancouver Giants (4 games)	Vancouver	x		1500	x
Vancouver Home and Interior Design Show	Vancouver	x		800	x
Vancouver International Bhangra Celebration	Surrey				x
Vancouver International Children's Festival	Vancouver	x		20000	x
Vancouver Island Exhibition (V.I.E.X)	Nanaimo				x
Whalley Community Festival	Surrey	x		130	x
Worksafe BC	Richmond	x		150	
<b>Total</b>				<b>38750</b>	



## 2010 Participating Schools in CEO Programs

<b>School</b>	<b>Location</b>	<b>Program</b>
A.R. MacNeill Secondary	Richmond	BC Green Games
A.S. Matheson Elementary	Central Okanagan District	Destination Conservation
Abbotsford Middle School	Abbotsford	BC Green Games
Anne McClymont Elementary	Central Okanagan District	Destination Conservation
Anne McClymont Elementary School	Kelowna	BC Lions presentations
Argyle Secondary	North Vancouver	Destination Conservation
Arrowview Elementary	Qualicum	BC Green Games
Aspenwood Elementary	Port Moody	BC Lions presentations
Baker Drive Elementary	Coquitlam	BC Lions presentations
Bankhead Elementary	Kelowna	BC Lions presentations
Barlow Creek Elementary	Quesnel	BC Green Games
Beaconsfield Elementary	Vancouver	Destination Conservation
Beairsto Elementary	Vernon	BC Lions presentations
Bear Creek	Surrey	BC Lions presentations
Beaver Creek Elementary	Surrey	BC Lions presentations
Begbie Elementary	Vancouver	Destination Conservation
Blewett Elementary School	Kootenay Lake	BC Green Games
Bowen Island Community School	West Vancouver	BC Green Games
Bramblewood Elementary	Coquitlam	BC Lions presentations
Brentwood College	Cowichan Valley	BC Green Games

<b>School</b>	<b>Location</b>	<b>Program</b>
Brooke Elementary	Delta	BC Lions presentations
Brooks Secondary	Powell River	Destination Conservation
Brooks Secondary	Powell River	BC Green Games
Buckingham Elementary	Burnaby	BC Lions presentations
Burnaby North Secondary	Burnaby	BC Green Games
Burnaby South Secondary	Burnaby	BC Green Games
C. E. Barry Intermediate	Fraser-Cascade District	Destination Conservation
Cameron Elementary	Burnaby	BC Green Games
Canyon Heights Elementary	North Vancouver	BC Lions presentations
Canyon Heights Elementary	North Vancouver	Destination Conservation
Canyon-Lister Elementary School	Lister	Wildsight
Carihi Secondary	Campbell River	BC Green Games
Carisbrooke Elementary	North Vancouver	Destination Conservation
Carisbrooke Elementary	North Vancouver	BC Green Games
Carmi Elementary	Okanagan Skaha District	Destination Conservation
Cascade Heights Elementary	Burnaby	BC Green Games
Cedar Hills	Surrey	BC Lions presentations
Cedars Christian School	Prince George	BC Lions presentations
Central Middle School	Greater Victoria	BC Green Games
Chartwell Elementary	West Vancouver	BC Green Games
Claremont Secondary School	Saanich	BC Green Games

<b>School</b>	<b>Location</b>	<b>Program</b>
Cleveland Elementary	North Vancouver	BC Green Games
Cliff Drive Elementary	Delta	BC Lions presentations
Columbia Elementary	Okanagan Skaha District	Destination Conservation
Colwood Elementary	Sooke District	Destination Conservation
Coquihalla Elementary	Fraser-Cascade District	Destination Conservation
Coquihalla Elementary	Fraser-Cascade District	Destination Conservation
Crystal View Elementary	Sooke District	Destination Conservation
David Cameron Elementary	Sooke District	Destination Conservation
David Thompson Secondary	Rocky Mountain	BC Green Games
DeBeck Elementary	Richmond	BC Lions presentations
Dogwood Elementary	Surrey	BC Green Games
Dorothea Walker Elementary	Central Okanagan District	Destination Conservation
Dover Bay Secondary	Nanaimo-Ladysmith	BC Green Games
Eagle View Elementary	Vancouver Island North	BC Green Games
Edgehill Elementary	Powell River	Destination Conservation
Edgehill Elementary	Powell River	BC Green Games
Edgehill Elementary School	Powell River	BC Lions presentations
Elgin Park Secondary	Surrey	BC Green Games
Ellison Elementary	Vernon	BC Green Games
Elsie Roy Elementary	Vancouver	Destination

School	Location	Program
		Conservation
Erickson Elementary School	Erickson	Wildsight
Erma Stephenson Elementary	Surrey	BC Green Games
Evans Elementary	Chilliwack	BC Lions presentations
Forest Grove Elementary	Burnaby	BC Lions presentations
Franklin Elementary	Vancouver	Destination Conservation
Fraser Heights Secondary	Surrey	BC Green Games
Fromme Elementary	North Vancouver	Destination Conservation
G T Cunningham	Vancouver	BC Lions presentations
George M Dawson Secondary	Haida Gwaii/Queen Charlotte	BC Green Games
George Pringle Elementary	Central Okanagan District	Destination Conservation
Giants Head Elementary	Okanagan Skaha District	Destination Conservation
Gibson Elementary	Delta	BC Lions presentations
Gilpin Elementary	Burnaby	BC Lions presentations
Glenmerry Elementary School	Trail	Wildsight
Glenmore Elementary	Central Okanagan District	Destination Conservation
Glenrosa Elementary	Central Okanagan District	Destination Conservation
Gordon Terrace Elementary School	Cranbrook	Wildsight
Graham Bruce	Vancouver	BC Lions presentations
Grandview	Vancouver	BC Lions presentations

<b>School</b>	<b>Location</b>	<b>Program</b>
Grandview Elementary	Vancouver	BC Green Games
Green Timbers	Surrey	BC Lions presentations
Grief Point Elementary	Powell River	BC Lions presentations
Grief Point Elementary	Powell River	Destination Conservation
Grief Point Elementary	Powell River	BC Green Games
H.T. Thrift	Surrey	BC Lions presentations
Haldane Elementary	Kamloops/Thompson	BC Green Games
Hampton Park	Coquitlam	BC Lions presentations
Handsworth Secondary	North Vancouver	Destination Conservation
Hans Helgesen Elementary	Sooke District	Destination Conservation
Hans Helgesen Elementary	Sooke	BC Green Games
Happy Valley Elementary	Sooke District	Destination Conservation
Harbour View Elementary	Coquitlam	BC Lions presentations
Harrison Hot Spring Elementary	Fraser-Cascade District	Destination Conservation
Heath Elementary	Delta	BC Lions presentations
Helen Gorman Elementary	Central Okanagan District	Destination Conservation
Henderson Elementary	Powell River	BC Lions presentations
Henderson Elementary	Powell River	Destination Conservation
Holly Elementary	Surrey	BC Green Games
Hope Secondary	Fraser-Cascade District	Destination Conservation

<b>School</b>	<b>Location</b>	<b>Program</b>
Hudson Road Elementary	Central Okanagan District	Destination Conservation
Irwin Park Elementary	West Vancouver	BC Lions presentations
Isabella Dicken Elementary School	Fernie	Wildsight
Jaffray Elementary School	Jaffray	Wildsight
James Ardiel Elementary	Surrey	BC Lions presentations
James Thompson Elementary	Powell River	Destination Conservation
John Henderson Annex	Vancouver	Destination Conservation
John MacLure Community School	Abbotsford	BC Lions presentations
John Stubbs Elementary/Middle	Sooke District	Destination Conservation
Johnston Heights Secondary	Surrey	BC Green Games
JV Humphries School	Kaslo	Wildsight
Kaleden Elementary	Okanagan Skaha District	Destination Conservation
Keith Lynn Alternative Secondary School	North Vancouver	BC Green Games
Kelly Creek Community School	Powell River	BC Lions presentations
Kelly Creek Community School	Powell River	Destination Conservation
Kelowna Secondary	Central Okanagan	BC Green Games
Kent Elementary	Fraser-Cascade District	Destination Conservation
Killarney Secondary	Vancouver	Destination Conservation
Killarney Secondary	Vancouver	BC Green Games

<b>School</b>	<b>Location</b>	<b>Program</b>
Klappan Independent Day School	Stikine	BC Green Games
KLO Middle School	Central Okanagan	BC Green Games
KVR Middle School	Okanagan Skaha District	Destination Conservation
Lakeview Elementary	Burnaby	BC Green Games
Langley Meadows Elementary	Langley	BC Lions presentations
Larson Elementary	North Vancouver	BC Lions presentations
Leigh Elementary	Coquitlam	BC Lions presentations
Lena Shaw	Surrey	BC Lions presentations
Lindsay Park Elementary	Rocky Mountain	BC Green Games
Lord Byng Secondary	Vancouver	Destination Conservation
Lord Roberts Elementary	Vancouver	Destination Conservation
Mamquam Elementary	Howe Sound	BC Green Games
Matsqui Elementary	Abbotsford	BC Lions presentations
McBride Elementary	Vancouver	Destination Conservation
McCloskey Elementary	Delta	BC Lions presentations
McKim Middle School	Kimberley	Wildsight
McNaughton Centre	Quesnel	BC Green Games
McNicol Middle School	Okanagan Skaha District	Destination Conservation
Meadowbrook Elementary	Coquitlam	BC Lions presentations
Miller Park Elementary	Coquitlam	BC Lions presentations
Mission Hill Elementary	Vernon	BC Lions presentations

<b>School</b>	<b>Location</b>	<b>Program</b>
Montecito Elementary	Burnaby	BC Lions presentations
Morgan	Surrey	BC Lions presentations
Moscrop Secondary	Burnaby	BC Green Games
Mount Boucherie Secondary	Central Okanagan District	Destination Conservation
Nakusp Secondary	Arrow Lakes	BC Green Games
New Westminster Secondary	New Westminster	BC Green Games
Nootka Elementary	Vancouver	Destination Conservation
Norgate Community Elementary	North Vancouver	BC Lions presentations
Ocean Cliff Elementary School	Surrey	BC Green Games
Oceanview Middle School	Powell River	Destination Conservation
Old Yale Road	Surrey	BC Lions presentations
Oppenheimer	Vancouver	BC Lions presentations
Panorama Heights Elementary	Coquitlam	BC Lions presentations
Parkland Elementary	Coquitlam	BC Lions presentations
Parkland Secondary School	Saanich	BC Green Games
Parkway Elementary	Okanagan Skaha District	Destination Conservation
Peace Christian School	Chetwynd	BC Lions presentations
Penfield Elementary	Campbell River	BC Green Games
Penticton Secondary	Okanagan Skaha District	Destination Conservation
Poirier Elementary	Sooke District	Destination Conservation
Port Kells	Surrey	BC Lions presentations



<b>School</b>	<b>Location</b>	<b>Program</b>
Pouce Coupe Elementary	Peace River South	BC Green Games
Prince of Wales Secondary	Vancouver	BC Green Games
Queen Elizabeth Elementary	Vancouver	Destination Conservation
Ranch Park Elementary	Coquitlam	BC Lions presentations
Red Bluff Lhtako Elementary	Quesnel	BC Green Games
Reynolds Secondary	Greater Victoria	BC Green Games
Ridgeview Elementary	West Vancouver	BC Lions presentations
Ridgeway Elementary	North Vancouver	BC Lions presentations
Riverdale Elementary	Surrey	BC Green Games
Riverview Park Elementary	Coquitlam	BC Lions presentations
Robert Alexander McMath Secondary	Richmond	BC Green Games
Rochester Elementary	Coquitlam	BC Lions presentations
Rockridge Secondary	West Vancouver	BC Green Games
Rosemont Elementary School	Nelson	Wildsight
Ross Road Elementary	North Vancouver	Destination Conservation
Roy Wilcox Elementary	Coast Mountains	BC Green Games
Royal Oak Middle School	Saanich	BC Green Games
Rutland Senior Secondary	Central Okanagan District	Destination Conservation
Sangster Elementary	Sooke District	Destination Conservation
Saseenos Elementary	Sooke District	Destination Conservation
Seaview Community Elementary	Port Moody	BC Lions presentations

<b>School</b>	<b>Location</b>	<b>Program</b>
Shawnigan Lake	Cowichan Valley	BC Green Games
Simon Cunningham	Surrey	BC Lions presentations
Sinkutview Elementary	Nechako Lakes	BC Green Games
Sir John Franklin	Vancouver	BC Lions presentations
Sir Matthew Begbie	Vancouver	BC Lions presentations
Skaha Lake Middle School	Okanagan Skaha District	Destination Conservation
Sooke Elementary	Sooke District	Destination Conservation
Spectrum Community	Greater Victoria	BC Green Games
Springvalley Elementary	Central Okanagan District	Destination Conservation
Springvalley Elementary	Central Okanagan	BC Green Games
St Joseph's Catholic	Greater Victoria	BC Green Games
St Michaels University School - Middle	Greater Victoria	BC Green Games
St Michaels University School - Senior	Greater Victoria	BC Green Games
St. Francis Xavier Elementary	Vancouver	BC Lions presentations
Stoney Creek Elementary	Burnaby	BC Green Games
Strawberry Vale Elementary	Greater Victoria	BC Green Games
Summerland Middle School	Okanagan Skaha District	Destination Conservation
Summerland Secondary	Okanagan Skaha District	Destination Conservation
Sunshine Hills	Delta	BC Lions presentations
Taylor Park Elementary	Burnaby	BC Green Games

<b>School</b>	<b>Location</b>	<b>Program</b>
Timberline Secondary School	Campbell River	BC Green Games
Total Education Program	Vancouver	BC Green Games
Trout Creek Elementary	Okanagan Skaha District	Destination Conservation
Tuc-el-Nuit Elementary	Okanagan Similkameen	BC Green Games
Twin Rivers School	Castlegar	Wildsight
Unsworth Elementary	Chilliwack	BC Lions presentations
Uplands Elementary	Okanagan Skaha District	Destination Conservation
Upper Lynn Elementary	North Vancouver	Destination Conservation
Vanway Elementary	Prince George	BC Lions presentations
W D Ferris Elementary	Richmond	BC Green Games
West Bay Elementary	West Vancouver	BC Green Games
West Bench Elementary	Okanagan Skaha District	Destination Conservation
West Boundary Elementary	Boundary	BC Green Games
West Langley Elementary	Langley	BC Lions presentations
Westcot Elementary	West Vancouver	BC Green Games
Westside Academy	Prince George	BC Green Games
Westview Elementary	North Vancouver	Destination Conservation
Westwind Elementary	Richmond	BC Lions presentations
White Rock	White Rock	BC Lions presentations
William Watson	Surrey	BC Lions presentations
Willway Elementary	Sooke District	Destination Conservation

<b>School</b>	<b>Location</b>	<b>Program</b>
Wiltse Elementary	Okanagan Skaha District	Destination Conservation
Windebank Elementary	Mission	BC Lions presentations
Windermere Community Secondary	Vancouver	BC Green Games
Windrem Elementary	Chetwynd	BC Lions presentations
Windsor House Elementary	North Vancouver	Destination Conservation
Windsor Secondary	North Vancouver	Destination Conservation
Winlaw Elementary School	Winlaw	Wildsight

**Appendix F**

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**LETTERS OF SUPPORT**

March 22, 2011

Mr. Mark Grist,  
FortisBC Energy Inc.  
Manager Business Development  
16705 Fraser Highway  
Surrey B.C. V4N 0E8

Dear Mr. Grist,

The Commercial Energy Consumers (“CEC”) Association of BC is writing to you at this point in time to communicate its views with respect to the provision of FortisBC Energy Inc. (“FEI”) Energy Efficiency and Conservation (“EEC”) funds to support the transition of diesel oil fuelled transportation markets to natural gas fuelled transportation, particularly for the trucking component of the transportation market.

The CEC has supported the provision of FEI’s EEC funds to transforming the transportation market and continues to support FEI in allocating EEC funds to this purpose for one very simple reason; it is in the interest of FEI’s customers, the ratepayers. The CEC believes all ratepayers and specifically the commercial ratepayers will benefit significantly from investing in the transformation of this market. The CEC has been supportive of FEI in moving to capture this opportunity for its customers and critical whenever the movement to capture this opportunity is moving too slowly or not being planned aggressively enough.

The CEC is putting forward this position to FEI because at the stakeholder workshop, held to discuss EEC programs, we were informed of issues arising from the recent interim decision of the BC Utilities Commission (“BCUC”) with respect to the Waste Management contracts and initiative being undertaken by FEI. We understand from FEI that it is interested in stakeholder’s views with respect to these initiatives and that FEI might like to include these views in its submissions to the Commission relative to its planned filing with the BCUC of FEI’s 2010 Report on its EEC Programs.

We understand that the Commission’s recent decision may have created some uncertainty with respect to FEI providing funds to support the Waste Management initiatives and potentially with respect to advancing the transformation of the trucking transportation markets in general. The CEC would like to see this uncertainty resolved as soon as possible. The CEC would therefore support a reconsideration of the decision leading to the uncertainty or any plan to have clarification and certainty returned to the FEI transportation market transformation initiatives. We understand that FEI believes that the best opportunity to seek the required certainty would be found in BCUC regulatory process considering the issues in conjunction with the FEI 2010 EEC Report. The CEC would therefore support any initiative by FEI or the BCUC to consider the funding issues as part of the FEI 2010 EEC Report filing.

The CEC has been an active participant in the original FEI EEC application made in 2008, has been an active participant in the 2010-2011 FEI Revenue Requirements Application (“RRA”) regulatory process, including being a signatory to the Negotiated Settlement Agreement (“NSA”) arising from that process, is involved in the current BCUC regulatory process considering the approval criteria for Natural Gas for Vehicles (“NGV”) initiatives and the CEC has attended all of the EEC stakeholder workshops held since FEI instituted these consultation processes in 2009. As a consequence the CEC believes that it is reasonably informed with respect to the issues involved.

Over the course of these various regulatory proceedings the CEC has come to understand the attractiveness of the FEI NGV Programs for all customers and specifically for the CEC commercial sector. The CEC would characterize the FEI approach with respect to its NGV initiatives as having been and continuing to be nothing but open and transparent. The CEC believes that FEI has worked diligently to build understanding and support for its NGV initiatives. The CEC has directly been involved in the regulatory processes, in which the CEC believed that FEI was being provided the CEC support and consent to both pursue these NGV initiatives and to fund these initiatives from EEC funds. The CEC is precluded (as a consequence of confidentiality provisions) from discussing the specific content of discussion in a Negotiated Settlement Process (“NSP”) but may disclose its own positions at any time. The CEC believes that its sign off with respect to the RRA NSA carried the weight of its support for FEI providing funding for its NGV initiatives. Specifically the CEC believes that item 14 of the NSA supports the fuelling and transportation services to be provided and that item 11 of the NSA supports the funding envelope for the Innovative technologies for 2010-2011. The CEC in stakeholder consultation both in group processes and in numerous other consultations FEI has provided the CEC the opportunity for input, has consistently voiced the view that the NGV opportunity needs to be pursued vigorously. The CEC notes that FEI has also been cautious to ensure that it is trying to pursue these opportunities prudently and has taken the time to do so in a number of ways. The CEC believes that the current uncertainty may arise as from a perspective on a technicality with regard to FEI’s ability to provide funding for the NGV programs. The CEC believes that substance should trump technicality, although the CEC with respect supports FEI’s efforts to review the issues.

In substance, the CEC believes that the FEI NGV initiatives have a positive Total Resource Cost (“TRC”) both independently and as part of the FEI EEC programs. The CEC believes that funding from the Innovative Technologies Program (“ITP”) exceeds a TRC of 1 when including the NGV funding. The CEC understands that the NGV initiatives result in environmental reduction of greenhouse gases emissions from transportation use of fuel. Where this can be done with a positive TRC the CEC is particularly supportive and has expressed strong support for this strategic direction of FEI.

The CEC understand that whether it is dealing with BC Hydro (“BCH”) Electricity Conservation and Efficiency (“ECE”) programs or the FEI EEC programs that the fundamental principle has not been to micro-manage every program and every component of the program for basic regulatory efficiency reasons. The CEC believes that FEI has the ability to make changes, refinements or even switches of specific funding activity from the submissions it makes with respect to EEC programs at any given point in time. The CEC believes that FEI can be held accountable for the prudence of its management in after

the fact review processes enabled by the BCUC regulatory processes. The CEC believes that the TRC test accountability as well as the specific program reporting accountability and the frequent stakeholder consultation opportunities the CEC is engaged in provide an ample framework for ensuring that FEI is at risk and accountable for its decisions with respect to the prudent management of the EEC funds.

The CEC believes that it has sufficient access to regulatory processes to ensure that customer perspectives are incorporated into the BCUC's final decisions with respect to the public interest. In this case the CEC believes that the FEI NGV activities are substantially in the public interest and that prolonged uncertainty with respect to funding would be counterproductive to the best interest of the ratepayers.

The CEC supports the use of EEC funds for FEI's NGV programs specifically understanding that these funds are recovered through the delivery margin from ratepayers and not directly from specific rates charged to NGV users. The CEC supports this because of the contribution it believes this program may provide to all customers as a strategic direction for FEI and its customers.

The CEC will support whatever process FEI or the BCUC take in regard to obtaining an early resolution of the uncertainties arising from the Waste Management interim decision and specifically the FEI initiative to have these issues considered as part of its 2010 EEC Report filing. The CEC will support and participate fully in any expedited process to achieve an early resolution to the uncertainty, because the CEC believes that commercialization initiatives need the nurturing of appropriate degrees of certainty to ensure that the benefits can be developed and captured for the FEI customers and specifically those the CEC represents.

Yours truly,

A handwritten signature in dark ink, appearing to read 'D. Craig', is positioned above the printed name.

David Craig  
Executive Director  
Commercial Energy Consumers

DWC/amp



21 March 2011

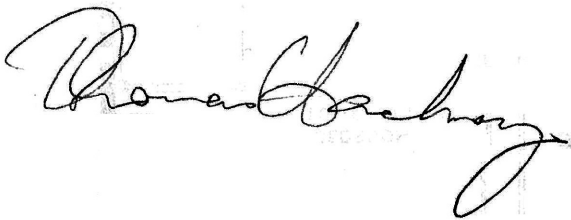
To:  
Shawn Hill,  
FortisBC  
Vancouver, BC  
By email: [shawn.hill@fortisbc.com](mailto:shawn.hill@fortisbc.com)

Dear Shawn,

**Re: FortisBC's Energy Efficiency and Conservation Plan Annual Report**

This is to confirm that, as an active participant in the 2009 Energy Efficiency and Conservation Application of Terasen Gas, and a current member of FortisBC's EEC Stakeholder Group, the BC Sustainable Energy Association supports the use of FortisBC's EEC program to incent the purchase of heavy duty NGVs in place of diesel-powered vehicles where cost effective, primarily because of the greenhouse gas emissions reductions benefits. (BCSEA does not support incentives for fuel switching toward natural gas in the *passenger* vehicle sector, where hybrid and plug-in electric vehicles are on the cusp of achieving substantial market penetration.) BCSEA believes that using EEC monies in this instance is consistent with the objectives of the *Clean Energy Act* and other government policies on energy efficiency and greenhouse gas reductions.

Regards,



Thomas Hackney,  
Vice-President for Policy

March 22, 2011

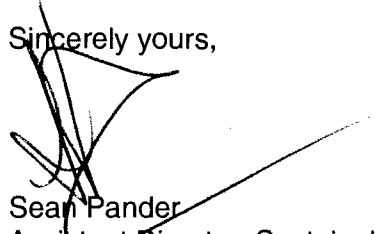
Dave Bennett  
Director Resource Planning & Market Development  
FortisBC Energy Inc.  
16705 Fraser Hwy  
Surrey, BC  
V4N 0E8

**RE: EEC Funding of NGVs**

Dear Mr. Bennett:

This letter is to confirm that The City of Vancouver has been a participant in stakeholder review sessions held by FortisBC regarding Energy Efficiency and Conservation (EEC) programs. We confirm that two stakeholder review sessions were held in 2010 (March and November) and that NGV programs were presented and discussed at these sessions. The City of Vancouver supports the continuation of the program to provide NGV incentives for heavy duty vehicle applications as adoption of NGVs in these markets provides GHG reductions and fuel cost savings to operators of NGVs.

Sincerely yours,



Sean Pander  
Assistant Director, Sustainability Group  
City of Vancouver



[www.bcapartmentowners.com](http://www.bcapartmentowners.com)

*Promoting and sustaining  
residential housing in BC*

Mark Grist  
Manager, Business Development  
Fortis BC Energy Inc.  
16705 Fraser Hwy  
Surrey, BC  
V4N 0E8

**Re: Letter of Support - Stakeholder Review of FortisBC EEC Programs**

Dear Mr. Grist:

Further to our discussions at the EEC Stakeholder meeting held on March 15, 2010, the BC Apartment Owners & Managers Association (BCAOMA) would like to express its support for the use of Energy Efficiency & Conservation program incentives to encourage the use of Natural Gas Vehicles within BC's heavy duty transportation markets. The BCAOMA participated in stakeholder review sessions organized by FortisBC and had the opportunity to review and comment on the planned use of incentives to encourage the adoption of NGVs. During the November 24, 2010 session FortisBC provided a detailed presentation on the NGV program for BC, including the proposed use of EEC funding under the Innovative Technologies program. This presentation was favourably received by the stakeholder group. The BCAOMA believes that this consultation process meets the "Accountability Measures" defined in the Commission EEC Approval Decision G-36-09 and supports FortisBC's view that it has the necessary approvals to proceed with the NGV incentive program. The BCAOMA support this program as it has significant potential to reduce GHG emissions in the transportation sector while providing delivery rate revenues that will benefit all users of the FortisBC system.

Sincerely yours,

A handwritten signature in cursive script, reading "Marg Gordon". The signature is written in dark ink and is positioned above the printed name and title.

Marg Gordon  
Chief Executive Officer  
BC Apartment Owners and Managers Association



March 23, 2011

Mark Grist  
Manager, Business Development  
Fortis BC  
16705 Fraser Highway  
Surrey, B.C. V4N 0E8

Dear Mark,

I am writing in followup to the meeting of Fortis BC Energy Efficiency and Conservation Stakeholder Meeting on March 15, 2011.

The Fraser Basin Council is a non-profit organization with a mandate of advancing sustainability in British Columbia, with a focus on the Fraser River watershed. We participate in the Fortis BC EEC Stakeholder sessions, as one of our strategic priorities in action on climate change and air quality.

Over the past six years, one component of FBC's climate change work has been to engage public and private sector vehicle fleets on emissions reduction activities, as a key leadership area in the transportation sector. This includes the delivery of a national green rating system – E3 Fleet – that provides third-party green certification of vehicle fleets. We have over 100 members in the program across Canada. We are technology and fuel neutral, and work with leading fleets to implement a variety of practices that reduce emissions and fuel costs.

Through our involvement in the EEC Stakeholder group over the past two years, we have been informed of Fortis BC's ongoing plans to provide incentives for natural gas vehicles (NGVs) and interest in providing natural gas compression and refueling service. We are supportive of this effort by Fortis BC to provide incentives for NGV purchase, and are also supportive of Fortis BC providing natural gas compression and refueling service. We have noticed, based on recent unsolicited calls from fleets, that there is growing interest amongst the fleets that we work with in exploring the use of natural gas as one means for reducing emissions. We also know that incentives are required to assist in overcoming the barrier of increased capital cost for NGVs. In addition, our experience in working with fleets is that in many cases there is a need for third-parties such as Fortis BC who can provide refueling services.



*Fraser Basin Council*

If you have any questions, please do not hesitate to contact me at 604-488-5359 or via email at [jvanderwal@fraserbasin.bc.ca](mailto:jvanderwal@fraserbasin.bc.ca).

Sincerely ,

Jim Vanderwal  
Senior Manager

**Appendix G**

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**CONTRACTOR STUDY QUALITATIVE REPORT**



# **Terasen Contractor Telephone Interviews Summary Of Findings**

February 2011

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# Background And Objectives

## BACKGROUND

A number of Energy Efficiency (EE) programs have been developed to encourage residential and commercial users to reduce their energy consumption. One such program is LiveSmart BC, a joint retrofit incentive initiative between FortisBC, Terasen Gas (Terasen), BC Hydro and the Ministry of Energy.

The success of these programs depends on both contractor and homeowner participation. New programs are being developed to educate and provide information to contractors and building trades. Stakeholders such as Terasen and LiveSmart BC partners are interested in understanding how to:

- Disseminate program information to those in the building industry;
- Assist or train contractors and trades to promote energy efficiency programs to homeowners; and,
- Use views and feedback from industry professionals for program development.

# Methodology

## METHODOLOGY

Study partners had a large number of information needs, so a qualitative phase was added to supplement the planned quantitative survey. This report summarizes findings from the qualitative in-depth interviews.

- 15 telephone interviews were conducted in December 2010 and January 2011 with contractors involved in the home building or renovation field. Contractors represented the following industries: insulation, glass, plumbing, and heating (both natural gas and electric).
- Interviewees were scheduled by a professionally trained recruiter using a screening questionnaire. Interviewees were paid a cash incentive for their involvement in this study.
- Interviews were between 30 minutes and 75 minutes in duration.
- All interviews were conducted by Anne Jacox of Cue Research.

# Summary Of Findings (1)

The following observations surfaced from the qualitative phase. While they are not meant to serve as conclusive findings about all contractors, they provide a number of insights that can inform the future quantitative study.

## **Contractors' Involvement in Energy Efficiency (EE) Incentive Programs**

- As they stand, current EE Incentive programs are not compelling enough for contractors to become fully engaged. Participants suggest that programs need to offer a greater value proposition for contractors to get involved.
- A key barrier to contractors' participation in EE Incentive programs appears to be their feeling that the rewards do not compensate sufficiently for the time and energy invested – both the added un-billable time with the customer, and extra time completing paperwork. Strategies that reduce the time required will be very important to gain contractors' full involvement. This could amount to simplified paperwork, or simplified programs that are easier for contractors to learn about and communicate to consumers
- A second key barrier to contractors' full involvement is their reluctance to promote programs that are constantly changing or may end abruptly. Several mentioned the unexpected withdrawal of federal government rebate programs that gave customers a large discount on a new furnace. Other programs offer much lower incentives and contractors fear the parameters might change without their knowledge. Because of this, contractors tend to avoid giving their input altogether, often advising customers to learn more from the program website directly. Given the importance of contractors' influence in consumers' decision making, creating more stable, enduring programs, and developing more effective methods for contractors to communicate these program offerings to consumers is recommended.

# Summary Of Findings (2)

## Customers' Involvement In EE Incentive Programs

- Some contractors feel that current programs do not offer enough value to customers due to the cost of home inspection, time required for pre- and post-inspections, and paperwork required.
- They feel that EE Incentive programs *can* be of significant value to the customer, if the programs offer enough of a financial incentive.
- Contractors suggest that good EE Incentive programs should specify a deadline that motivates action. Some suggest that significant rebates toward new appliances would be the most sought-after reward for an EE Incentive program.

## Communications

- To learn about EE Incentive programs, contractors recommend either emails that are specific to these programs or a forum where they could meet face-to-face and ask questions (e.g., BC Safety Authority meetings).
- The easier these programs are to communicate, the more likely they are to gain contractors' involvement in promoting them. Time (in educating customers) is money to contractors. Materials that expedite the communications process are desirable, such as brochures. Websites seem to be an expectation, and serve as an important tool for addressing consumers questions.
- Most contractors do have an advertising budget, although word of mouth is very strong in their industries.

## Training And Upgrading

- While some would like opportunities to upgrade their skills, they seem opposed to training sessions that focus on marketing and sales of products or programs. Training programs that offer genuine and relevant skills would be of interest to some of the contractors.



# Perspectives On Energy Efficiency (EE) Incentive Programs

# Awareness Of EE Incentive Programs

## Contractors

- Contractors become aware of EE incentive programs through a variety of sources:
  - Manufacturers
  - Suppliers
  - Customers
  - Other contractors
  - Brochures, newsletters
  - Their marketing consultant
- Many of the contractors involved in this study were vague about specific EE incentive programs that are available. Although they stated they are aware of EE programs, many feel they are not up to date on the availability of current offerings.

## Customers

- Contractors are sometimes the source of information for the customer in creating awareness of EE incentive programs.
- Contractors sometimes offer the customer a brochure (if they have it available), but are more likely to direct the customer to the appropriate website in order to learn about the incentive program requirements themselves.

# Value Of EE Incentive Programs

- While many of the interview participants feel that EE incentive programs are no longer of value, discussions indicate they can be of value if they meet one or more of the following criteria:
  - They provide enough of an incentive to motivate the customer to action, i.e., purchase a new product rather than repair an existing product.
  - The program has a specific time frame (i.e., closing date) as this further motivates the consumer to make a decision, and, they know the program will not be unexpectedly halted.
  - The incentive is of enough value (i.e., creates good business for the contractor and saves the customer money).



# Barriers To Contractor Participation

- **Number of incentive programs / changes to incentive programs** – some contractors indicated that EE incentive programs are rapidly changing, hence, it is difficult to keep abreast of what is currently being offered. Many also feel that the low savings or rebate results in them being less interested in keeping current with these programs.
- **Lack of value to contractor** – many of the smaller incentive programs are not worth the contractors' efforts in filling out the required paperwork. This takes time away from the work they are getting paid for, hence, it is often not worthwhile for them.
- **Lack of value to customer** – some customers feel the incentives are too low, or are simply not interested in finding out all of the details due to the perceived low value.
- **Administrative requirements** – current incentive programs are more complicated and require more paperwork than the original ones that had larger incentives.
- **Time commitment** – due to the amount of paperwork and the need to go through the paperwork with the clients, contractors find incentive programs add time to each call, and this is time that they are not making any money on.
- **Awareness of current programs being offered** – because there are more and more incentive programs, and they keep changing, contractors are often not comfortable in being the source of information for the customer. They do not want the responsibility of ensuring the information they are providing to the customer is up-to-date, hence, they will direct the customer to a website rather than becoming involved.
- **Not relevant to their business** – many contractors feel that these programs are not relevant to their business, for example, insulation contractors generally feel that once the customer is ready for their service, they have already assessed available programs and included them in the work they request.



# Perceived Barriers To Customer Participation

- **Lack of interest/value** – some incentive programs are of low value to the customer, hence, consumers are unwilling to find out all of the program information.
- **Higher cost of equipment** – programs that require new appliances, such as a high efficiency furnace, are often not desirable due to the high cost of this product, the high cost of gas, and the feeling that the furnace will cost more in repairs once the warranty expires.
- **HST** – a number of contractors indicated that sales in general have fallen as customers are reluctant to purchase a high cost appliance (e.g., high efficiency furnace) when there is question as to whether there will be a referendum on HST.
- **Additional costs** – other incentive programs have a cost associated with them to the customer, e.g., having an inspection of the home requires additional funds.
- **Confusion** – most customers are confused about the incentive program requirements and need assistance from the contractor in order to fulfill program requirements.
- **Amount of work required** – some feel there is just too much work required in order to find out about the program and gather and submit the necessary paperwork.
- **Skepticism** – some are skeptical of these programs feeling that utility costs are high and these programs are not going to reduce the high cost of their daily living. One contractor stated that consumers are increasingly complaining about the high cost of their utility bills and wondering why these companies cannot reflect incentives in the monthly cost of their bills, rather than requiring them to do additional work to get rebates.

# Communications Of Energy Efficiency Programs



# Preferred Means Of Communications

- Most of the contractors who participated in this study suggested that brochures that come in the mail are the preferred means of getting information to them. However, their awareness in regard to specific programs, or details of the programs, suggests that they might not read this information closely.
- Some indicate that the best means of communicating with them is in a forum where they could meet face to face, have the information explained, and have the opportunity to ask questions. One respondent stated that a representative of a utility company attending one of their industry safety meetings might be an appropriate venue. He also suggested that most contractors would show up if a free lunch was included.
- Some feel that email is the best means of communicating program information; particularly if the email is specific to incentive programs and brief enough to highlight the key information. The email might also include attachments that could be printed for distribution to customers.
- Any information that is viewed as an asset to their business (e.g., something that will aid in generating new business or making a profit) will be welcomed by contractors. Manufacturers are felt to be a valued source of information as they provide sessions to familiarize contractors with their products, provide trouble-shooting support, and offer promotions (e.g., cash back) that the contractor can use to give the customer a discount, give the customer a free product such as a thermostat, or simply use the cash to enhance their profit on the job.

# Desirable Support Materials

- The following were suggested by some contractors as desirable support materials (materials they could have available for their customers) :
  - Website address; and,
  - Brochures – with pictures and bullet form information (concise, limited).
- One contractor suggested that a website to direct customers to is best, as the frequency of changes to programs is too rapid for him to become aware of, and he does not want to be responsible for providing inaccurate information to the customer.
- Some contractors indicated they would provide brochures to customers if they had them available.
- It should be noted that contractors really want the customer to assume responsibility for these incentive programs, as they do not want to add un-billable time to each project in order to educate the customers. However, they strive for customer satisfaction, hence, would like to be able to quickly give the customer information that might enhance their image as a service provider.

# Contractors' Advertising

- Most have an advertising budget and the size of that budget varies considerably.
- Many use the Yellow Pages and a website to promote their business. Some will also take advantage of opportunities they are presented with, such as a deal on flyer distribution to neighbourhoods.
- Most are not really sure what the impact of their advertising is having, so will try different methodologies (that are low cost), or stick to what they have been doing.
- Word-of-mouth tends to be strong in this industry.

## **Co-op Advertising:**

- Most contractors would be interested in any type of co-op advertising they felt would enhance their business. Brochures that are linked to utility companies (by having the utility company and contractor logo on them) are felt to be appealing as the utility endorsement would lend credibility to the contractor and provide an information piece that could be left with the customer.



# Perspectives On Training And Upgrading

# Training And Upgrading

- Attitudes toward training and upgrading vary substantially. Some are very interested in any training that will benefit their skills, aid in making recommendations to their customers, and keep them abreast of new technologies or techniques relevant to their field. Hands-on training is of particular value to these individuals. In other words, if the training will add value to the product they offer, and in turn, increase sales, they are interested.
- There are concerns that training offered through utility companies might be related to marketing and sales of products or programs. There is no interest in this type of training.
- Some recognize the need for on-going training and upgrading, stating that the technology is continually changing. As one interviewee stated, *"plumbers used to be able to handle any heating problems, but heating is increasingly becoming an area of specialization."* However, their time is limited as training means time in which they are not making money. Manufacturer training sessions are valued as it is specific to the products they are dealing with.
- Most indicate that they do not want these sessions to be longer than half a day (they are really looking for information sessions, rather than training sessions).
- Interest in training and upgrading varies according to:
  - The age of the contractor (e.g., how close to retirement he is, whether he is looking for new business).
  - The number of employees in the business.
  - How specialized the business is (e.g., some feel that they have such an exclusive product that new training would not benefit them).
  - The type of customer they have (e.g., if the customer has no concerns regarding the cost of a project, or if the customer has a lot of concerns about minimizing the cost of a project).

# Certification

- Very few indicated they would be interested in additional certification, as this would not benefit their business or their customers.
- One interviewee indicated he would be interested in additional certification as any added credentials increase the credibility of the company to his customers, hence, an asset to business sales.



# Information Needs

- Most contractors are more than satisfied with the amount of information they receive from industry association newsletters and magazines that are specifically tailored to the needs of their profession. In fact, many have difficulty keeping up with the printed materials they currently receive.
- Contractors are more likely to gain new technology information and other insights from the following sources:
  - Manufacturers;
  - Trade publications;
  - People they work with; and,
  - Other trades workers.



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**Appendix H**

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**EEC STAKEHOLDER GROUP**

## EEC Stakeholder Group

The Companies recognized the need for accountability in the EEC Application and proposed to form and engage an EEC Stakeholder Group. The objectives of the EEC Stakeholder Group are to guide and provide input on EEC activity. The corresponding agenda, priorities, presentations, and minutes from the March 11, 2010 and November 24, 2010 meetings are included in the Appendix.

### List of EEC Stakeholder Members (as of March 15, 2011)

Member	Organization	Title
Marg Gordon	B.C. Apartment Owners and Managers Association	Chief Executive Officer
Steve Hobson	BC Hydro	Director Power Smart
Rob Noel	BC Mechanical Contractors Assoc	Commercial contractors
Mary McWilliam	BC Non Profit Housing Association	Director of Strategic Energy Management
Jim Quail	BC Public Interest Advocacy Centre	Executive Director
Erik Skehor	BC Safety Authority	Operations Manager
Tom Hackney	BC Sustainable Energy Association	Vice-President of Policy
Alison Richter	BC Utilities Commission	Regulatory Analyst - First Nations and Sustainability
MJ Whitemarsh	Canadian Home Builders' Association of BC	President
Craig Williams	Canadian Manufacturers and Exporters	Vice President
Mike Todd	Canfor Pulp	Energy Manager
Stuart Gairns	Canfor Pulp	PGI Energy Leader
Mark Hartman	City of Vancouver	Buildings Energy Programs Manager
Tony Gioventu	Condominium Home Owners' Association	Executive Director
David Craig	Consolidated Management Consultants	President
Joan Huzar	Consumers Council of Canada	
Dan Pasacreta	Crosby Property Managements, Ltd	Licensed Strata Agent
Keith Veerman	FortisBC Inc.	Manager-Energy Efficiency
Bob Purdy	Fraser Basin Council	Director, External Relations & Corporate Development
Amy Spencer-Chubey	Greater Vancouver Home Builders' Association	Director of Government Relations
Gord Monro	Heating, Refrigeration and Air Conditioning Institute of Canada	Contractor Division BC Regional
Richard Siegenthaler	Hemmera	Renewable Energy Specialist
Bruce Macgowan	IBC Technologies Inc.	President
Andrew Pape-Salmon	Ministry of Energy and Mines	Director Energy Efficiency Branch
Nir Kushnir	National Energy Equipment	General Manager, Trane
Elizabeth	Natural Resources Canada	Senior Officer, Stakeholder

Westbrook		Relations
Nina Winham	New Climate Strategies	Consultant and Rate 1 customer
Al Kemp	Rental Owners and Managers Society of BC	CEO
Cindy Stern	Tseshaht First Nation	Chief Operating Officer
Jeff Fischer	Urban Development Institute	Deputy Executive Director

## **EEC Stakeholder Meeting Agenda**

March 11, 2010

Hyatt Hotel

655 Burrard St, Vancouver – Stanley Room

9:30 - 9:45	Registration (coffee served)
9:45 - 10:00	Welcome and Agenda
10:00 - 10:15	Roundtable Introduction
10:15 -11:15	Stakeholder Workshop: Sharing goals and priorities
11:15 – 11.30	TG topic: Alternative Energies Solutions
11:30 – 12:00	TG topic: Innovative Technologies
12.00 – 12.45	Lunch
12.45 – 14:00	2009 Annual report review and 2010 Update
14:00 -14:15	Break
14:15-15:00	Stakeholder Dialogue: Setting Action
15:00-15:15	Closing

**Terasen Gas Energy Efficiency & Conservation Stakeholder Meeting**  
**March 11, 2010**

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**Attendees**

Al Kemp, Rental Owners and Managers Society of BC  
Alison Richter, British Columbia Utilities Commission, Regulatory Analyst – First Nations and Sustainability  
Amy Spencer-Chubey – Greater Vancouver Home Builders' Association, Director of Government Relations  
Bob Purdy, Fraser Basin Council  
Bruce Macgowan - IBC Technologies  
Cindy Stern – Tseshah First Nation, CEO  
Dan Pasacreta – Crosby Property Management, Licensed Strata Agent  
David Craig- Consolidated Management Consultants, President  
Elizabeth Westbrook-Trenholm, Natural Resources Canada, Office of Energy Efficiency, Stakeholder Relations  
Erik Kaye – Ministry of Energy, Mines, and Petroleum Resources, Acting Manager, Energy Efficiency Policy  
Jeff Fischer, Urban Development Institute, Deputy Executive Director  
Jen Richards – City of Vancouver, Sustainability, Program Assistant  
Joan Huzar, Consumers Council of Canada  
Marg Gordon, BC Apartment Owners and Managers' Association  
Mark Warren – FortisBC  
Nina Winham, New Climate Strategies; Terasen Gas rate 1 customers  
Nir Kushnir – National Energy Equipment, General Manager (Trane)  
Steve Hobson – BC Hydro, Director Power Smart  
Wayne Lock, BC Safety Authority, Gas Operations Manager

**Regrets**

Eugene Kung, BC Public Interest Advocacy Centre, Barrister & Solicitor  
Mark Hartman, City of Vancouver Sustainability, Building Energy Programs Manager  
Marni Vistisen, City of Prince George, Energy Manager  
Rob Noel – BC Mechanical Contractors Association, Commercial Contractors  
Vanessa Joehl – CHBA-BC, Built Green BC Program Administrator

**Terasen Gas Staff**

Beth Ringdahl	Ned Georgy
Jenny Chia	Ramsay Cook
Ken Ross	Sarah Smith
Gary Lengle	John Turner
Michelle Petrusevich	Doug Tufts
Arvind Ramakrishnan	Mark Grist
Shawn Hill	

**John Turner**  
**Alternative Energy Solutions**

(no questions)

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**Doug Tufts**  
**Arvind Ramakrishnan**  
**Innovative Technologies**

Q: Do programs have to be for upgrading?

: Solar can be for new or retrofit; hydronic, new; NGVs can be converted

Q: Why is there less money for TGV?

a. Dollars is proportionally based on the # of customers we have on TGV

Q: Referring to the City of Vancouver example, if I understand correctly, if solar is required in regulation, then Terasen is not going to fund it, is that the position?

a. The new buildings just have to be solar ready (ie. Piping), but don't have to have the solar system installed

b. Utilities cannot provide incentive if it is regulated

Discussion on free riders

Q: What about municipal regulations?

a. Utilities still might advance adoption of regulation but if customer had to put one in, it would be hard to argue that utility incentive had any help with that.

b. Provincially, government is also trying to raise the bar to meet municipal regulations and not have widely diverse buildings. It's a whole market transformation and not just in isolation.

c. Terasen can comment on municipal policies and how affect programs

---

**Michelle Petrusевич**  
**Structure and Overview of EEC report**

(no questions)

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**Beth Ringdahl**  
**Residential Programs**

Scrap It Furnace – need to get stakeholder feedback on program and need to see what market is like for mid-efficient furnaces

Switch 'n' Shrink – under Fuel Switching in the report. 70% of the participants are from TGV

Whole Home program – under joint initiatives in the report.

Hot water tank program – hard to get industry information, such as list of eligible models from manufacturers. Terasen would like to put on directory on the website of eligible models.



Ministry policy on storage tanks have to be 80%; currently condensing storage tanks do not exist in the market today.

Q: in regulation, is BC unique?

- a. First in North America; NRCan will be joining in later on. We have ambitious targets. How do we move manufacturers move this along, so need to work with utilities. We don't have the option of waiting.
- b. There is a 6-12 month delay product delay from US to Canada.
- c. There is a caution in mixing storage and non storage tank issues (are apples vs. oranges)

Q: What is the definition of residential customer?

- a. SFDs, mobile homes, and townhomes; multi-family is considered commercial customer
- b. There is multi-family homes on oil in Vancouver Island – can apply for Switch 'n' Shrink?
- c. Maybe those home can apply for Efficient Boiler Program

---

### **Ramsay Cook Commercial Programs**

Q: Are there any absolute caps on funding on custom design program? How are savings measured?

- a. About \$3/GJ, but will not pay 100%
- b. Each project will have to pass a TRC test
- c. Will benchmark against energy study, then look at meter and energy consumption

Q: Will the study capture waste heat?

- a. Terasen is open to study, we are just trying to get GJ savings

Q: have you looked at purchasing managers as a key audience, they are very risk adverse people and only look at costs involved?

- a. Terasen can do education with purchasing managers.

---

### **Ned Georgy Conservation for Affordable Housing**

Q: In regards to ReNEW, is there continued training past 2010?

- a. Looking to work with some groups on Vancouver Island.

Q: How do you choose participants for the program?

- a. Partners choose because they know their audience.

Q: Who is doing the SEMP study? BC Non Profit or City Green?

- a. BC Non Profit Housing Association; City Green is involved in all 3 studies. Studies have partners in sharing the cost.
-

**Gary Lengle**  
**Efficiency Partners Program**

(no questions)

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**Jenny Chia**  
**Conservation Education & Outreach**

Q: Co-op on tradeshow?

- a. Possibly, Terasen has to look it over.

Q: Is there a possibility of using the Pembina tool to train sales associates (ie. At big box stores)?

- a. Yes

---

**Stakeholder Action List (roundtable around the room)**

Jeff at UDI – look at educating members on incentives and regulation

Al at ROMS BC – look at manufacturer home parks – they are out of the loops. Possibly have a joint Terasen and BC Hydro info session for ROMS for their board/industry

Marg at BCAMOA – provide info in newsletters to members, and include info at board meeting on Wed Mar 17.

Bob at Fraser Basin Council – get in touch with Terasen manager on NGVs

Joan at Consumers Council of Canada – likes the home (energy) labeling idea because it's a good way of letting consumers know

Amy at GVHBA – get together with Beth, Ned, and Jenny and discuss GVHBA opportunities. GVHBA also has a monthly newsletter where info can be placed.

Cindy at Tseshah First Nation – go back to the community, communicate about Terasen programs for people that are not in social housing; will be speaking about Terasen at national Aboriginal Housing Forum in Calgary

Wayne at BC Safety Authority – is concerned about contractors not having the skill set to install the new technology/equipment; have to look at training and if need to upgrade training, perhaps suppliers should provide training for installers



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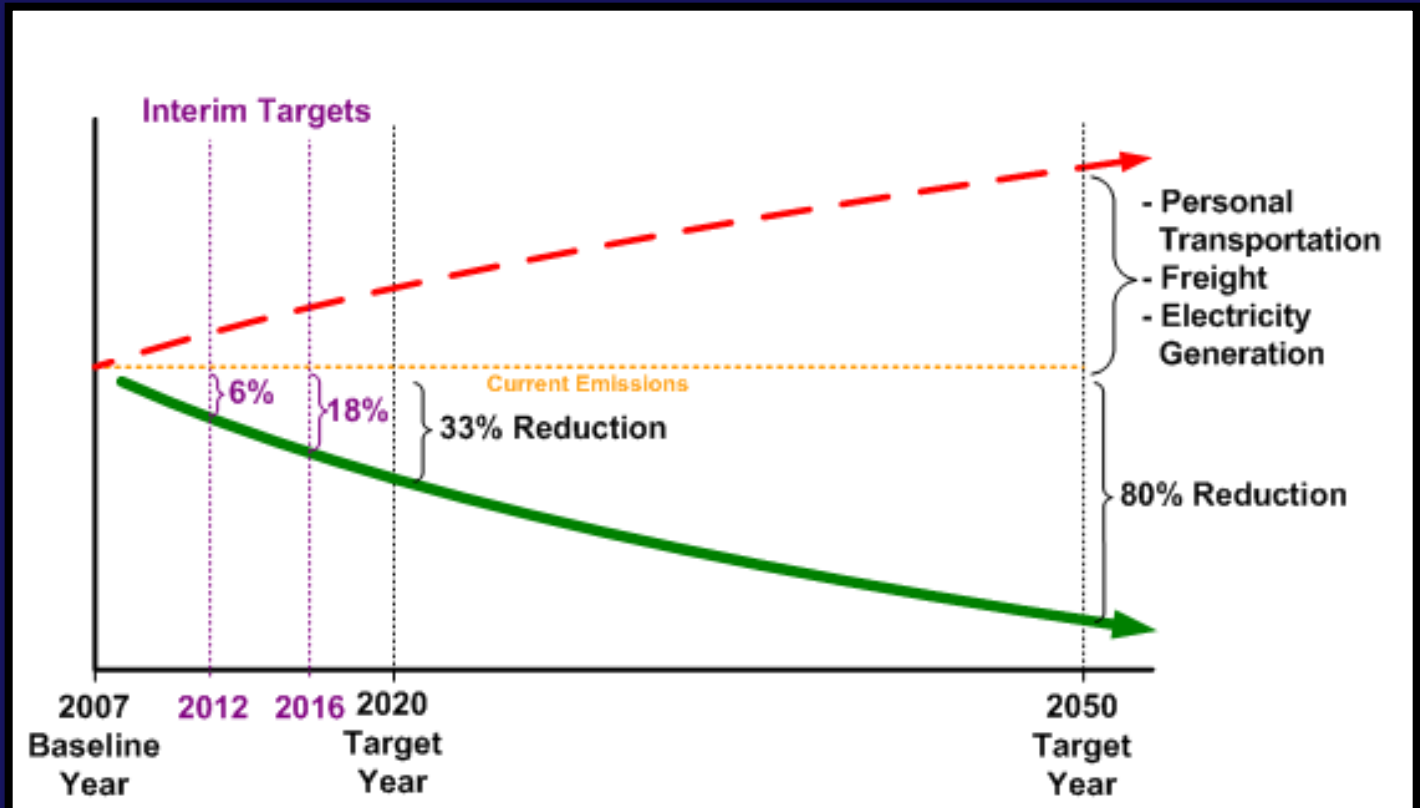


# Alternative Energy Solutions

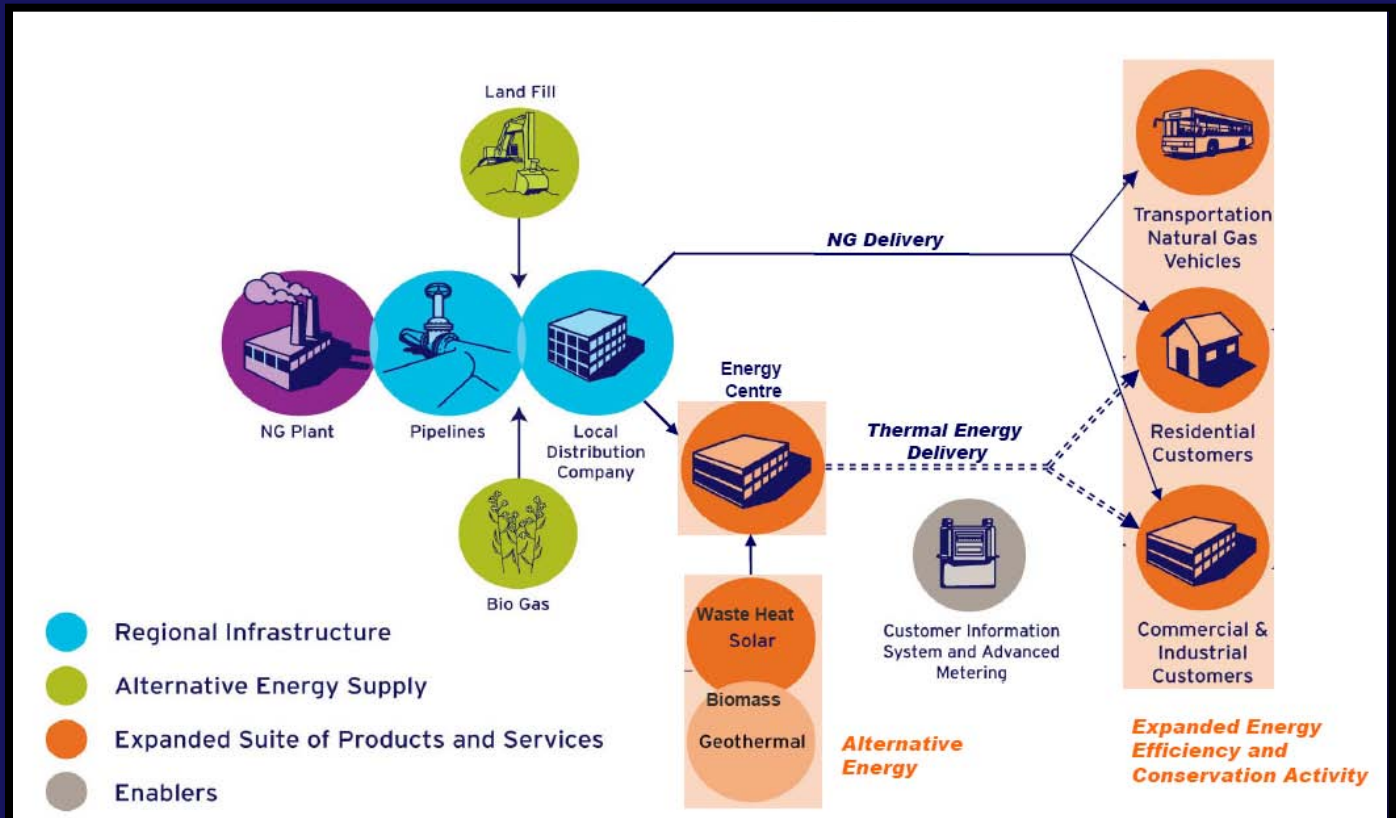
**John Turner**, Director, Energy Solutions

# British Columbia Legislated Targets

- Reducing BC's GHG emissions by at least 33% below 2007 levels by 2020 and at least 80% below by 2050



# Terasen Approach

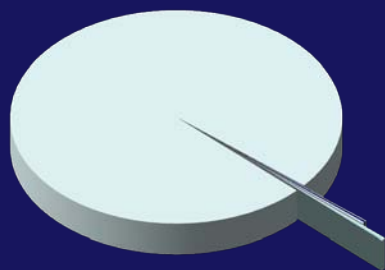




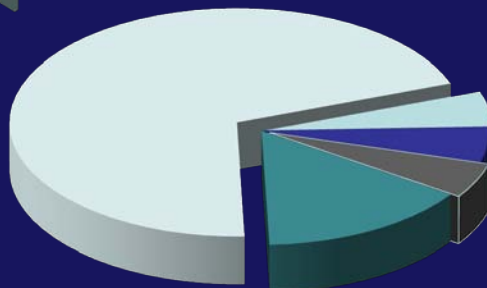
# A Carbon Lean and Energy Diverse Future

## Energy System Evolution

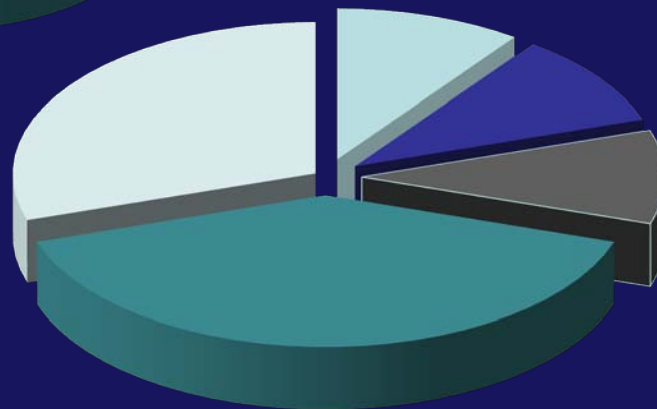
- 80% GHG Reduction
- Energy Cost Convergence



2010



2020



2050



# Terasen Large Scale Alternative Energy System Examples

## District Energy for Brownfield Re-development

- **Location:** Coquitlam, BC
- **Type of Development:**
  - 89 acre brownfield re-development
    - 3,700 residential units,
    - 275,000 sq. ft of commercial/retail
    - 600,000 sq. ft. of business park/ light industrial
    - 16 acres of open space, parks and trails.
- **Energy System:**
  - District Energy System to incorporate alternative energy sources integrated with natural gas:
    - Local waste heat (industrial recycling plant)
    - Geothermal from groundwater or earth
    - Possibilities for biomass



Fraser Mills Site Plan



- **Environmental Benefits**
  - Possibilities for biomass
  - Reduced demand on BC's electricity grid
  - Savings of >8,200 tonnes of GHGs per year (equivalent to removing >2,500 cars from the road)



# Terasen Large Scale Alternative Energy System Examples

## Individual Geothermal Systems for Residential Development

- **Location:** Colwood, BC
- **Type of Development:**
  - 563 unit residential development
  - 24 buildings



*Aquattro Site*



*Geothermal drilling*

- **Energy System:**
  - *Individual geothermal systems*
    - Ground heat extraction integrated with natural gas
    - Progressive installation as community develops
- **Environmental Benefits**
  - *Reduced demand on BC's electricity grid*
  - *Savings of 2 tonnes of GHGs a year for each 2,000 square foot residential unit*



# Terasen Large Scale Alternative Energy System Examples

## Expandable Energy System for Urban Infill

- **Location:** Victoria, BC
- **Type of Development:**
  - New & existing buildings
    - 631 new residential units,
    - 175,000 sq. ft of new commercial/retail
    - Multiple existing buildings adjacent to new development.
- **Energy System:**
  - Geothermal system for first two new buildings integrated with natural gas
  - Capability to expand to complete District Energy System incorporating waste heat from ice rink for both new & existing buildings.



*Hudson Building*

- **Environmental Benefits**
  - *Reduced demand on BC's electricity grid*
  - *Energy Usage in new buildings is reduced by up to 59% & GHGs by up to 73%*

## The Intersect between EEC & AES

- Programs will be designed to reduce amount capitalized and charged back to customer
- Programs will be agnostic as to source for energy savings, but cannot be electric baseboard
- Programs will be agnostic as to AES proponents – don't have to work with Terasen to obtain EEC funds for AES projects





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# Energy Efficiency and Conservation Innovative Technologies

Doug Tufts  
Arvind Ramakrishhan



# Innovative Technologies

## Background

- TGI and TGVI Energy Efficiency and Conservation Application
  - requested \$3 million for Innovative Technology Programs
  - filed on May 28, 2008
- TGI 2010 and 2011 Revenue Requirement Application
  - requested \$7.003 million
  - filed on June 15, 2009
- TGVI 2010 and 2011 Revenue Requirement Application
  - requested \$1.434 million
  - filed June 29, 2009
- TGI and TGVI Received a Negotiated Settlement on November 13, 2009
  - funding for Innovative Technologies approved





# Innovative Technologies

## Approved Funding for Innovative Technologies (\$000)

	2010	2011	Total
<b>TGI</b>	2,334	4,669	<b>7,003</b>
<b>TGVI</b>	0,478	0,956	<b>1,434</b>
<b>Total</b>	<b>2,812</b>	<b>5,625</b>	<b>8,437</b>



# Innovative Technologies

## Terms of the Negotiated Settlement TGI & TGVI

- That Innovative Technologies be managed as a separate portfolio from our other EEC Programs
- That Innovative Technologies portfolio have a Total Resource Cost (TRC) weighted average of 1.0 or greater
- That Terasen will consult with stakeholders on the practical application of the weighted average TRC through the EEC Advisory Committee

# Innovative Technologies

## Proposed Program Costs, TGI

TGI	2010	2011	Total
Solar Thermal	288,000	576,000	\$864,000
Commercial NGV	808,000	1,616,000	\$2,424,000
Hydronic Heating Systems	120,000	280,000	\$400,000
Residential GSHP Systems	107,000	213,000	\$320,000
Alternative Energy Systems	605,500	1,210,500	\$1,816,000
Total	\$1,928,500	\$3,895,500	\$5,824,000



# Innovative Technologies

## Proposed Program Costs, TGVI

TGVI	2010	2011	Total
Solar Thermal	60,000	120,000	\$180,000
Commercial NGV	160,000	340,000	\$500,000
Hydronic Heating Systems	25,000	50,000	\$75,000
Residential GSHP Systems	22,500	44,500	\$67,000
Alternative Energy Systems	126,000	254,000	\$380,000
Total	\$393,500	\$808,500	\$1,202,000





# Innovative Technologies

Natural gas reductions for TGI and TGVI for the measured life of the programs.

- A reduction of 577,000Gj
- A reduction of 505,000 tonnes of C02

	Gigajoules	Alternative energy savings (Diesel liters)	Tonnes of C02
Hydronic heating Systems	24,000		1,325
Alternative energy systems	369,000		20,295
Commercial NGV	-896,000	22,689,000	473,361 (net C02)
GSHP systems	47,514		2,613
Solar thermal hot water	137,154		7,543



# California Standard Protocol Tests

Cost Test	Key Question Answered	Approach
TRC	Is the overall economy better off with DSM?	All costs & benefits regardless of who accrues them
SCT	Is the society, Nation better off as a whole?	Includes non energy benefits
PCT	Will the participant benefit over the measure life?	costs & benefits to the program participant
UCT	Will Utility bills rise over time?	costs & benefits that accrue to the Utility system
RIM	Will Utility rates increase over time?	Takes lost revenue as cost & attempts to measure rate impact to all customers.



# Proposal for Innovative Technologies

- Conventional EEC Programs
- Innovative Technologies Portfolio
  - Partner Contributions netted out of incremental cost

# Example with Solar Thermal – City of Vancouver

Total incremental cost-\$5,700(Solar ready bylaw)

- Partner Incentive-\$3,375
- Utility Incentive proposed-\$1000
- Participant cost-\$1,325



**System cost into the  
model = \$2,325**



# Proposed Innovative Technologies

## TGI

Programs	TRC Ratios		Program costs		
	2010	2011	2010	2011	Total
Solar Thermal	0.8	0.8	288,000	576,000	\$864,000
Commercial NGV	1.5	1.5	808,000	1,616,000	\$2,424,000
Hydronic Heating Systems	0.4	0.4	120,000	280,000	\$400,000
Residential GSHP Systems	0.2	0.2	107,000	213,000	\$320,000
Alternative Energy Systems	1.0	1.1	605,500	1,210,500	\$1,816,000
Portfolio level-TGI	1.2	1.2	\$1,928,500	\$3,895,500	\$5,824,000

# Proposed Innovative Technologies

## TGVI

Programs	TRC Ratios		Program costs		
	2010	2011	2010	2011	Total
Solar Thermal	0.8	0.8	60,000	120,000	\$180,000
Commercial NGV	1.4	1.4	160,000	340,000	\$500,000
Hydronic Heating Systems	0.4	0.3	25,000	50,000	\$75,000
Residential GSHP Systems	0.2	0.2	22,500	44,500	\$67,000
Alternative Energy Systems	1.1	1.1	126,000	254,000	\$380,000
Portfolio level-TGVI	1.2	1.2	\$393,500	\$808,500	\$1,202,000

# Proposed Innovative Technologies

## Portfolio Level summary (TGI , TGVI)

company	Portfolio level TRC	Program Costs(\$)		
		2010	2011	Total
TGI	1.2	1,928,500	3,895,500	5,824,000
TGVI	1.2	393,500	808,500	1,202,000
Total		2,322,000	4,704,000	7,026,000



# Innovative Technologies - Summary

## Application of the Weighted Average TRC

- Program portfolio of activities
- Remove the partner incentive costs from the total incremental cost





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# Structure & Overview of EEC Report

Presented by **Michelle Petrusевич**, MA  
DSM Program Development Lead



## EEC Report – Why?

- May 2008 - EEC Application submitted
- April 2009 - BCUC approved the EEC Application

*“A requirement that Terasen submit annually to the Commission, by the end of the first quarter following year-end, for each year of the funding period, a report on all EEC initiatives and activities, expenditures and results for TGI and TGVl.”*

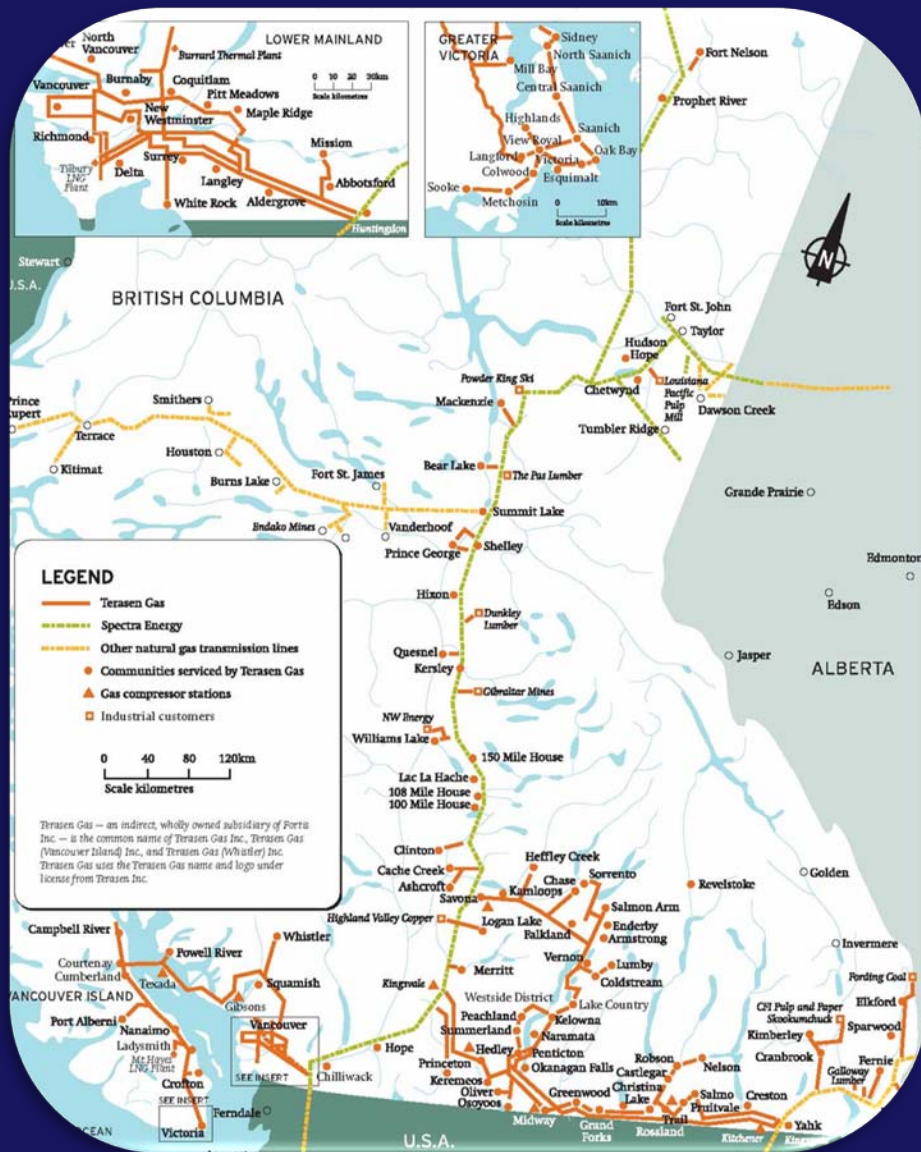


## 2009 EEC Report Structure

- Introduction & Background
- 2009 Program Results (by program area)
- 2010 Programs
- Data Gathering, Reporting & Internal Audit
- Attribution Section
- Conclusion
- Appendices



# Background: DSM Programs on TGI & TGV





## 2009 Program Results\* - Highlights

Please refer to the Annual Report – to be filed with the BC Utilities Commission by March 31, 2010



## 2010 Planned Program Results - Highlights

Please refer to the Annual Report – to be  
filed with the BC Utilities Commission by  
March 31, 2010

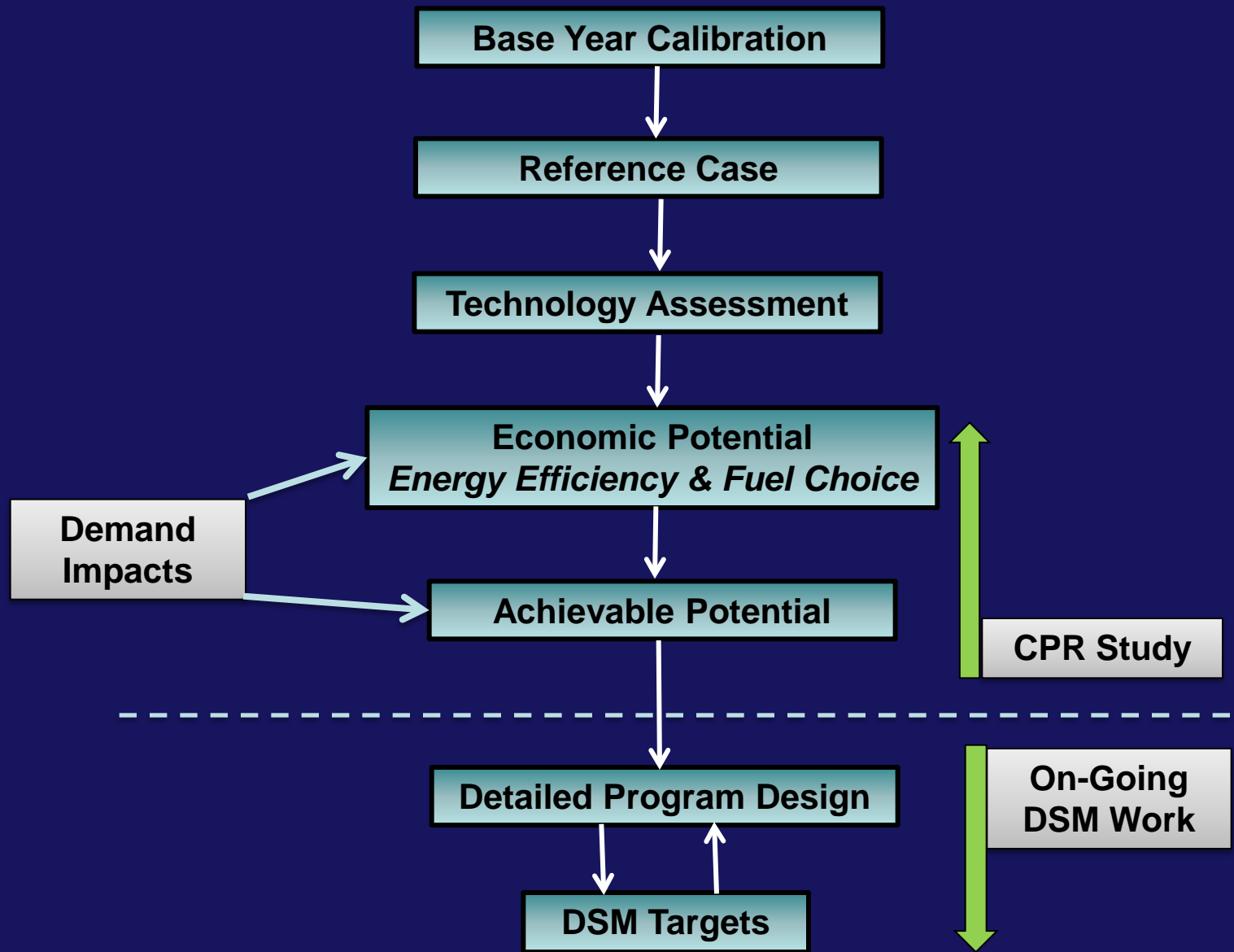




# Research & Evaluation Activities

- 2009 Research & Evaluation Activities
  - REUS Study
  - Sustainability and Social Responsibility Attitudes Study Report
  - Residential Retrofit Market Evaluation for Terasen Gas
  - Energy Star Heating System Upgrade Evaluation (Phase 2 – Billing Analysis)
- 2010 Research & Evaluation Activities
  - Efficient Boiler Program Evaluation
  - Okanagan Spray Saver Pilot Program
  - Commercial Energy Assessment
  - Tankless Water Heater Pilot
  - Home Labelling Pilot in Prince George

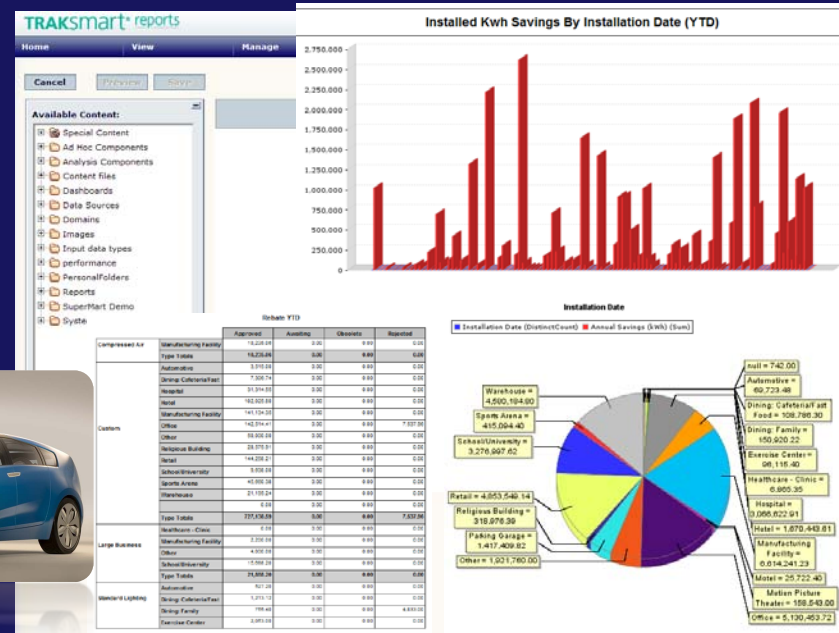
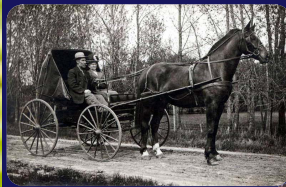
# Conservation Potential Review (CPR)





# Processes and Controls Overview

- Description of current control mechanisms for data gathering, reporting and internal control processes
- DSM Tracking (TrakSmart) System
- Internal Audit





Burn blue. Save green.



# 2010 Residential Programs

**Beth Ringdahl,**  
Residential Program Manager



# Presentation Agenda

- Achievements since last meeting
  - NRCan MOU
  - Streamlining Internal Processes
  - Outsourced administration
- 2009 Program Results
- 2010 Program Plan

# 2009 Residential Program Results

Program Name	Total Incentive & Non Incentive Expenditures (\$ 000's)	Participants  # ' s	TRC
Energy Star Heating System Upgrade (Terasen + LiveSmartBC)	2,104	7930	1.3
EnerChoice Fireplace	84	794	2.5
EcoEnergy Home Energy Assessments – LiveSmart BC	408	5445	"0"

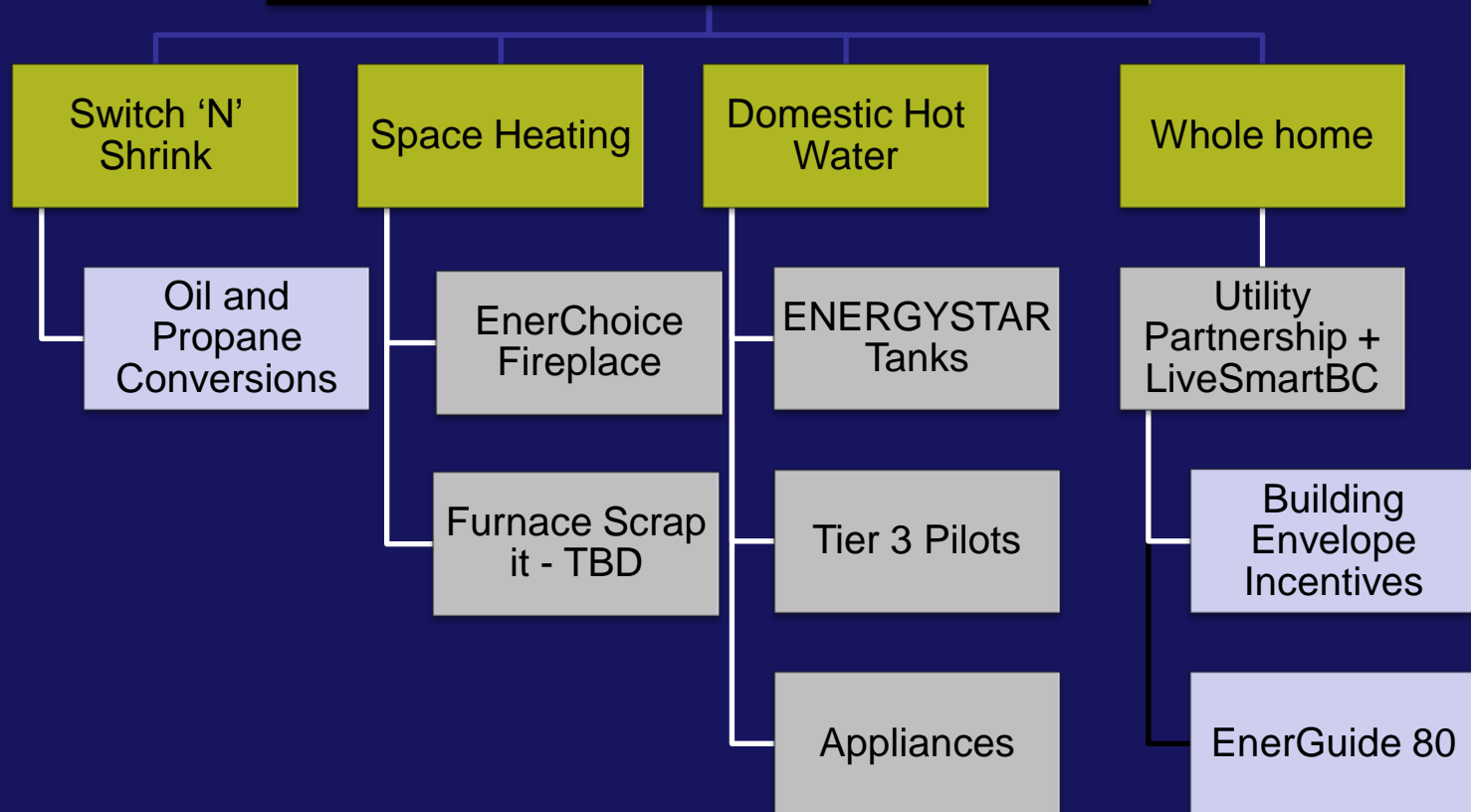
Residential TRC:

1.3

\*Note: the numbers are preliminary and could be modified for the final report



# 2010 Residential Programs





## Switch 'N' Shrink

### Conversion from High to Low Carbon Fuels

\$1000 Rebate

- Launched Jan 1
- Saving \$ and environment
- Partnering with associations
- \$50 rebate for Variable Speed Motor (BC Hydro, FortisBC)
- Goal: 750 participants

Oil and  
Propane  
savings

# Domestic Hot Water

## ENERGYSTAR® Tanks

\$100 Rebate -  
\$50 consumer +  
\$50 contractor

2 GJ per  
year +  
early  
retirement

- Launching May
- Supports Sept 1 regulations
- 90% emergency replacement
- Goal: 3000 retrofit participants
- New construction - TBD





# Domestic Hot Water

## New Technologies and Conservation

- Tier 3 Technologies – 80% +
  - Condensing Water Tank pilot
  - Tankless H<sub>2</sub>O Heater pilot
- Appliances - Front load washers
- Hot Water Conservation Campaign

Save  
hot water =  
save GJs










# Whole Home Partnerships

- Utility Partnership
- One stop rebate shop
- Efficiencies through shared marketing, administration and DSM expertise
- Marketing Launch: Fall weatherization campaign
- Leverage any other funds available



# 2010 Timeline

Project	Q 1	Q 2	Q 3	Q 4
Switch 'N' Shrink				
BC Utility Partners / LiveSmart				
Energy Star Water Tank				
EnerChoice				
Tier 3 Water Heater Pilots				
Furnace Scrap It – TBD				
EnerGuide 80 Pilot - TBD				



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# Commercial Programs

**Ramsay Cook**

EEC Program Manager, Commercial

# 2009 Programs Results

Program Name	Total Incentive & Non Incentive Expenditures (000 \$)	Participants	TRC
Light Commercial Energy Star Boiler Program	52	11	3.4
Efficient Boiler Program	943	65	2.0
Energy Assessment Program	77	49	2.3
Okanagan Spray n' Save	28	276	2.8

**Commercial TRC:**

**2.2**

**\*Note: the numbers are preliminary and could be modified for the final report**





# 2010 Programs Summary



Hot Water

Custom Design



Commissioning

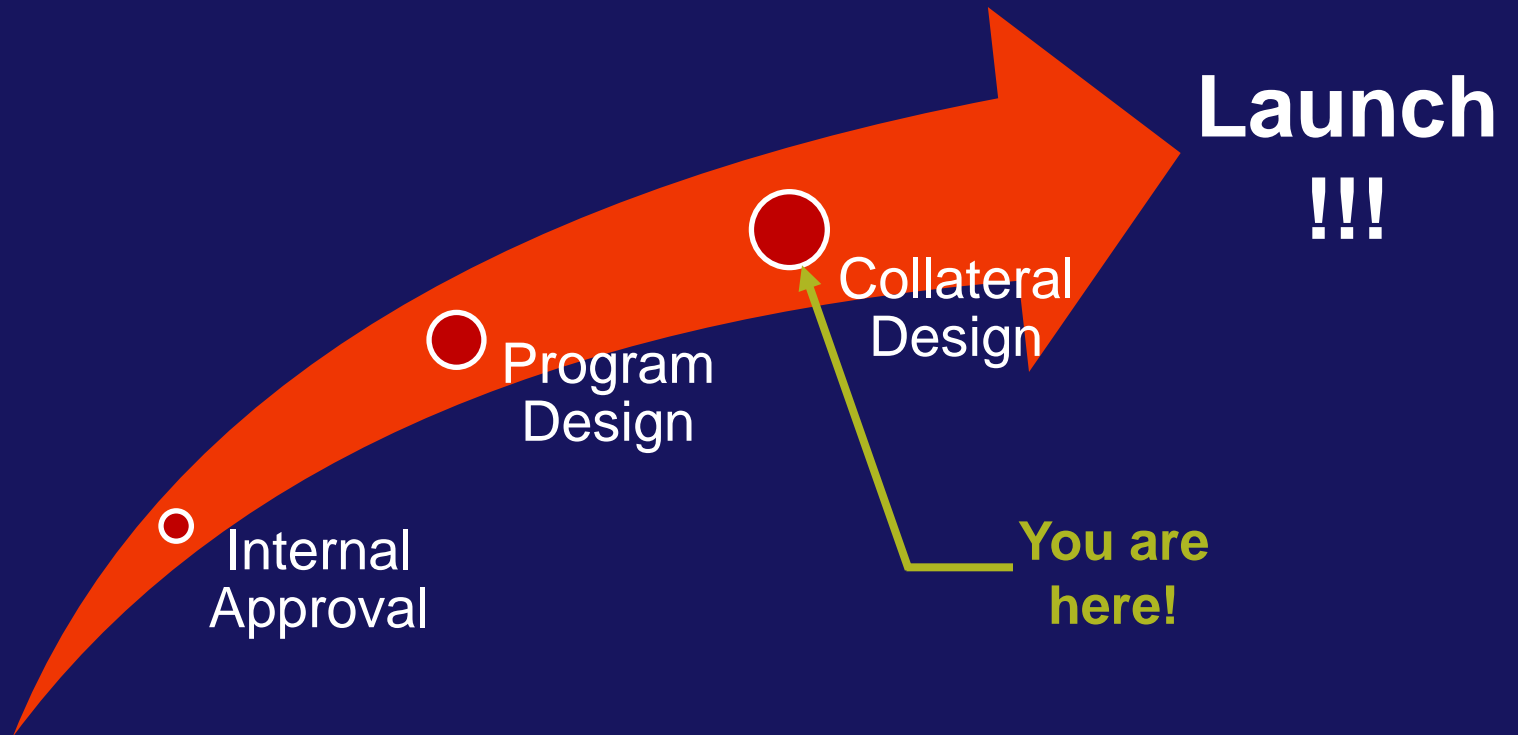


Commercial Cooking

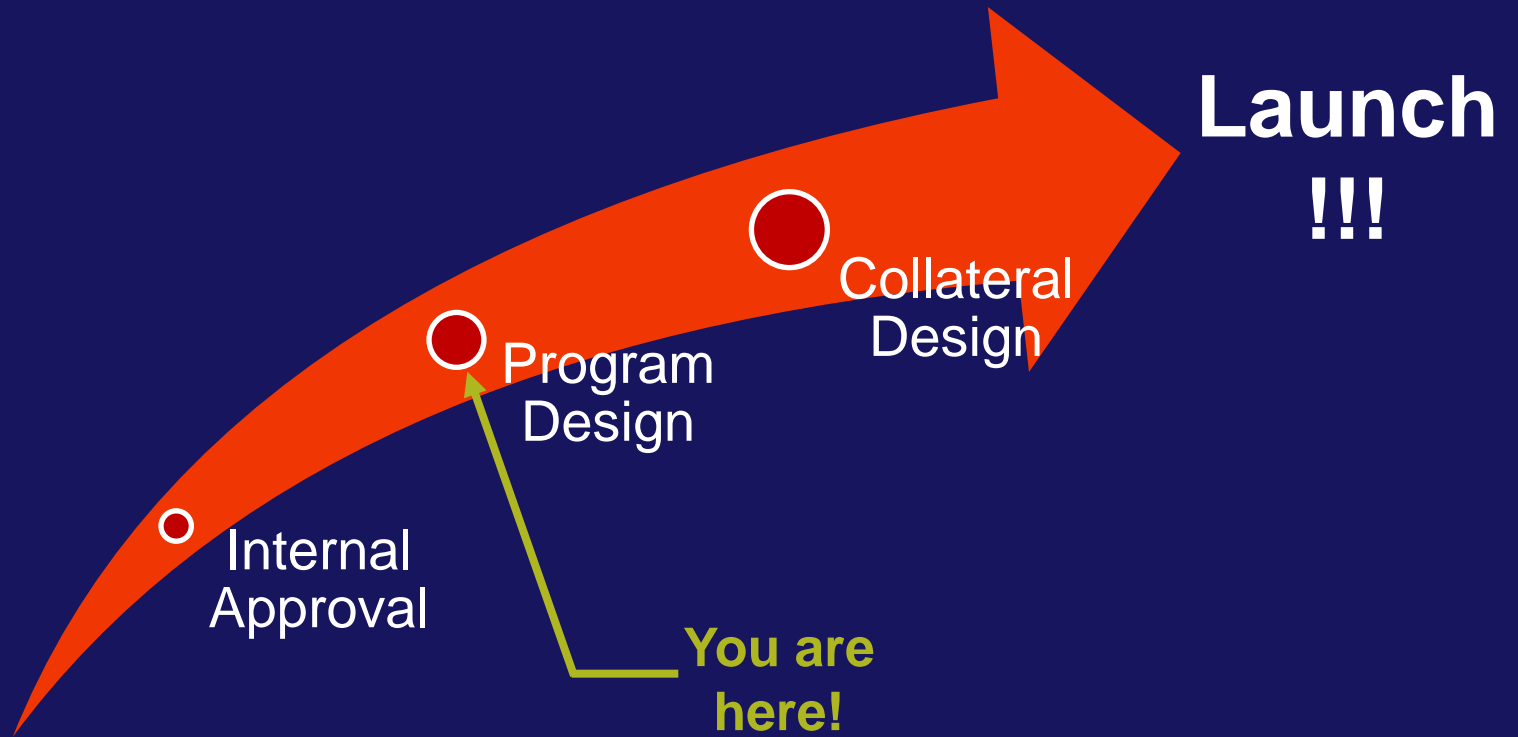


Process Heat

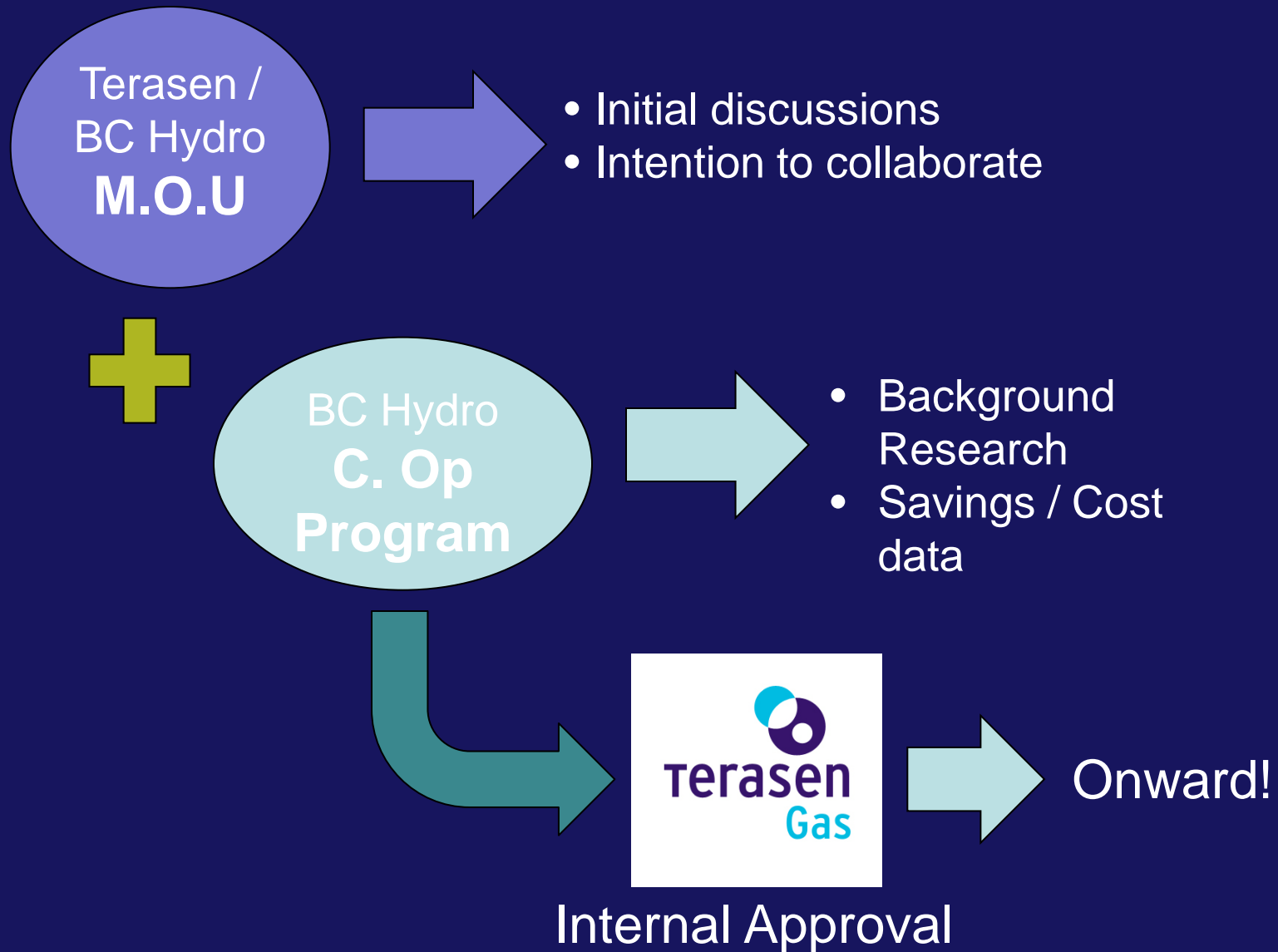
# Efficient Water Heaters Program



# Custom Design Program



# Commissioning Program





# Commercial Cooking Program



Initial  
Research

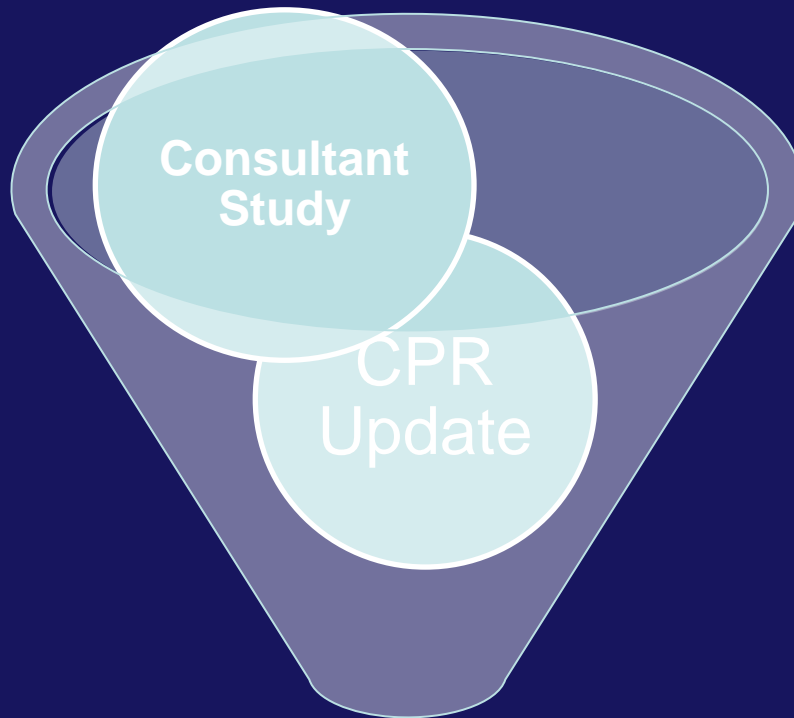


Spoken with  
potential  
participants



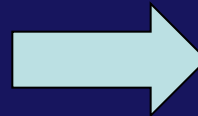
More work to  
be done!

# Process Heat Program

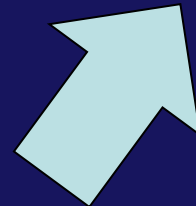


CPR = Manufacturing  
Sector Conservation  
Potential Review






Promising  
Measures



Full Program  
Design



# Timeline for 2010

Project	Q 1	Q 2	Q 3	Q 4
Efficient Water Heaters Program				
Custom Design Program				
Commissioning Program				
Commercial Kitchen				
Process Heat Program				

## Other New Initiatives



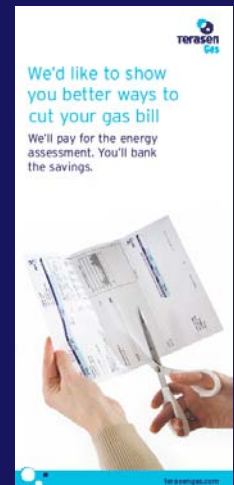
Radiant Tube  
Heaters Pilot Study

Victoria Pre-Rinse  
Spray Valves



Efficient Boiler  
Program Revisions

Energy Assessment  
Program Revisions







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# Conservation for Affordable Housing

**Ned Georgy**  
Program Manager

# 2009 Programs Preliminary Results

Project Name	Total Incentive & Non Incentive Expenditures (\$ 000's)	Participants / Units	TRC
Meridian Village (EEC)	230	124	1.0
LiveSmart Carry Over (MEMPR)	992	557	1.1
Energy Conservation for Affordable Housing Forum	8	83	N/A
Total Program Area TRC:			1.0

\*Note: the numbers are preliminary and could be modified for the final report



## 2010 Programs Summary

- REnEW
- Energy Savings Kits
- Energy Conservation Assistance Program
- 3 Studies
- Energy Conservation for Affordable Housing Forum

# 2010 Programs Summary





# 2010 Programs & Partnerships

Energy Savings Kits  
(EEC and MEMPR)

Energy Conservation Assistance Program  
(EEC and MEMPR)








# Studies

- Affordable Energy Conservation Strategy paper
- Strategic Energy Management Plan
- Co-operative Housing Federation (CHF) Energy Performance Inventory



# 2010 Timeline

Project	Q 1	Q 2	Q 3	Q 4
REnEW				
Energy Saving Kit				
Energy Conservation Assistance Program				
3 Studies				
Energy Conservation for Affordable Housing Forum				



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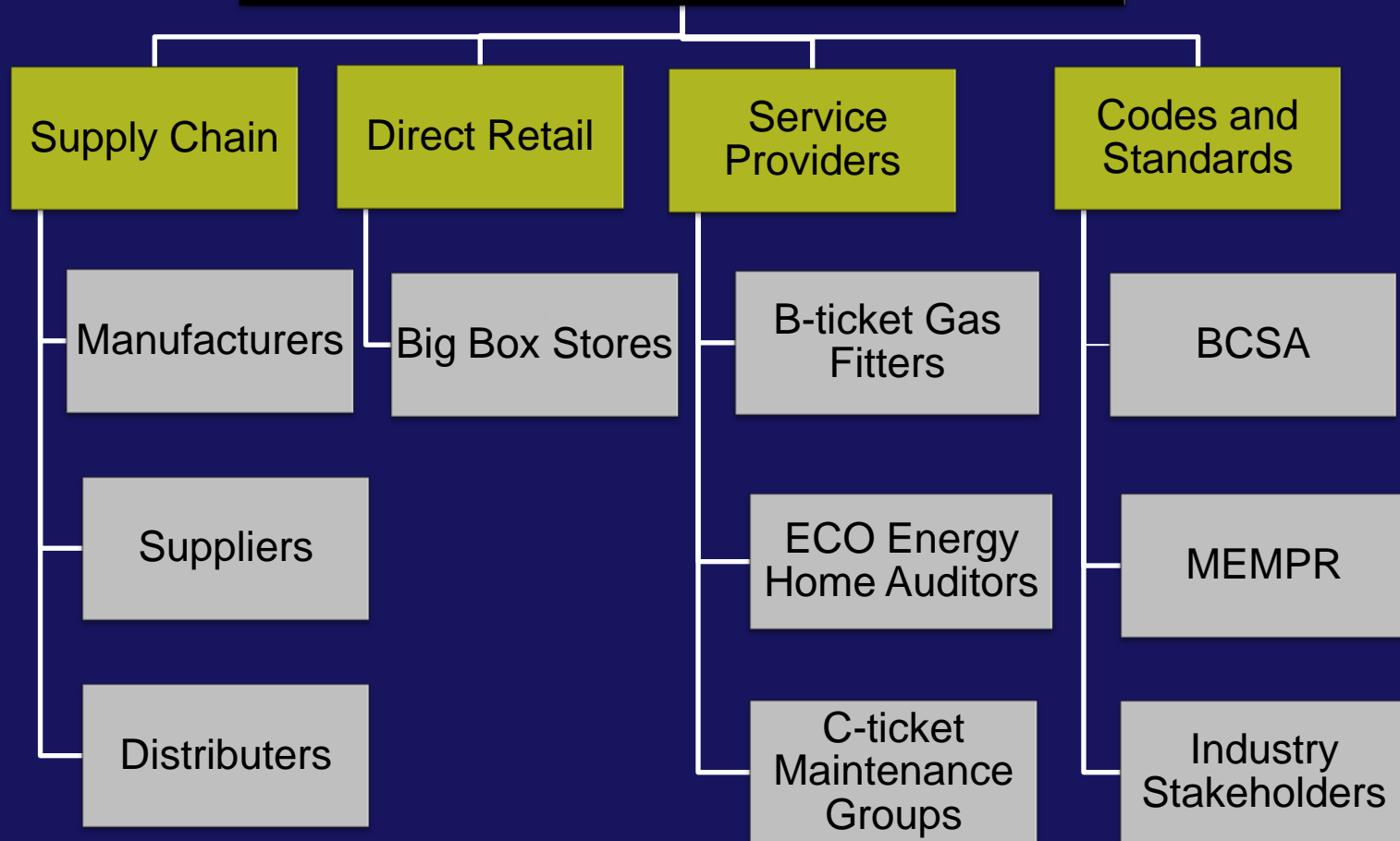


# 2010 Efficiency Partners Programs

**Gary Lengle,**  
Efficiency Partners  
Program Manager



# Efficiency Partners Program





## 2009 Programs Results

<b>Program Name Efficiency Partners Program</b>	<b>Total 2009 Consolidated Expenditures (\$ 000's)</b>
Contractor Program	11
Co-op Advertising	14
Codes and Standards	13

\*Note: the numbers are preliminary and could be modified for the final report

# Efficiency Partners 2009 Program Activities

- TGVI Contractor Focus Groups
- Identifying Partner groups
- Codes and Standards review
- Identifying other utility Enabling programs







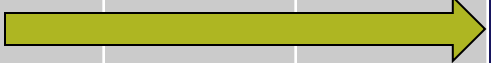




# Efficiency Partners 2010 Program Activities

- Contractor Focus groups TGI service area
- New Contractor Program Development
- Contractor Quarterly Newsletter
- Contractor Workshops
- Building Code Development
- ECO Energy Audit process review





# 2010 Timeline

Efficiency Partners Project	Q 1	Q 2	Q 3	Q 4
Codes and Standards				
New Contractor Program				
Review of ECO Energy Audit				
Contractor Quarterly Newsletter				
Contractor Work Shops				
Additional Partner Groups				
Building Code Development				



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# Conservation Education & Outreach

Jenny Chia  
Program Manager

## 2009 Results

Program Name	Total (Non Incentive) Expenditures (\$ 000's)	Participants
Print and Online Publications	219	n/a
Trade Shows and Events	102	Approx. 4900
Schools Programs	117	Approx. 230+ schools
Energy Champion Program	127	Ongoing into 2010
Team Terasen Outreach	47	Approx. 35,000

\*Note: the numbers are preliminary and could be modified for the final report

# New Initiatives

- Ethnic Outreach
- Commercial Outreach
  - Trade shows
  - BIA regional meetings
- Energy Champion
  - Vancouver Canucks
- Behaviour Change Pilots:
  - Vancouver Coastal Health Authority
  - Okanagan Municipalities
- Terasen employees outreach



>>> Learn more

**Install a programmable thermostat**

My home has an old standard thermostat. I will replace it with a programmable one.

<input type="checkbox"/> I commit to this	<input type="checkbox"/> I already do this
<input type="checkbox"/> Does not apply	<input type="checkbox"/> I don't commit



Total: 0 commitments, 0 kg in greenhouse gas emissions, \$0.00 in savings.

RESTART 1 2 3 4 5 6 7 8 9 10 11 12 13 14 FINISH

© 2008 The Pembina Institute Terasen Gas & Vancouver Canucks



# 2010 Timeline

Project	Q 1	Q 2	Q 3	Q 4
Print and Online (ongoing)				
Ethnic Outreach				
Trade Shows and Events				
School Programs				
Energy Champion				
Team Terasen				
Behaviour Change Pilots				
Terasen Employees outreach				

# Energy Efficiency and Conservation Innovative Technologies

Doug Tufts and Arvind Ramakrishnan

# Innovative Technologies

## Background

- TGI and TGVI Energy Efficiency and Conservation Application
  - requested \$3 million for Innovative Technology Programs
  - filed on May 28, 2008
- TGI 2010 and 2011 Revenue Requirement Application
  - requested \$7.003 million
  - filed on June 15, 2009
- TGVI 2010 and 2011 Revenue Requirement Application
  - requested \$1.434 million
  - filed June 29, 2009
- TGI and TGVI Received a Negotiated Settlement on November 13, 2009
  - funding for Innovative Technologies approved

# Innovative Technologies



## Approved Funding for Innovative Technologies (\$000)

	2010	2011	Total
TGI	2,334	4,669	7,003
TGVI	0,478	0,956	1,434
Total	2,812	5,625	8,437



# Innovative Technologies

## Terms of the Negotiated Settlement TGI & TGVI

- That Innovative Technologies be managed as a separate portfolio from our other EEC Programs
- That Innovative Technologies portfolio have a Total Resource Cost (TRC) weighted average of 1.0 or greater
- That Terasen will consult with stakeholders on the practical application of the weighted average TRC through the EEC Advisory Committee

# Innovative Technologies



## Proposed Program Costs, TGI

TGI	2010	2011	Total
Solar Thermal	288,000	576,000	\$864,000
Commercial NGV	808,000	1,616,000	\$2,424,000
Hydronic Heating Systems	120,000	280,000	\$400,000
Residential GSHP Systems	107,000	213,000	\$320,000
Alternative Energy Systems	605,500	1,210,500	\$1,816,000
Total	\$1,928,500	\$3,895,500	\$5,824,000

# Innovative Technologies



## Proposed Program Costs, TGV

TGV	2010	2011	Total
Solar Thermal	60,000	120,000	\$180,000
Commercial NGV	160,000	340,000	\$500,000
Hydronic Heating Systems	25,000	50,000	\$75,000
Residential GSHP Systems	22,500	44,500	\$67,000
Alternative Energy Systems	126,000	254,000	\$380,000
Total	\$393,500	\$808,500	\$1,202,000

# Innovative Technologies



Natural gas reductions for TGI and TGVI for the measured life of the programs.

	Gigajoules	Alternative energy savings (Diesel liters)	Tonnes of C02
Hydronic heating Systems	24,000		1,325
Alternative energy systems	369,000		20,295
Commercial NGV	-896,000	22,689,000	473,361 (net C02)
GSHP systems	47,514		2,613
Solar thermal hot water	137,154		7,543

- A reduction of 577,000Gj
- A reduction of 505,000 tonnes of C02

# California Standard Protocol Tests



Cost Test	Key Question Answered	Approach
TRC	Is the overall economy better off with DSM?	All costs & benefits regardless of who accrues them
SCT	Is the society, Nation better off as a whole?	Includes non energy benefits
PCT	Will the participant benefit over the measure life?	costs & benefits to the program participant
UCT	Will Utility bills rise over time?	costs & benefits that accrue to the Utility system
RIM	Will Utility rates increase over time?	Takes lost revenue as cost & attempts to measure rate impact to all customers.

# Proposal for Innovative Technologies



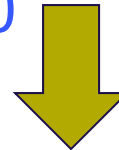
- Conventional EEC Programs
- Innovative Technologies Portfolio
  - Partner Contributions netted out of incremental cost

# Example with Solar Thermal-City of Vancouver



Total incremental cost-\$5,700(Solar ready by law)

- Partner Incentive-\$3,375
- Utility Incentive proposed-\$1000
- Participant cost-\$1,325



System cost into the  
model=\$2,325

# Proposed Innovative Technologies

## TGI

Programs	TRC Ratios		Program costs		
	2010	2011	2010	2011	Total
Solar Thermal	0.8	0.8	288,000	576,000	\$864,000
Commercial NGV	1.5	1.5	808,000	1,616,000	\$2,424,000
Hydronic Heating Systems	0.4	0.4	120,000	280,000	\$400,000
Residential GSHP Systems	0.2	0.2	107,000	213,000	\$320,000
Alternative Energy Systems	1.0	1.1	605,500	1,210,500	\$1,816,000
Portfolio level-TGI	1.2	1.2	\$1,928,500	\$3,895,500	\$5,824,000



# Proposed Innovative Technologies

## TGVI

Programs	TRC Ratios		Program costs		
	2010	2011	2010	2011	Total
Solar Thermal	0.8	0.8	60,000	120,000	\$180,000
Commercial NGV	1.4	1.4	160,000	340,000	\$500,000
Hydronic Heating Systems	0.4	0.3	25,000	50,000	\$75,000
Residential GSHP Systems	0.2	0.2	22,500	44,500	\$67,000
Alternative Energy Systems	1.1	1.1	126,000	254,000	\$380,000
Portfolio level-TGVI	1.2	1.2	\$393,500	\$808,500	\$1,202,000

# Proposed Innovative Technologies

## Portfolio Level summary(TGI , TGVI)

company	Portfolio level TRC	Program Costs(\$)		
		2010	2011	Total
TGI	1.2	1,928,500	3,895,500	5,824,000
TGVI	1.2	393,500	808,500	1,202,000
Total		2,322,000	4,704,000	7,026,000

# Innovative Technologies -Summary

## Application of the Weighted Average TRC

- Program portfolio of activities
- Remove the partner incentive costs from the total incremental cost

## Back up Slides

## Slide 15

---

d5

Arvind could you add some content in the notes addressing why we are removing the partner form the TRC model?  
dtufts, 3/4/2010

# Innovative Technologies –TGVI Break up



2010					Ratios		
		per participant			PCT	RIM	TRC
<u>Innovative Technologies</u>	<u>participants</u>	Incentive (\$)	Admin(\$)	Total(\$)			
Hydronic Heating Systems	21	1000	200	24,939	1.1	0.4	0.4
Alternative Energy Projects	1	120,000	2,000	126,774	2.1	0.7	1.1
NGV Vehicles	3	50,000	500	167,923	1.3	1.0	1.4
Residential Ground Source Heat P	7	3000	200	22,168	0.4	0.5	0.2
Solar Thermal Hot Water	50	1000	200	59,854	2.1	0.6	0.8
Total				401,659	2.0	0.1	1.2
BCUC Approved amount				478,000			
Available funds				76,341			
2011					Ratios		
		per participant			PCT	RIM	TRC
<u>Innovative Technologies</u>	<u>participants</u>	Incentive (\$)	Admin(\$)	Total(\$)			
Hydronic Heating Systems	42	1000	200	49,878	0.8	0.3	0.3
Alternative Energy Projects	2	120,000	2000	253,548	1.5	0.9	1.1
NGV Vehicles	7	50000	500	335,847	1.8	0.7	1.4
Residential Ground Source Heat P	14	3000	200	44,336	0.3	0.7	0.2
Solar Thermal Hot Water	100	1000	200	119,708	1.5	0.7	0.8
Total				803,317	2.1	0.1	1.2
BCUC Approved amount				956,000			
Available funds				152,683			

Terasen Gas. A Fortis company.

# Innovative Technologies –TGI Break up



2010					Ratios		
		per participant			PCT	RIM	TRC
<u>Innovative Technologies</u>	<u>participants</u>	Incentive (\$)	Admin(\$)	Total(\$)			
Hydronic Heating Systems	100	1000	200	120,000	0.8	0.4	0.4
Alternative Energy systems	3	230,000	2,000	605,217	2.4	0.7	1.0
NGV Vehicles	16	50,000	500	808,000	1.8	0.7	1.5
Residential Ground Source Heat pumps	33	3000	200	106,667	0.3	0.7	0.2
Solar Thermal Hot Water	240	1000	200	288,000	1.5	0.7	0.8
Total				1,927,884	2.0	0.3	1.2
BCUC Approved amount				2,300,000			
Available funds				372,116			
2011					Ratios		
		per participant			PCT	RIM	TRC
<u>Innovative Technologies</u>	<u>participants</u>	Incentive (\$)	Admin(\$)	Total(\$)			
Hydronic Heating Systems	200	1000	200	240,000	0.8	0.4	0.3
Alternative Energy systems	5	230,000	2000	1,210,435	2.4	0.7	1.1
NGV Vehicles	32	50000	500	1,616,000	1.8	0.7	1.4
Residential Groud Source Heat pumps	67	3000	200	213,333	0.3	0.7	0.2
Solar Thermal Hot Water	480	1000	200	576,000	1.5	0.7	0.8
Total				3,855,768	2.0	0.3	1.2
BCUC Approved amount				4,600,000			
Available funds				744,232			

Terasen Gas. A Fortis company.

# Innovative Technologies



## Innovative Technologies Portfolio

<u>Programs</u>	Estimated savings(GJ)	Alternative savings	Measure Life	Total Incremental cost(\$)
Solar Thermal	14		25	2,325
Commercial Transportation	-1443	32,500 L	22	50,000
Hydronic heating systems	6.2		22	1,100
Residential GSHP Systems	36		25	22,000
Alternative Energy Systems	3000		25	410,000



# Proposed Innovative Technologies

## TGVI with partner costs included

Programs	TRC Ratios		Program costs		
	2010	2011	2010	2011	Total
Solar Thermal	0.4	0.4	59,854	119,708	\$179,562
Commercial NGV	1.4	1.4	167,923	335,847	\$503,770
Hydronic Heating Systems	0.4	0.3	24,939	49,878	\$74,817
Residential GSHP Systems	0.2	0.2	22,168	44,336	\$66,504
Alternative Energy Systems	1.1	1.1	126,774	253,548	\$380,322
Portfolio level-TGVI	1.0	1.0	\$401,658	\$803,317	\$1,204,975

# Proposed Innovative Technologies

## TGI with partner costs included

Programs	TRC Ratios		Program costs		
	2010	2011	2010	2011	Total
Solar Thermal	0.3	0.3	288,000	576,000	\$864,000
Commercial NGV	1.5	1.5	808,000	1,616,000	\$2,424,000
Hydronic Heating Systems	0.4	0.4	120,000	240,000	\$360,000
Residential GSHP Systems	0.2	0.2	106,667	213,333	\$320,000
Alternative Energy Systems	1.0	1.1	605,217	1,210,435	\$1,815,652
Portfolio level-TGI	1.0	1.0	\$1,927,884	\$3,855,768	\$5,783,652

**Terasen Gas EEC Stakeholder Meeting – Stakeholder 2010 Priorities**  
**March 11, 2010**

<b>Organization</b>	<b>Goals</b>	<b>Members represented</b>	<b>Priorities for 2010</b>	<b>How Terasen can help organization (2-3 ways)</b>	<b>Action Item</b>
Greater Vancouver Home Builders' Association	<ul style="list-style-type: none"> <li>-protecting interests of new home buyers</li> <li>-housing affordability and choice</li> <li>-education</li> <li>-marketing and networking</li> </ul>	700+ members Builders Developers Trades Suppliers Architects & designers → Voice of residential construction industry	<ul style="list-style-type: none"> <li>-reduce/prevent downloading of charges to the price of new homes</li> <li>-promote voluntary market driven green building</li> <li>-underground economy that do not get a permit for renovations</li> </ul>	<ul style="list-style-type: none"> <li>-programs for new home buyers, specifically first – timers</li> <li>-invest in innovative/alternative energy solutions</li> </ul>	<ul style="list-style-type: none"> <li>-continue green incentive programs</li> <li>-educating trades</li> <li>-reno program</li> <li>-consumer behaviour cultural shift</li> <li>-investment for alternative energy solutions</li> </ul>
BC Apartment Owners and Managers' Association	<ul style="list-style-type: none"> <li>-sector sustainability through offering lobbying, education, partnerships with affiliates and associates (price points)</li> <li>-member strength through retention and growth</li> </ul>	3000 members Apartment owners & managers (landlords) + associates (suppliers) + affiliates -sustainability	<ul style="list-style-type: none"> <li>-member education</li> <li>-member retention</li> <li>-member growth</li> <li>-partnership programs to assist members</li> <li>-energy savings; renovations and greener technology</li> <li>-find landlords and how to reach them</li> </ul>	<ul style="list-style-type: none"> <li>-partnership in education, affiliation, sponsorship</li> <li>-news posts on web, magazine &amp; newsletter</li> <li>-info on present &amp; future opportunities</li> <li>-incentives/split</li> </ul>	<ul style="list-style-type: none"> <li>-workshops and tailor to high rise members, medium buildings, and low rise members</li> <li>-news blasts</li> <li>-intro of new programs</li> <li>-change behavior → how do we make the new “bling” energy efficiency?</li> </ul>

Organization	Goals	Members represented	Priorities for 2010	How Terasen can help organization (2-3 ways)	Action Item
National Energy Equipment (distributor of Trane)	<ul style="list-style-type: none"> <li>-increase market creation of home comfort systems for retrofit market</li> <li>-incorporate “clean air” offering into heating and cooling products</li> </ul>	<ul style="list-style-type: none"> <li>-(52) HVAC dealers</li> <li>-homeowners that purchase Trane equipment</li> </ul>	<ul style="list-style-type: none"> <li>-improve quality of installation of Energy Star products</li> <li>-clarify the energy saving message with homeowners</li> </ul>	<ul style="list-style-type: none"> <li>-Terasen dealer (contractor) program</li> <li>-promotions planned outside of the “high season” (Sept –Nov) because impacts quality of installation</li> </ul>	<ul style="list-style-type: none"> <li>-consider “Terasen partners” program on the distribution level (eg. advertising)</li> <li>-work with the NRCan</li> <li>-align upcoming programs with homeowners’ needs and understand consumer mindset</li> </ul>
BC Utilities Commission	<ul style="list-style-type: none"> <li>-increase stakeholder engagement</li> <li>-increase knowledge and capacity in new areas of responsibility, not just an economic regulator</li> </ul>		<ul style="list-style-type: none"> <li>-build capacity/knowledge in commissioners and staff on DSM/energy efficiency best practices from other jurisdictions</li> </ul>	<ul style="list-style-type: none"> <li>-EEC meetings continue</li> <li>-provide updates, feedback and engage with Commission</li> <li>-keep doing what you’re doing</li> </ul>	
Consumers Council of Canada	<ul style="list-style-type: none"> <li>-consumers more aware of energy efficiency options</li> <li>-consumers knowledgeable about the costs/payback/justification of energy efficient purchases</li> <li>-ensure the consumer voice is at the policy table</li> </ul>	<ul style="list-style-type: none"> <li>-residential consumers of energy</li> </ul>	<ul style="list-style-type: none"> <li>-energy efficiency adopted as an objective in building codes</li> <li>-understand consumer attitude to energy efficiency</li> <li>-consumer protection available + accessible to consumers (remedies)</li> </ul>	<ul style="list-style-type: none"> <li>-perhaps a partnership to enable us to get consumers’ opinion/feedback on energy issues + housing issues</li> <li>-access to info on the residential consumer + their preferences &amp; actions (take up of incentives?)</li> <li>-get info to customers</li> </ul>	<ul style="list-style-type: none"> <li>-meet with appropriate Terasen reps to talk about possible options</li> </ul>

<b>Organization</b>	<b>Goals</b>	<b>Members represented</b>	<b>Priorities for 2010</b>	<b>How Terasen can help organization (2-3 ways)</b>	<b>Action Item</b>
Urban Development Institute	-to connect our industry with governments and the public -improve our industry through professional development and education -having a reasonable cost of & regulatory environment for our members	Developers & professionals that support them. -500 corporate members (architects, engineers, banks)	- housing affordability -reducing cost (fees, charges imposed by government -greenbuilding sustainability	-research/education on cost effective green build, energy efficiency, sustainable tools, technologies (how much customers value/do not value on e.e. to potentially support a salesperson education initiative -need consistent approach; various Lower Mainland municipalities are too diverse in policies on sustainable buildings -incentives for our members (green technologies have high upfront costs)	-information -education
Crosby Property Management	-energy savings -green technology	25,000 residential strata owners	-hold costs or do better -looking for incentives -HRTC did a lot in 2009	-information to customers	-timers for fireplaces for strata owners (program)
IBC Technologies	-expand condensing boiler product offering into commercial sizes/markets -more residential market choices with different price points/affordability	-IBC -Canadian Hydronics Council (BC rep) -CSA TC on energy efficiency	-see goals -evolve commercial boiler efficiency measurement standards	-provide clarity on DSM programs and changes thereto -host local roundtable meeting of stakeholders to commercial boiler efficiency issues to take to the national meeting	

<b>Organization</b>	<b>Goals</b>	<b>Members represented</b>	<b>Priorities for 2010</b>	<b>How Terasen can help organization (2-3 ways)</b>	<b>Action Item</b>
Natural Resources Canada	-improve Canadians' energy consumption practices in commercial and institutional buildings to the end of reduced GHGs (17% by 2020)	Government of Canada	-encourage energy efficiency retrofits and new building design -commissioning and re-commissioning -update energy code -develop bench marketing-data for buildings (offices and schools) -position for transition to post 2011 (funding ending) -build capacity among energy professionals -update the Model National Energy Code for Buildings for release 2012	-information sharing -partnerships/cooperation on optimizing resources in program design/delivery -liaise with regional stakeholders (oversee all of Western Canada)	-develop working groups?
Consolidated Management Consultants	-fair and cost effective supply	-represent commercial energy consumers	-continue to consult with BC Hydro and Terasen Gas -challenge anything that is less than cost effective -success in meeting government's goals-see utilities in succeeding	-consultation on EEC -interested in alternative energy -long term plan for reducing GHGs (by 2050) -interested in cost effective management in utility -continued engagement	
Rate 1 customer/landlord/ New Climate Strategies consultant	-improve energy efficiency infrastructure in my home	-rate 1 customers across BC	-learn about insulation options (for old home) -improve hot water systems - too much waste	-help me assess opportunities in a comprehensive way (not one-off technologies) -expertise for hire, who can assess my options?	-work with BC Hydro to give me coordinated picture of my energy and GHG issues

<b>Organization</b>	<b>Goals</b>	<b>Members represented</b>	<b>Priorities for 2010</b>	<b>How Terasen can help organization (2-3 ways)</b>	<b>Action Item</b>
Rental Owners and Managers Society of BC	-continue growth to 2400 members -achieve changes to residential tenancy act -increase recognition of rental industry as provider of homes to 1/3 of British Columbian	-2200 residential owners and managers -50,000 rental homes	-increase awareness of ROMS BC among BC's landlords	-recognize distinctiveness & size of residential rental industry +/- 600,000 rental homes -apartment buildings are different from condos or SFDs	-tenants consume, landlords pay??
City of Vancouver	-reduce GHGs -meet community based action goals	-municipality and Vancouver residents	-MURBs and small – businesses -retrofit program (under consideration, require at least 10% of the cost of any permitted renovation to be allocated to e.e. upgrades using prescriptive measures)	-for SFDs – prescribed measures, or Energuide rating -COV support by having green renovation guides online	-example of laneway house with computer interface that indicated energy usage
Ministry of Energy, Mines and Petroleum Resources	-energy efficiency -reducing GHG emissions -develop a culture of conservation		-Energy Plan -Climate action -Clean energy economy	-support for codes and standards -integration with LivesmartBC -innovation with gas (NG vehicles) -communicate with Energuide 80 -go beyond code, maybe home labeling	

<b>Organization</b>	<b>Goals</b>	<b>Members represented</b>	<b>Priorities for 2010</b>	<b>How Terasen can help organization (2-3 ways)</b>	<b>Action Item</b>
Tseshahht First Nation	<ul style="list-style-type: none"> <li>-expand economic development and diversification</li> <li>-expand member employment opportunities</li> <li>-improve quality of life-industry housing</li> <li>-building relationships with Alberni Valley Community</li> </ul>	1000 members 750 on reserve	<ul style="list-style-type: none"> <li>-building 14 new houses (need for 80 families housing—multigenerational, increased growth in community with declining growth in neighbouring community)</li> <li>-7 new RAPS (renovations)</li> <li>-develop partnerships for tourism projects</li> <li>-encourage entrepreneurship</li> <li>-support building of new athletic hall in Port Alberni</li> <li>-new ventures + construction eg. greenhouse</li> </ul>	<ul style="list-style-type: none"> <li>-partnerships for training and mentoring</li> <li>-grants for new athletic hall (gas powered new construction)</li> <li>-seeking appliance bundles for energy efficiency in new houses</li> <li>-cost efficiency and energy efficiency</li> </ul>	-do not understand using natural gas on reserve, mainly BC Hydro
Fraser Basin Council	<p>Vision: strong communities, healthy ecosystems and vibrant economies in the Basin and beyond</p> <p>Goals: climate change mitigation/adaptation (reducing GHGs/energy efficiency)</p> <ul style="list-style-type: none"> <li>-smart planning for communities</li> <li>-regional and sub-regional (local) issue resolution</li> <li>-aboriginal engagement</li> </ul>	-all form orders of Canadian government including First Nations + private sector + community/civil society interests	<ul style="list-style-type: none"> <li>-continue to build on successes:</li> <li>-green fleets BC initiative, transportation</li> <li>-energy solutions for remote communities</li> <li>-supporting community energy planning though BC –demand side management</li> <li>-supply chain Buymost program</li> </ul>	<ul style="list-style-type: none"> <li>-harness power of strategic relationships; facilitate and bring together unlikely parties</li> <li>-multi-interest board</li> </ul>	-continuing to build bridges between people, organizations, regions – and action items together



<b>Organization</b>	<b>Goals</b>	<b>Members represented</b>	<b>Priorities for 2010</b>	<b>How Terasen can help organization (2-3 ways)</b>	<b>Action Item</b>
City of Prince George	-climate change goals & objectives that relate to participation in the Partners for Climate Protection Program (PCP). -the goal is a 10% reduction in greenhouse gas emissions from 2012, from a benchmark year of 2002. actively involved in meeting a target of carbon neutral operations by 2012 under the Province's Community Action Charter -20% reduction in overall energy intensity (electricity & natural gas) by 2015 (5 years) -5% reduction in overall energy intensity (electricity & natural gas) for each facility in 2010	-citizens of Prince George	-5% reduction in energy intensity for 2010 -carbon neutral by 2012 -10% Reduction in GHG emissions by 2012	-GHG emissions and energy consumption: easily accessible programs to help decrease GHG emissions, and funding that is available to retrofit old equipment, or implement a project that will decrease natural gas consumption would be appreciated.	

Note: priorities missing from BC Hydro, FortisBC, BC Public Interest Advocacy Centre, Canadian Home Builders' Association of BC, BC Mechanical Contractors Association, and BC Safety Authority.



## **Terasen Gas EEC Stakeholder Meeting Agenda**

Wednesday November 24, 2010

Hyatt Hotel: 655 Burrard St, Vancouver – Grouse Room, 34<sup>th</sup> Floor

8:50 – 9:00	Registration (coffee served)
9:00 - 9:15	Welcome and Agenda
9:15 – 9:35	TG topic: FortisBC Integration
9:35 – 10:00	TG topic: Natural Gas Vehicle Application
10:00 – 10:10	Break
10:10 – 10:30	EEC 2012 Application
10:35 – 11:45	2010 Programs Review
11:50 – 12:35	Lunch
12:40 – 13:30	Stakeholder Workshop #1, 2011 programs
13:30– 13:45	Break
13:45 – 14:25	Stakeholder Workshop #2, 2011 programs
14:25-14:50	Summary of Workshop Discussions
14:50 – 15:00	Wrap Up and Next Steps



## **Terasen Gas EEC Stakeholder Meeting Minutes**

Wednesday November 24, 2010

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### **Attendees**

Alison Richter – British Columbia Utilities Commission  
Amy Spencer-Chubey – Greater Vancouver Home Builders' Association  
Bob Purdy – Fraser Basin Council  
Bruce Macgowan – IBC Technologies  
Dan Pasacreta – Crosby Property Management  
David Craig – Consolidated Management Consultants  
Elizabeth Westbrook-Trenholm – Natural Resources Canada  
Andrew Pape-Salmon – Ministry of Energy  
Jeff Fischer – Urban Development Institute  
Jen Richards – City of Vancouver  
Mark Hartman – City of Vancouver  
Joan Huzar – Consumers Council of Canada  
Marg Gordon – BC Apartment Owners and Managers' Association  
Keith Veerman – FortisBC  
Steve Hobson – BC Hydro, Director Power Smart  
Rob Noel – BC Mechanical Contractors Association  
MJ Whitemarsh – Canadian Home Builders' Association BC

### **Regrets**

Jim Quail – BC Public Interest Advocacy Centre  
Marni Vistisen – City of Prince George, Energy Manager  
Al Kemp – Rental Owners and Managers Society of BC  
Cindy Stern – Tseshah First Nation, CEO  
Nina Winham – New Climate Strategies; Terasen Gas rate 1 customer  
Nir Kushnir – National Energy Equipment, General Manager (Trane)  
Wayne Lock – BC Safety Authority, Gas Operations Manager  
Brian Jones – Seabird Island

### **Terasen Gas Staff**

Beth Ringdahl	Ned Georgy
Jenny Chia	Ramsay Cook
Colin Norman	Sarah Smith
Jim Kobialko	Mark Grist
Hakan Kok	Doug Stout
Gina Lego	

## **Doug Stout, Corporate Overview (FortisBC Integration)**

Question: What is the FortisBC debt/equity ratio?

TG response: 60/40

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## **Mark Grist, Natural Gas Vehicle Program for BC**

Question: What is the efficiency of the motors?

TG response: Depends on the engine technology and not the fuel (e.g. heavy duty trucks vs. garbage and transit trucks); for heavy duty trucks, the efficiency can match the efficiency of diesel engines.

Q: Is the carbon tax included in the NGV TRC calculation?

TG: Yes

TG: Terasen is planning to do a workshop in early 2011, to add and monetize additional benefits in the TRC test.

Q: Is there a road tax?

TG: No, not yet. And likely none for the foreseeable future.

Q: What are the different emissions between diesel vs. NGV? For example, particulates, NOx traps. . .?

TG: To meet 2010 emission regulations on diesel engines, manufacturers must install emission controls such as diesel particulate filters and NOx traps. These new additions reduce emissions to levels comparable to NGVs but add cost and reduce the efficiency of diesel engines.

Q: This is the economic thing to do, and the Province is wanting to reduce GHGs – what do you need for a faster transformation adoption?

TG: We are working with the Provincial government to introduce incentive programs to reduce the capital cost barrier. If they contribute funds, this will make the Terasen incentives go further. The Federal government is also looking at tax credits.

Q: What would be helpful from the customers to help this NGV strategy/application?

TG: We do not have approval to provide fueling stations to our customers. Terasen is sending in an application to the BCUC in one to two weeks and additional support, such as letters from the stakeholders, would be appreciated.

Q: Are there safety issues in neighbourhoods?

TG: All fuels have certain risks and appropriate safeguards specific to the specific fuel need to be taken. The risks associated with NG are quite comparable to conventional fuels.

Q: Will a leasing program address the capital cost issue?

TG: Most trucking fleets are leased; hence, we are working on establishing an incentive program specifically designed for leasing situations.

The incentives will also be reduced over time, declining from the existing level of 100% of the incremental cost. We just need to get past the tipping point of adoption (refer to slide 17)

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## Sarah Smith, EEC Looking Ahead

Question: Is the plan for the application to build from the bottom up again?

TG response: The plan going forward is to ask for funding approval for different areas, but be able to transfer the funds between the different areas within the portfolio if necessary.

TG: Would like input from the group on accountability to ratepayers and stakeholders, for instance we currently have two meetings a year and produce an annual report – is this sufficient? We file our annual report at the end of March (2011) and will ask that any regulatory process relating to the report be deferred to when we file our ask for EEC funding, so that we do not go through two rounds of regulatory process.

Q: What is holding up the mid-efficient furnace change out?

TG: The challenge is that many furnaces are beyond their life cycle. We are looking to do early retirement for furnaces and working with the Ministry of Energy on this issue.

Q: How many programs are explicitly for market transformation? Does Terasen have market transformation plans for their programs?

TG: Not explicitly, however market transformation is one of the Company's EEC Program Principles and most programs are aimed at market transformation. Market transformation should be adopted as a theme for the application for funding approval for 2012, and beyond. One example of a technology where we've launched a program to support market transformation would be the water heater program just launched, and the TLC furnace service program is a market transformation program for behaviour change.

David Craig expressed interest in working with Terasen Gas and BC Hydro for a longer term ask, that is outside of the Revenue Requirement timeframe.

Q: Why is only \$10 million of the \$30 million budget (for 2010) spent?

TG: We are under spent this year. We underestimated the number of (people) resources required to develop programs and push them out to market. We also have rigorous internal procedures, like developing solid business cases requiring 3 signatures before a program is launched. The rebate funds, however, are not in a holding pattern because we have not been efficient with our application processing. We are looking into simplifying the application process, like putting it on the web for example. If the EEC funds are not used, they are not recovered from ratepayers.

Q: What about using external resources like service organizations and consultants?

TG: We do so when appropriate; we have hired consultants to develop our new construction program, and with our Affordable Conservation program we have several partnerships in place. BC Hydro: The informed consultant community is also small (limited). We have to compete with other utilities and jurisdictions.

TG: We need to look into building energy efficiency capacity by creating external training opportunities.

Q: In your last application, some of the funds Terasen asked for were reduced, will this happen again?

TG: There were some reductions in our original application, like in the Conservation Education Outreach, but we did get most of what we had asked for. For Innovative Technologies, we re-requested funding approval in our Revenue Requirement application later in 2009.

## **2011 Programs Workshop – Brainstorming and Discussion**

### **Residential and Conservation for Affordable Housing**

#### **Comments on launch of New Construction Program**

- Integrate offers with other utility partners or municipalities
- A New Construction Stakeholders Meeting would be beneficial. We need stakeholders' and builders' feedback
- BC Building Code EGH80 introduction is scheduled for November 2011. There are concerns that although builders may be following the prescriptive path through current BC Building Code standards they are not reaching EGH 77 but rather EGH 72-74 is most common. Agreement that Terasen can use EGH 73 for a base line for energy savings calculations since it is a true representation of current industry buildings.
- The EGH80 Nov 2011 new regulations are proposed to focus on improved building envelope standards
- Look at energy specialists into CHBA - 10 Associations already support energy efficiency. How to formalize going forward?
- Cost estimates for EE upgrades are difficult
- Note the regional differences in home performance, costs, upgrades
- Incentivize smaller homes – interesting to look at consumer influences inventory – sell the benefits – is there a potential for small (SPIFFs?) to consumers?
- Municipalities – permit office could distribute program packages (e.g. Saanich, PG, COV)
- Energy Star for Homes is making a comeback (Note CityGreen is administering)
- Nov 2011 new regulation – bundle improved building envelope standards

#### **Tankless Water Heater Program discussion generated a lot of interest**

- May be able to add the value of saved floor space into the calculation to help with TRC ; long life span attribution
- Tankless (25-40% savings need to be confirmed)
- North America are laggards in this technology, but need to further understand the 25-40% savings claims in this market
- Survey results are of interest to the group
- 0.80 EF water heater pilot of interest to the group (Jim Kobialko)

#### **Water heaters (storage tanks)**

- Increased education for a planned replacement strategy
- TG to look at rentals and financing options
- Clarify efficiency levels with new technology coming to market

#### **Issues in approving programs based on TRC calculations – some ideas**

- Look at excluding non-energy related costs from TRC calculations (FortisBC includes this rule in the tariffs)
- Ventilation and carbon monoxide detectors should be considered Enabling Activities that are excluded from TRC calculations.
- Review DSM policy on attribution of savings for all programs and the role of compliance engagement strategies on savings

### Affordable Housing Discussion points

- Look at mass purchases for low income: water tanks, furnaces and boilers

### Fireplaces

- A lot of discussion regarding need for fireplace programs for MURBs and issues with strata meters and strata policies; Joint program with commercial program manager is under discussion
- Need more customer education on energy use by fireplaces, zone heating/primary/right-sizing, pilot lights and whole home heating

### Furnace programs

- Positive feedback for scrap-it program
- TLC Furnace service program success was discussed. Idea for a sticker on furnace for timing of next service

### Outreach to TG residential customers & other discussion points

- Explore ways to get unbiased, fuel-neutral, manufacturer-neutral advice to customers
- Need to move beyond energy advisor to advice that is more of a whole-home heating "solution"
- Look at a listserv idea for consumers and the trades to maintain a knowledge base of information and concerns
- How to get the information out to mainstream home/family-based magazines
- Watch for the Canadian Hydronics Council (CHC) upcoming industry advertising campaign "beautiful heat"
  - essentially gas
  - alternate energy
  - focus on health benefits
- Marketing communications could provide more education about why Terasen is involved in conservation:
  - what's in it for Terasen
  - what's in it for shareholders
  - what's in it for customers
- Engage Certified Energy Advisors in promoting programs
- Financing and equipment rentals were discussed briefly. Look to the City of Vancouver program for home retrofits that involves on- tax financing and retrofitting policy
- Consider financing to assist with the deployment of individual metering in Multi-Unit Residential to help promote conservation in suites. Occupants are not readily aware that their gas bills are rolled into strata fees so it is for the common good to reduce their consumption
- Collaborate with key stakeholders on building codes and retrofitting policies. Example, City of Vancouver, Minister Yamamoto, etc.

## Commercial

- MURBs – multi-urban residential buildings
- in suite efficiency package, new construction (ie. Terasen option for developers)
- individual metering for stratas
- co funding ad campaigns

## Conservation Education

- small business – roundtable (Min. of E. Joy Beauchamp) – Livesmart
- refer to Junior Achievement program
- behaviour change – gov't → Power of 10 gov't buildings
  - bring Terasen in
  - how much control on the gas side?
- behaviour change: continuous optimization program for commercial (on controls)
- 5-10% behaviour energy savings – in commercial
- look at high leverage behaviours (drivers and barriers)
- “social cost of doing nothing”
- new home owner guide/first time home buyer (ie. Terasen hot tips)
- multi-family
- commercial testimonials
- trades students – education, build into training
- school kits as part of curriculum, and take home kits
- industry training – TECA, eg. duct installation problem
- use stakeholder newsletters and channels to promote programs

## Portfolio Projects

- energy specialist → program targets (eg. EBP applications)
  - -BC Hydro describes as Sector Enabling
  - -CHBA BA request
  - -CHOA?
- community energy manager → promote programs on a whole
- engage politicians and municipalities – different interests: green, affordability, security, etc.
- CRP findings summary - stakeholder meeting in Jan. 2011
- present to developers (UDI luncheons and important for building codes)
- what technologies pass cost/benefit tests?
- efficiency of model → distributed vs. central model to disseminate information
- compare in-house resources (energy specialists) vs. Terasen EEC solutions managers; in-house seem to get more executive buy-in
- look at supply chain also → procurement, bidding process, etc.



## **Innovative Technologies and Industrial**

- integrated “wireless control system” (eg. dorms, hotels) b/c difference in occupancy levels (Schneider electric)
- heat recover add-ons to rooftop units (Lennox)
- insulation tilt-up concrete buildings , BC (schools)
- solar stack, “glass” space conditions (Manitoba Hydro)
- building architecture
- biomass with Innovative Technologies
- education of technology operations for stakeholders
- Canmet, collaboration studies
- CGA technology

## **Next Steps**

- meeting in March 2011
- getting an industrial and innovative committee member for next EEC meeting

# Terasen Gas EEC Stakeholder Meeting

November 24, 2010

FORTISBC



# Corporate Overview

EEC Stakeholder Meeting

Doug Stout

VP Energy Solutions & External Relations

 FORTISBC

  
terasen  
Gas

**2.1 million gas and  
electricity customers**

**\$12 billion assets**

**FORTIS** INC.

Regulated  
Utilities

FortisBC

FortisAlberta

Newfoundland Power

Maritime Electric

FortisOntario

Terasen Gas

Belize Electricity

Caribbean Utilities

Turks and Caicos

Non-Regulated  
Businesses

Fortis Generation

Fortis Properties

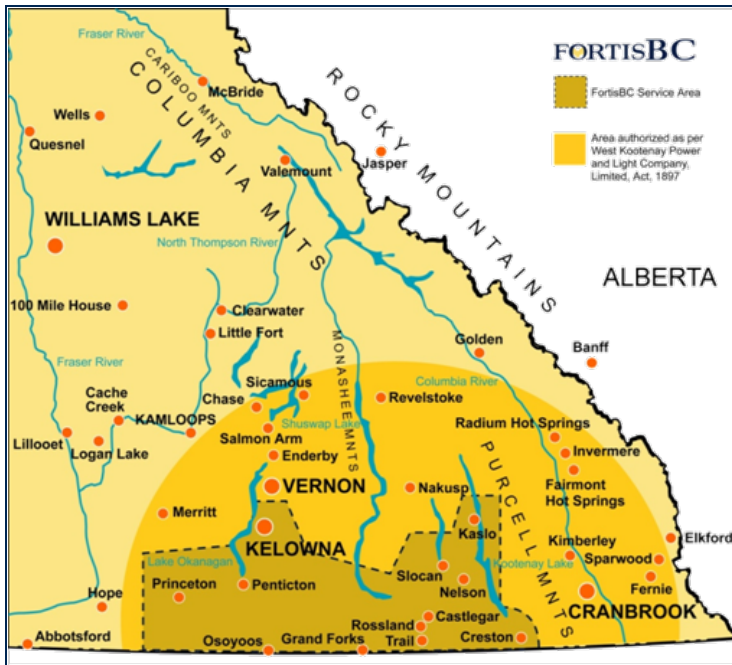


# Fortis in BC: Terasen Gas and FortisBC

- Over one million gas and electric customers
- 135 communities across the province
- Combined assets of \$6.4 billion
- Over 1,800 employees
- Have invested \$1.03 billion since 2007
- \$2.5 billion planned capital investment over next five years

# Combined Service Territories

## FortisBC



## Terasen Gas



# Natural Gas Vehicle Program for BC

Mark Grist  
Manager, Business Development

FORTISBC



## Forward-Looking Statement

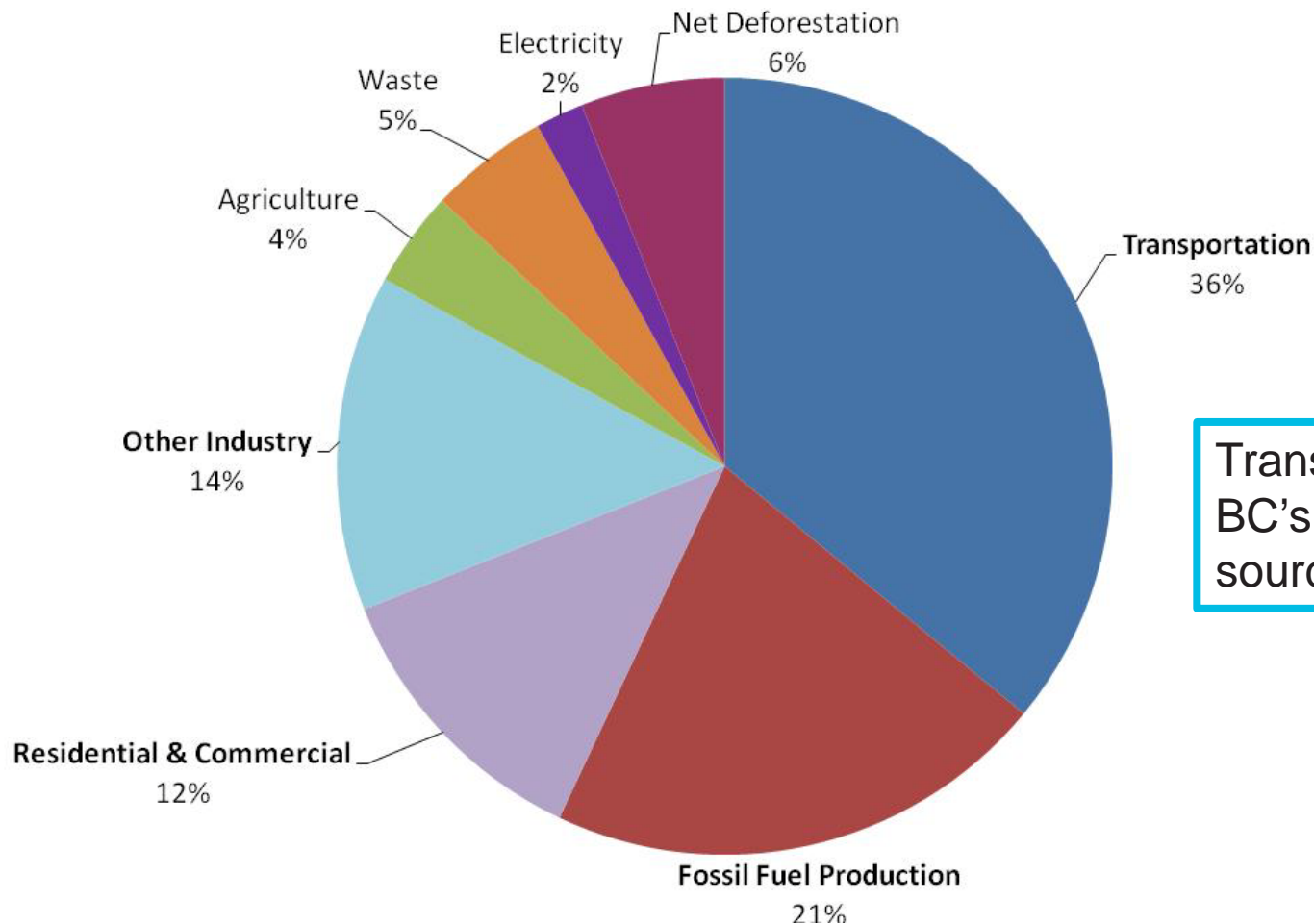
By their very nature, forward-looking statements are based on underlying assumptions and are subject to inherent risks and uncertainties surrounding future expectations generally. Such events include, but are not limited to, general economic, market and business conditions, regulatory developments, weather and competition. Terasen and Fortis cautions readers that should certain events or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary significantly from those expected. For additional information with respect to certain of these risks or factors, reference should be made to the Corporation's continuous disclosure materials filed from time to time with Canadian securities regulatory authorities. The Corporation disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.



# Overview

- Market Context
- NGV Objectives, Strategy & Penetration Estimates
- EEC NGV Incentive Program
- Example Projects & TRC Results
- Non-TRC Benefits
  - Energy Security
  - Royalty Revenue
  - GHG Reductions

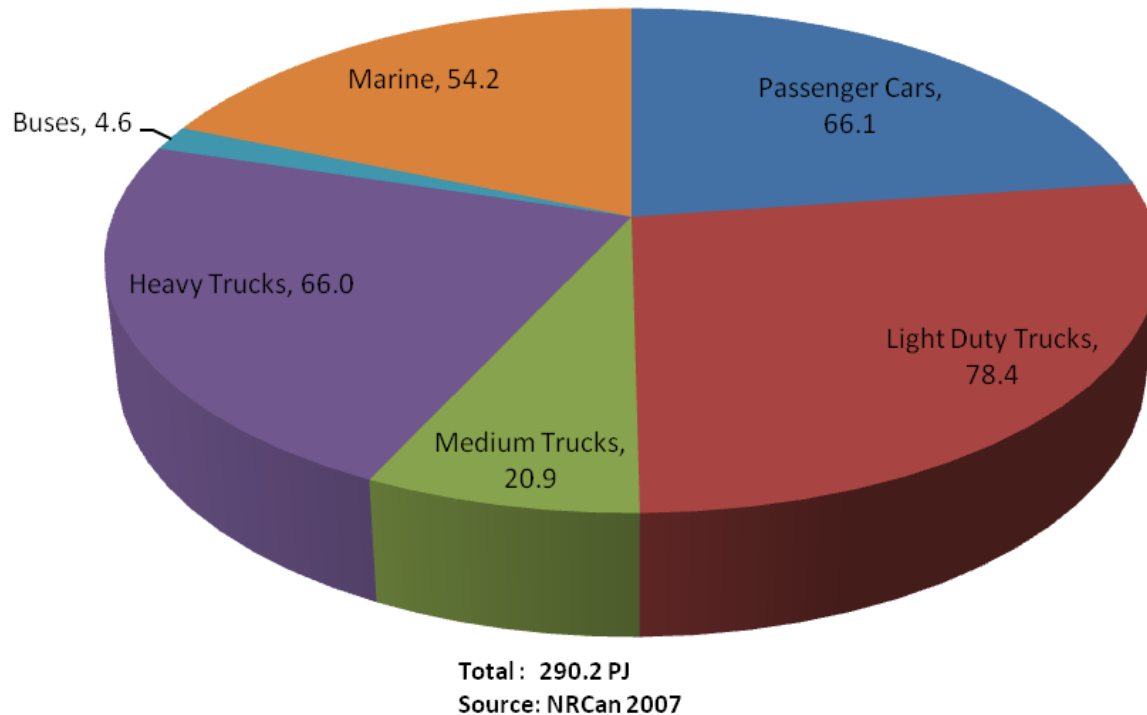
# BC's GHG Emissions by Sector



Transportation sector is BC's largest GHG source

Source: LiveSmart BC website (2006)

# BC's Motor Fuels Market

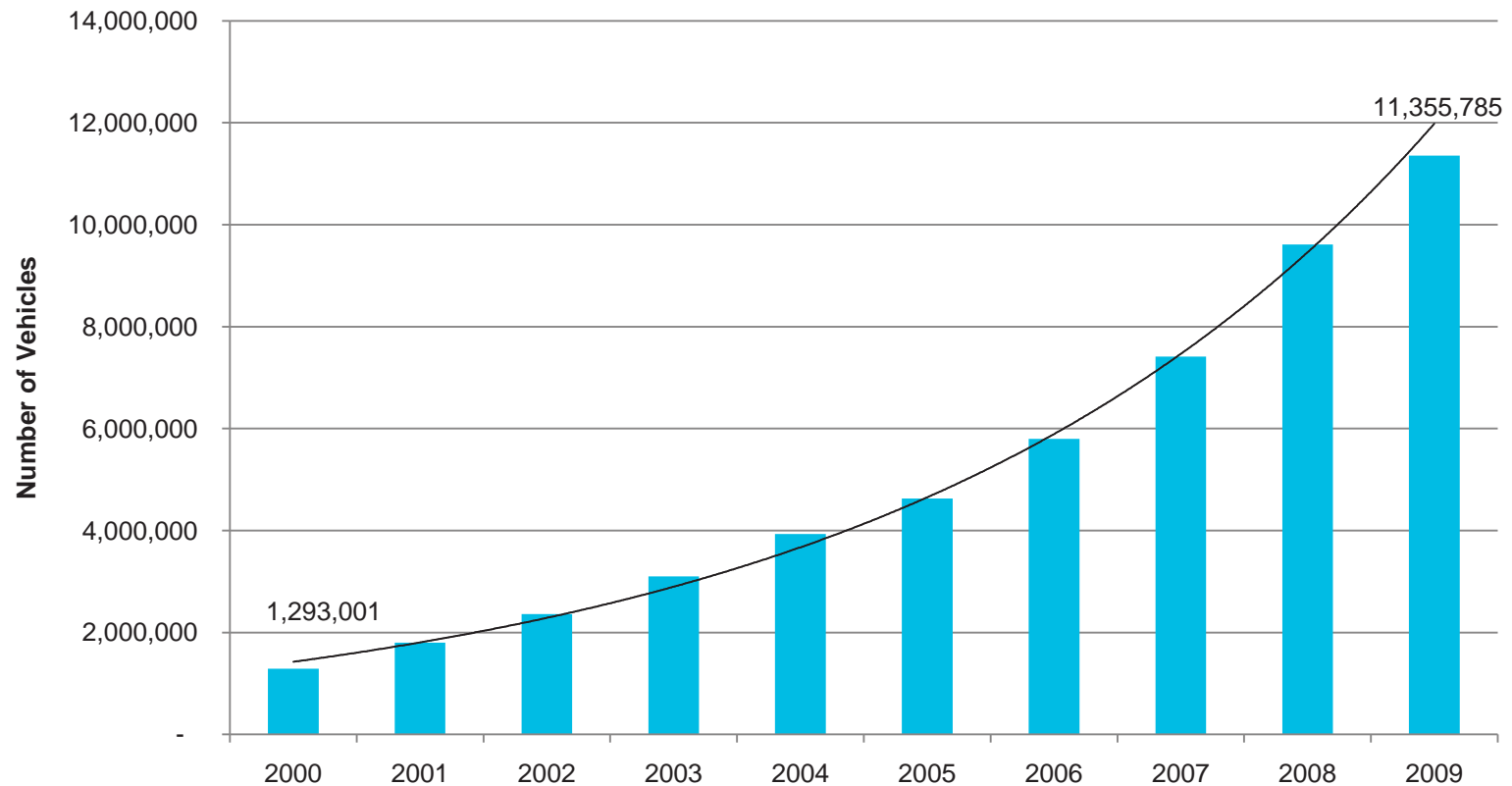


Motor fuels market is larger than electricity or natural gas markets in BC

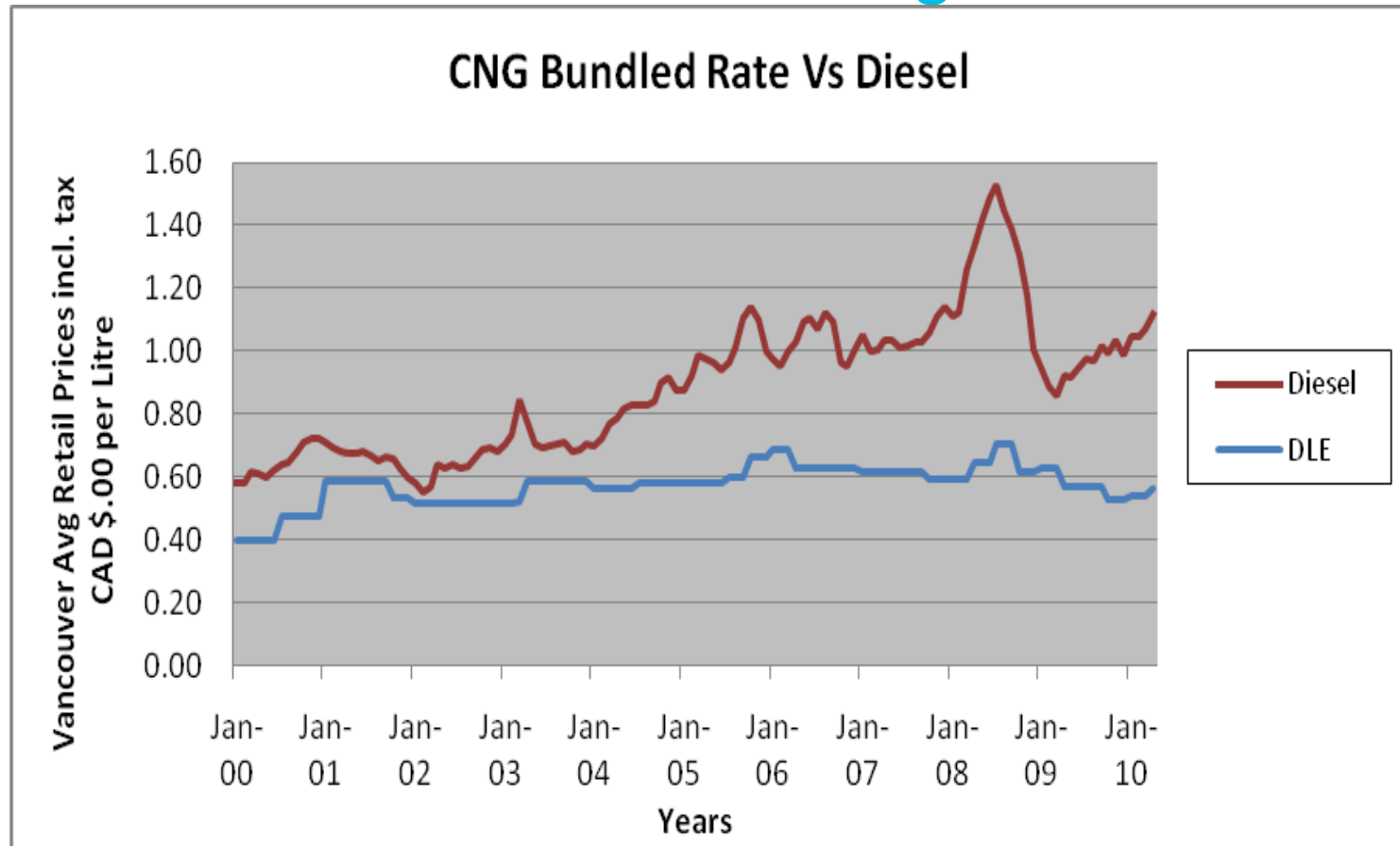
Trucking sector is 57% of total – good target for GHG reductions

# NGVs: A Proven Technology Worldwide

## Leading players based in BC



# Historical Diesel Pricing vs. NG <sup>(DLE)</sup>



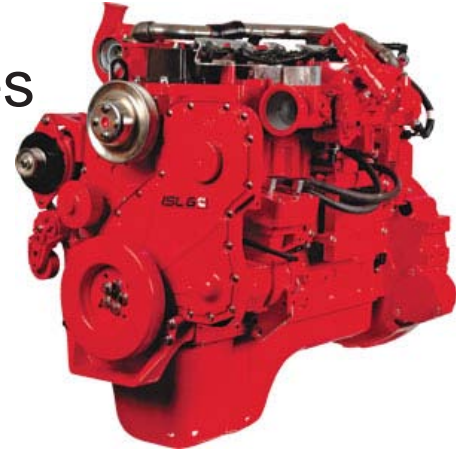
**At current pricing NG is 40 to 50% less than diesel**

# NGV Business Plan Highlights

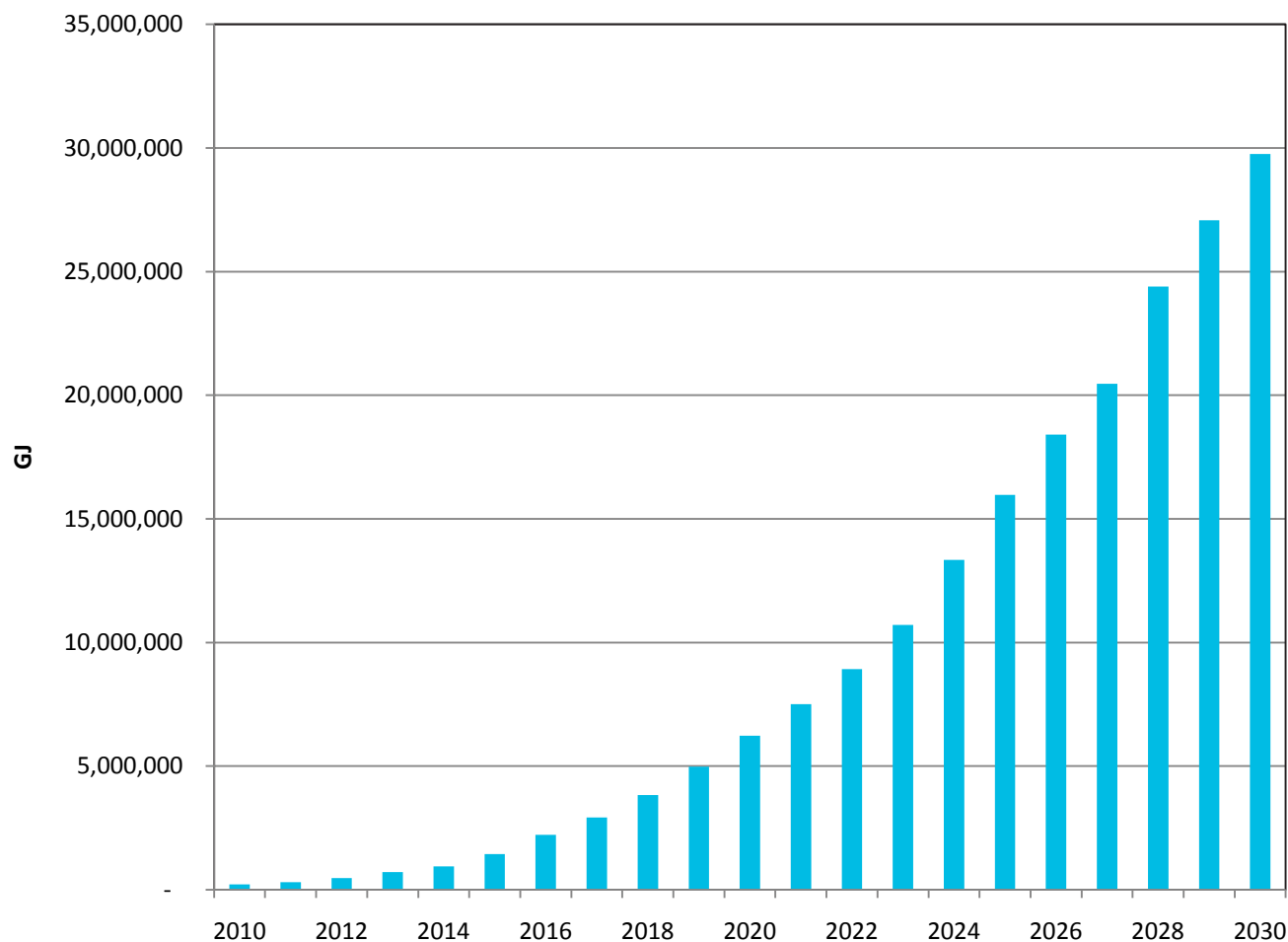
- Achieve 30PJ market penetration by 2030
  - Equivalent to 10% of today's market
  - Roughly equivalent to 15% of Terasen's present system load
- Focus on Heavy Duty Applications
  - Return to base fleets
  - Corridors
- Develop Reference Customers Who Can Ignite Market
  - Leaders in their market segments
- Eliminate Barriers to Adoption
  - Capital cost
  - Fueling infrastructure
  - Vehicle availability

# NGV Strategy

- Focus on Heavy Duty Trucks and Transit Buses
- Use Existing NG Engines
- Partner with OEM equipment suppliers
- Support vehicle purchases with incentives



# Market Penetration Forecast

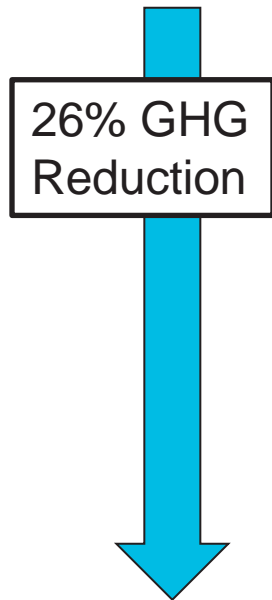


Total Target  
Market Size  
of 458 PJ  
by 2030



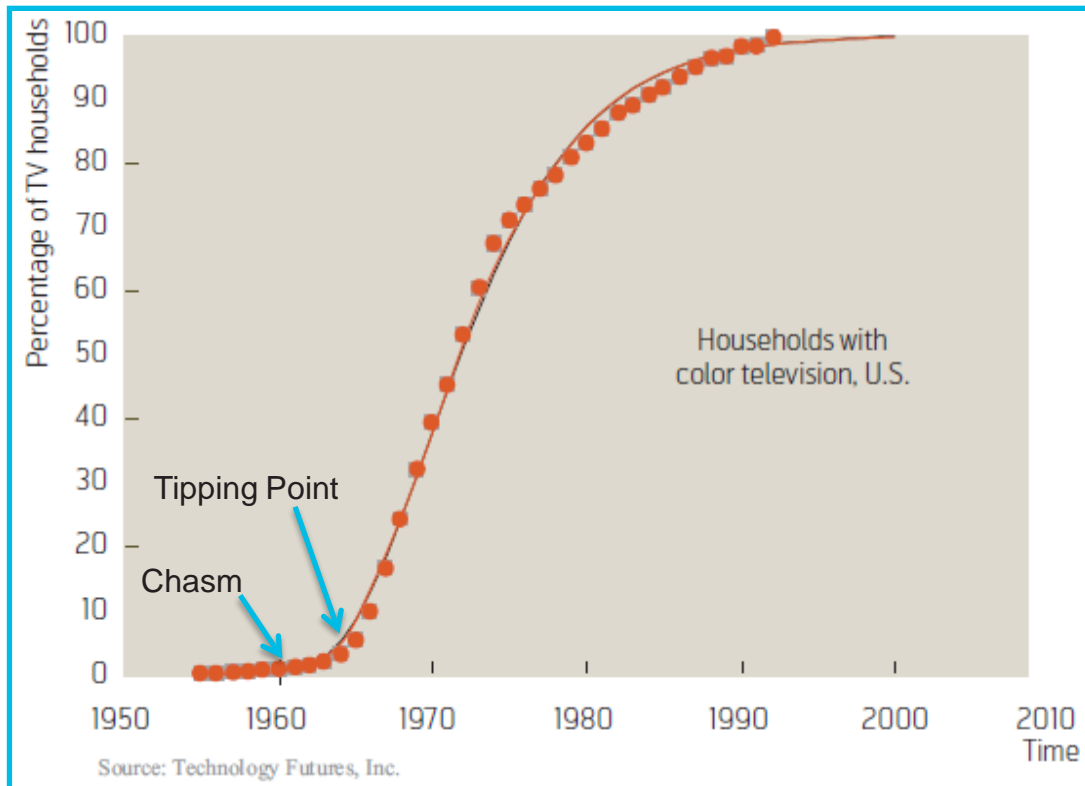
# GHG Implications

- 17% of diesel demand can be replaced by natural gas under this scenario by 2030
- GHG savings of 865,000 tonnes CO<sub>2</sub>e by 2030
  - Equivalent to displacing 368 million litres of diesel
  - Equivalent to taking 165,000 passenger cars off the road



# Market Adoption Curves...

## Higher Market Penetration Rates are Probable



New markets follow typical S shaped adoption curve.

Key is getting past “chasm” to “tipping point”

EEC Incentive is Key tool to get past this hurdle

Incentives can decline as market transformation is achieved – final penetration difficult to predict

Everett Rogers – Diffusion of Innovations, 1983

# NGVs Delivering Solutions Today



**Light Duty Trucks**



**Port Yard Trucks**



**Waste Haulers**



**Transit & School Buses**



**Urban Work Trucks**



**Heavy Duty Trucks**



**Ferries**

**Lower GHG Emissions with Natural Gas – A Made in BC Fuel**

# NGV Incentive Program

- Covers up to 100% of the incremental cost of the vehicles
- Targeted towards large fleets that run lots of miles
- Generally supports purchases >10 trucks (350,000 litres of diesel)
- Rationale – need scale to pay for fueling infrastructure
- Fueling infrastructure supply not linked to incentive support
- TRC test
  - Total cost of incentives and NG fuel vs. cost of diesel
  - Does not include GHG or load building benefits
- Commitments to keep vehicles in BC

# Terasen Gas Key Projects

Application	Fuel Type	Number of Vehicles	TRC	Displaced Diesel Volume (L/yr)	Annual GHG Savings (tCO2e per fleet)
Garbage truck	CNG	20	1.1	468,000	214
Class 8 tractor	LNG	9	1.0	355,000	213
Class 8 tractor	LNG	25	1.8	5,000,000	3,161
Class 8 tractor	LNG	50	1.2	3,582,850	3,754

Unlike most GHG reduction projects these GHG reductions are achieved at negative cost per tonne of CO2e

The TRC assessments are >1 without factoring in GHG reductions

# Additional Upsides

- Load building benefits for all Terasen customers
  - Addition of 30 PJ equivalent to 15% increase in load
  - Customer benefit estimated at ~ \$93 million/year
- GHG Credits
  - 865,000 te reduction by 2030
  - \$21.6 million (@\$25/te)
- BC Economy
  - Locally produced fuel rather than imports
  - Generates production royalties for provincial treasury (\$30 million/yr)

Questions?

FORTISBC

terasen  
Gas

# EEC – Looking Ahead

Sarah Smith  
Manager, Energy Efficiency and  
Conservation

FORTISBC

terasen  
Gas



# 2010 YTD Results

- Portfolio TRC currently 1.1 end Q3
- Projecting \$10 million expenditures FY2010
- Cautious pace in growth
- Challenges to rapid expansion of EEC activity
  - Economy
  - Customer Engagement
  - Internal and external resources

# 2010 EEC Report

- Due March 31 2011
- Any additional content required?
- Regulatory process consolidated with next funding ask

# Funding approval request – 2012 and beyond

- How do we ensure EEC resources are focused on efficiency and conservation?
  - Moving beyond the TRC
  - Ability to move funds around
  - Bound by Program Principles
  - Longer term funding approval
  - Funding ceiling
  - Accountability structures

<b>Stakeholder Suggestions: How Terasen can help (March 2010 meeting)</b>	<b>Terasen Action(s)</b>	<b>Program Area(s)</b>	<b>Contact (s)</b>
(relating to new construction)  Programs for new home buyers, specifically first –timers  Seeking appliance bundles for energy efficiency in new houses  For SFDs – prescribed measures, or Energuide rating  Support for codes and standards, and go beyond code (eg. home labeling)	Quadra Homes pilot  Education sessions with GVHBA, CHBAs and other associations  Other programs in development	Residential	Beth
Invest in innovative/alternative energy solution	Solar thermal hot water incentives Eg. City of Vancouver	Innovative Technologies	Jim
Partnership in education, affiliation, and sponsorship  Partnerships for training and mentoring	In talks with CHBA BC on Built Green Renovator and BC Builder courses  ReNEW training program  Energy Specialists	Residential  Affordable Conservation  Portfolio Projects	Beth  Ned  Colin
News posts on web, magazine & newsletter  Info on present & future opportunities	Advertising and outreach through various channels: trade and consumer publications, Terasen bill inserts/newsletters, and call centres	Education – residential and commercial	Jenny
Promotions planned outside of the “high season” (Sept –Nov) because impacts quality of installation	TLC furnace servicing and EnerChoice fireplace programs	Residential	Beth
Perhaps a partnership to enable us to get consumers’ opinion/feedback on energy issues + housing issues	CHBA BC Housing Affordability Symposium	Affordable Conservation	Ned
Incentives for our members (green technologies have high upfront costs)	Solar hot water program	Innovative Technologies	Jim
Host local roundtable meeting of stakeholders to commercial boiler efficiency issues to take to the national meeting	Commercial boiler stakeholder meeting – June 23, 2010	Commercial	Ramsay

<p>Terasen dealer (contractor) program</p> <p>Help me assess opportunities in a comprehensive way (not one-off technologies); expertise for hire, who can assess my options</p>	<p>Existing gas contractor program on Vancouver Island</p> <p>Expansion of gas contractor program on Mainland BC in development</p> <p>Gas contractor newsletters</p>	<p>Efficiency Partners</p>	<p>Gina</p>
<p>Access to info on the residential consumer + their preferences &amp; actions (take up of incentives)</p> <p>Research/education on cost effective green build, energy efficiency, sustainable tools, technologies</p>	<p>Terasen studies: Residential End Use Study</p> <p>Conservation Potential Review Builder/Developer Customer Satisfaction</p>	<p>Residential</p> <p>Research</p>	<p>Beth</p> <p>Colin</p>
<p>Partnerships/cooperation on optimizing resources in program design/delivery</p> <p>Integration with LivesmartBC</p> <p>Harness power of strategic relationships; facilitate and bring together unlikely parties</p>	<p>Currently working on various projects with multiple partnerships and Public Sector Energy Conservation Agreement</p>	<p>Residential</p> <p>Commercial</p> <p>Affordable Conservation</p>	<p>Beth</p> <p>Ramsay</p> <p>Ned</p>
<p>GHG emissions and easily accessible programs to help decrease emissions; funding that is available to retrofit old equipment, or implement a project that will decrease natural gas consumption would be appreciated.</p>	<p>Energy Specialists, funded positions by Terasen Gas for municipalities, hospitals, and school districts</p> <p>Various EEC programs</p>	<p>Portfolio Projects</p>	<p>Colin</p>
<p>Liaise with regional stakeholders (oversee all of Western Canada)</p> <p>Interested in cost effective management in utility</p>	<p>Regional DSM representation Eg. Canadian Gas Association, Northwest Gas Association</p> <p>EEC portfolio</p>	<p>Portfolio</p>	<p>Sarah</p>
<p>Recognize distinctiveness &amp; size of residential apartments and rental industry (+/- 600,000 rental homes)</p>	<p>Fireplace timer pilot program</p> <p>Energy Conservation Assistance Program</p> <p>Energy Saving Kits</p>	<p>Commercial, multi-family</p> <p>Affordable Conservation</p>	<p>Ramsay</p> <p>Ned</p>



## **FortisBC EEC Stakeholder Meeting Agenda**

March 15, 2011

Coast Coal Harbour Hotel, 1180 West Hastings St, Vancouver, BC –  
Coal Harbour B

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8:45 – 9:00	Registration (coffee and pastries served)
9:00 – 9:30	Welcome
9:30 - 10:30	Presentation: 2010 Annual Report: Highlights and Program Budgets
10:30 – 10:40	Break
10:40– 11:05	Presentation: Conservation Potential Review Study Highlights
11:05– 11:50	Presentation: Total Resource Cost Alternatives and Discussion on Non Energy Benefits
11:50 – 12:45	Lunch
12:15 – 12:45	Presentation: 2012 EEC Funding Application Details
12:45 – 12:50	Wrap Up and Next Steps

## **FortisBC EEC Stakeholder Meeting Minutes**

Tuesday March 15, 2011

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### **Attendees**

Marg Gordon – BC Apartment Owners and Managers' Association  
Steve Hobson – BC Hydro  
Mary McWilliam – BC Non Profit Housing Association  
Alison Richter – British Columbia Utilities Commission  
Tom Hackney – BC Sustainable Energy Association  
MJ Whitemarsh – Canadian Home Builders' Association BC  
Craig Williams – Canadian Manufacturers and Exporters  
Mike Todd – Canfor Pulp  
Stuart Gairns – Canfor Pulp  
Mark Hartman – City of Vancouver  
David Craig – Consolidated Management Consultants  
Joan Huzar – Consumers Council of Canada  
Dan Pasacreta – Crosby Property Management  
Keith Veerman – FortisBC Inc.  
Jim Vanderwal – Fraser Basin Council  
Amy Spencer-Chubey – Greater Vancouver Home Builders' Association  
Richard Siegenthaler - Hemmera  
Bridget Macgowan – IBC Technologies  
Chris Frye – Ministry of Energy and Mines  
Nir Kushnir – National Energy Equipment  
Nina Winham – New Climate Strategies; FortisBC rate 1 customer  
Jeff Fischer – Urban Development Institute

### **Regrets**

Leigha Worth – BC Public Interest Advocacy Centre  
Erik Skehor – BC Safety Authority  
Rob Noel – BC Mechanical Contractors Association  
Tony Gioventu – Condominium Home Owners' Association  
Gord Monro – Heating, Refrigeration and Air Conditioning Institute of Canada  
Al Kemp – Rental Owners and Managers Society of BC  
Cindy Stern – Tseshah First Nation

### **FortisBC Staff**

Beth Ringdahl	Ned Georgy
Jenny Chia	Ramsay Cook
Colin Norman	Sarah Smith
Jim Kobialko	Mark Grist
Hakan Kok	Ryan Findlay
Gina Lego	Shawn Hill

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## **EEC Program Managers, 2010 Annual Report: Highlights and Program Investment Budgets**

Question: Didn't we already provide our support of the Natural Gas Vehicle program from the November 24, 2010 presentation?

FortisBC: We require stakeholder support in writing so that we can show the BC Utilities Commission that we have followed the right process in consulting with stakeholders.

Q: What are the savings from the Energy Specialist program?

FortisBC: Enabling Activities do not have any direct energy savings associated with them; however, we will be doing an evaluation of the pilot program later this year.

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## **Jack Habart, Conservation Potential Review Study Highlights 2010**

**\*Note: presentation has not been distributed along with these meeting minutes. The Conservation Potential Review will be filed with the EEC funding application submission in the Spring of 2011.**

Question: Where are the furnaces on the list of residential appliances?

FortisBC: Furnaces do not show up as economically viable with the DSM guidelines set out today, but we know there are thousands of mid to low efficient furnaces still in the marketplace, and we plan to work with government to go after that market potential to change the DSM guidelines, and also discuss a product stewardship strategy.

Question: Why do the furnaces not show up on the graph?

FortisBC: Going from 90-95% efficient furnace is not cost efficient. And right now, we only include economic assumptions, and not behavioural assumptions, such as, people do not always replace their furnace after 18 years (ie. end of useful life).

Question: Do we adjust for this in the base case?

FortisBC: Furnaces do not show up in economic potential, but do show up in achievable potential.

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## **Sarah Smith, 2012 EEC Funding Application Details**

Comment: On Joint Initiatives, FortisBC may want to consider keeping a Joint Initiatives category for work with municipalities.

### **Next Steps**

- Annual Report submission to BCUC, March 31, 2011
- EEC funding application, 2012-2013, Spring 2011
- next EEC Stakeholder meeting November 2011



# EEC Stakeholder Meeting

March 15, 2011

# Agenda

- Welcome and group introductions
- 2010 Annual Report: Highlights and Program Investments
- Conservation Potential Review Study Highlights
- Total Resource Cost Alternatives and Discussion on Non Energy Benefits
- 2012-2013 EEC Funding Application Details

# 2010 EEC Portfolio Highlights

March 15, 2011

# 2010 EEC Conventional Portfolio Highlights

Utility	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Total for Incentive and Non-Incentive Expenditures (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	TRC
FEI	4,732	5,256	9,988	152,114	1,265,574	0.9
FEVI	727	1,022	1,749	20,706	149,185	1.1
<b>Total</b>	<b>5,459</b>	<b>6,278</b>	<b>11,737</b>	<b>172,820</b>	<b>1,414,759</b>	<b>1.0</b>

# 2010 EEC Combined Conventional and Innovative Technology Portfolio Highlights

Utility	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Total for Incentive and Non-Incentive Expenditures (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	TRC
FEI	10,548	5,261	15,809	(10,797)	539,178	1.1
FEVI	870	1,022	1,892	22,389	169,030	0.9
<b>Total</b>	<b>11,418</b>	<b>6,283</b>	<b>17,701</b>	<b>11,592</b>	<b>708,208</b>	<b>1.1</b>

# 2011 EEC Conventional Portfolio Highlights

Utility	Incentive Expenditure (\$000s)	Non-Incentive Expenditure (\$000s)	Total for Incentive and Non-Incentive Expenditures (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	TRC
FEI	7,772	11,262	19,034	222,383	2,053,338	0.7
FEVI	1,270	2,137	3,407	31,711	268,820	0.6
<b>Total</b>	<b>9,042</b>	<b>13,399</b>	<b>22,441</b>	<b>254,094</b>	<b>2,322,158</b>	<b>0.7</b>

# 2011 EEC Combined Conventional and Innovative Technology Portfolio Highlights

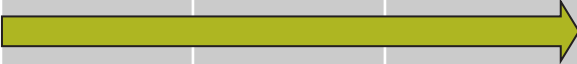
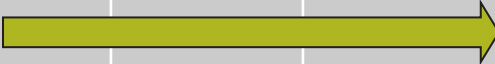

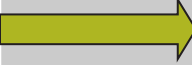



Utility	Incentive Expenditures (\$000s)	Non-Incentive Expenditure (\$000s)	Total for Incentive and Non-Incentive Expenditures (\$000s)	Annual Energy Savings (GJ/yr)	NPV Energy Savings (GJ)	TRC
FEI	11,697	11,377	23,074	(3,606)	702,719	1.1
FEVI	1,275	2,148	3,423	31,771	269,539	0.6
<b>Total</b>	<b>12,972</b>	<b>13,525</b>	<b>26,497</b>	<b>28,165</b>	<b>972,258</b>	<b>1.1</b>

# 2010 Commercial Programs Investments

Program	Expenditures (Incentive + Non Incentives) (\$000s)	Participants (#’s)	TRC
Efficient Boiler Program	\$1,315	100	1.4
Public Sector Energy Conservation Agreement (PSECA)	\$856	28	2.3
Light Commercial Energy Star Boiler Program	\$108	31	1.6
Efficient Commercial Water Heater Program	\$22	9	1.1
Energy Assessment Program	\$108	68	2.5
Spray N’ Save 2010 (Spray Valves)	\$16	263 (Valves) 194 Gas / 69 elect	3.9
Fireplace Timer Pilot Program (MURBS)	\$10	195 (Timers)	2.3
Total	\$2,570	694	1.7





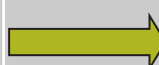

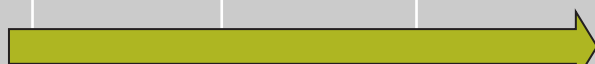




# 2011 Commercial Programs Timeline

Program	Q 1	Q 2	Q 3	Q 4
Pre-Rinse Spray Valves				
Commercial Custom Design				
Efficient Boiler Program-revised				
Continuous Optimization				
Commercial Cooking				
Process Heat				
Multi- Unit Residential				

# 2010 Residential Customer Programs - Investments

<b>Program</b>	<b>Expenditures (Incentive + Non Incentives ) (\$000s)</b>	<b>Participants (#’s)</b>	<b>TRC</b>
<b>2009 Furnace Wrap-Up</b>	\$2,464	9,648	1.1
<b>Furnace Servicing (eg. TLC)</b>	\$511	15,461	N/A
<b>0.62EF Water Heater</b>	\$81	172	0.3
<b>EnerChoice Fireplace</b>	\$71	135	1.0
<b>LiveSmart BC – Home Audits</b>	\$367	4,791	N/A
<b>FortisBC (Electric)</b>	\$21	630	2.0
<b>Weatherization Pilot – CoV</b>	\$15	50	N/A
<b>Oil/Propane to E* NG Furnace</b>	\$300	178	1.4
<b>Total</b>	\$4,003	31,065	N/A






# 2011 Residential Customer Programs - Timeline

Program	Q 1	Q 2	Q 3	Q 4
0.62 EF Water Tank + E* Tank				
EnerChoice Fireplaces				
LiveSmartBC + Web Portal				
Energy Star Washers				
Furnace Servicing (eg. TLC)				
EnerGuide 80 -New Construction				
Tier 3 (0.80) Water Heater Pilots				
Oil/Propane to E* NG Furnace				

# 2010 Conservation for Affordable Housing Programs Investments

<b>Program</b>	<b>Expenditures (Incentive + Non Incentives ) (\$000s)</b>	<b>Participants (#’s)</b>	<b>TRC</b>
<b>Strategic Energy Management Plan (study)</b>	\$17	N/A	N/A
<b>Mobile Homes (study)</b>	\$10	N/A	N/A
<b>Energy Savings Kits</b>	\$104	5,258	2.1
<b>REnEW</b>	\$148	59	N/A
<b>Total</b>	\$324	5,317	0.8
<b>Ministry of Energy Grant (Super Efficiency New Construction Project)</b>	\$515	N/A	N/A

# 2011 Conservation for Affordable Housing Programs Timeline

Program	Q 1	Q 2	Q 3	Q 4
REnEW				
Energy Savings Kits				
Energy Conservation Assistance Program (ECAP)				
Mobile Homes Study				
CHF Co-ops Study				




# 2010 Innovative Technologies - Investments

- Definition
- Key Objectives
- 2010 Results
- 2011 Planned




Program	Expenditures (Incentive + Non Incentives ) (\$000s)	Participants (#’s)	TRC
Solar Water Heating PSECA Program	\$372	32	0.3

# 2011 Innovative Technologies Timeline

2011 Programs	Q 1	Q 2	Q 3	Q 4
Solar BC Schools Incentives				
Solar Air Heating PSECA				

2011 Pilots	Q 1	Q 2	Q 3	Q 4
Solar Residential Hot Water				
Condo Retrofit Pilot				
Occupancy Sensor Pilot				

# 2011 Innovative Technologies Timeline

2011 Studies	Q 1	Q 2	Q 3	Q 4
Geoexchange Energy Performance Study				
Lumber Kiln Energy Management Control Feasibility Study				
Solar Wall Shed for Predrying Lumber Prefeasibility Study				



# 2010/11 Innovative Technologies - Commercial NGV Demonstration Program

- Objective: encourage heavy duty fleet operators to switch from high-carbon diesel to low-carbon NG
- Benefits: displace diesel fuel, reduce upfront capital cost, environmental benefits and load building benefits
- 2010: \$5.6 million for 82 vehicles – 50 LNG and 32 CNG
- 2011: \$3.8 million for 54 vehicles – 34 LNG and 20 CNG

Utility (Year)	Participants	Incentive Expenditures (\$000s)	Non-Incentive Expenditures (\$000s)	Annual Energy Displaced (GJ/yr)	NPV Energy Displaced (GJ)	Free Rider Rate	TRC
FEI 2010 Actual	82	\$5,587	\$2	(164,665)	(784,502)	0%	1.4
FEI 2011 Forecast	54	\$3,780	\$1	(228,131)	(1,376,306)	0%	1.9

# Program Area Funding Transfer

- In 2010, \$3.487 million transferred from Conventional EEC Program Area into Innovative Technologies Program Area (FEI only)
- Transfer is consistent with Commission Order G-36-09, which allows:

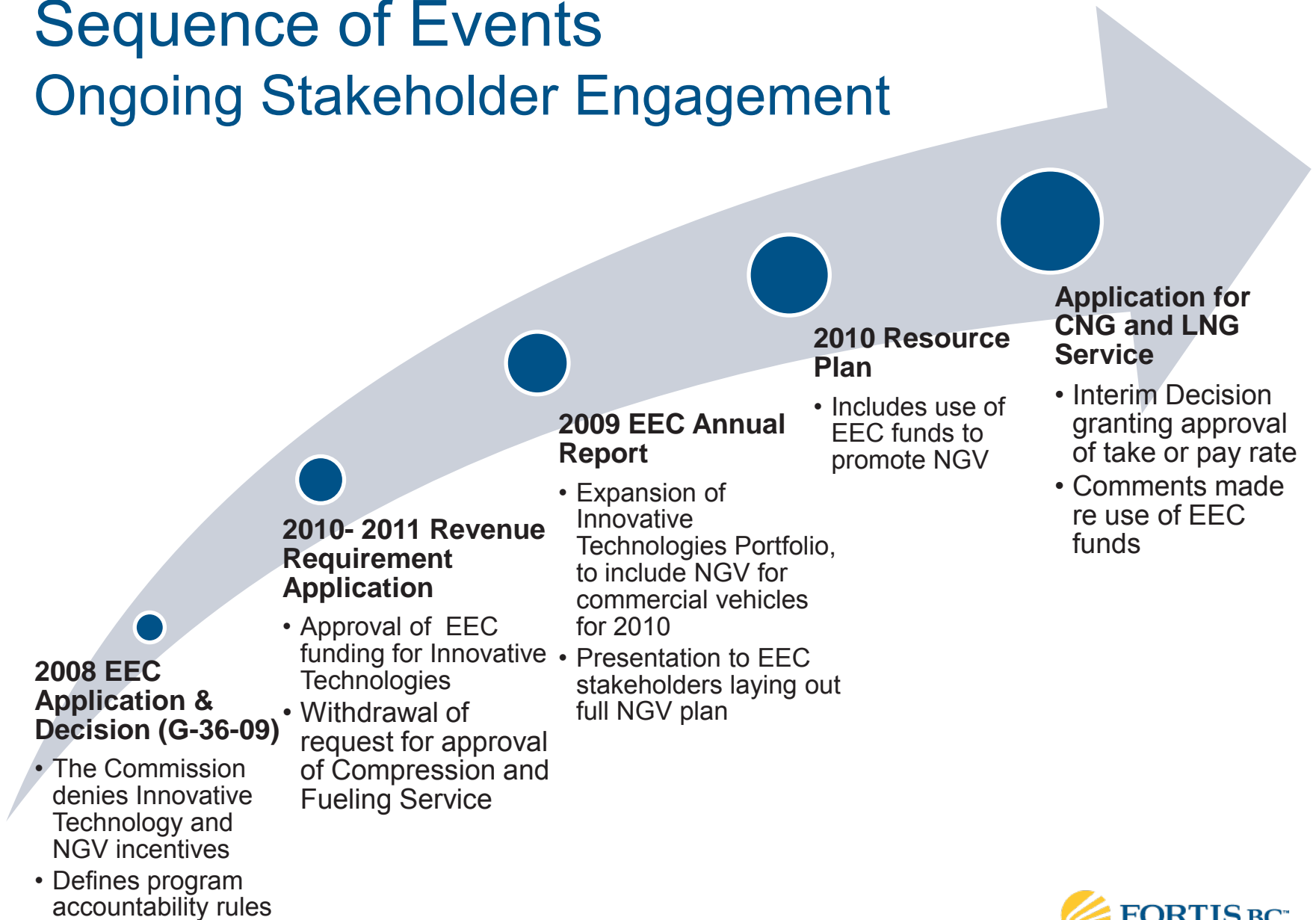
*“...any inter and intra Program Area Initiative funding transfers, with supporting rationale, and the impact of such transfers on the transferor and transferee Program areas, initiatives and measures as the case may be.”*

# A Speed Bump re the NGV Program...

- Opinion in Interim Ruling on Waste Management
  - *“The Commission Panel is not presently persuaded that Terasen has Commission approval for the incentive grant to Waste Management that is described under Vehicle Reimbursement in the WM Agreement.”*
  - *“the Commission Panel believes that Terasen is at risk of not being able to recover Incentive payments to Waste Management in its rates.”*
- FortisBC believes that we have express approvals to use EEC funds for NGV initiatives, and have followed the principles and processes defined for the EEC program.
- Clarification of this issue being sought through EEC annual report process

# Sequence of Events

## Ongoing Stakeholder Engagement



# EEC Accountability Mechanism (G-36-09)

- Proposed Accountability measures:
  - TRC test, Annual Report, Funds not spent not charged etc
  - “Fourth, ....hold annual EEC workshops with stakeholders, at which the companies would present updates on program progress and obtain stakeholder input on new programs and refinements to existing programs.”
- Commission Acceptance
  - “The Commission Panel accepts Terasen’s accountability undertakings.....”

# Confusion Re 2010/2011 RRA Decisions

- Two separate and distinct elements
  - EEC Incentive Programs
  - Provision of Compression and Refueling Service
- As part of Negotiated Settlement FortisBC withdrew application for approval of Natural Gas Compression and Refueling Service (postage stamp rate design)
- RRA Negotiated Settlement
  - EEC program, including Innovative Technologies was contained within Negotiated Settlement

# EEC Stakeholder Sessions (2010)

- March 11
  - Presentation of proposed Innovative Tech budget
  - Included budget projections for NGVs
- November 24<sup>th</sup>
  - Detailed 17 page presentation of NGV program for BC
  - 40% Fuel Savings, 20-30% GHG reductions, Provincial Royalties, \$93 million per year in benefits to non-NGV customers (by 2030)
- Stakeholder Feedback
  - No opposition to NGV program
- Conclusion
  - Approach Used is Consistent With Accountability Mechanisms approved for EEC programs

# 2010 Application for CNG and LNG Service

- Application relates to providing fueling service, not to providing vehicle incentives
  - Two distinct and separate issues
- Vehicle Incentives are not contingent on purchase of fueling service
  - Customers can pursue other alternatives where available
  - E.g. City of Surrey



# EEC Incentives for NGV: Summary

1

- Meets the cost effectiveness threshold as identified in the original EEC decision and RRA for 2010-2011

2

- Transparency and Stakeholder Engagement (EEC Annual Report, Resource Plan)

3

- Promotes fuel switching from high carbon to lower carbon

4

- Customer uptake and benefits all rate payers (lower delivery rates all else being equal)

5

- Supports the Clean Energy Act and is an example that meets government's GHG emissions reduction objectives (support from Ministry of Energy in FEI RRA for 2010-2011)

FortisBC has express approval to use EEC funds from Innovative Technologies bucket to help fund NGV purchases.

# Business Impacts and Call to Action

- Uncertainty impairs our ability to move forward with business initiatives for CNG & LNG vehicles
- Delays in achieving NGV goals and benefits
  - Climate change – reduction of GHG emissions
  - Load building benefits for all FortisBC natural gas customers
  - Cost reductions for NGV customers
- Market transformation momentum that has taken 2 years to develop is at risk
- Seeking Stakeholder support in getting issue clarified
  - Specifically confirmation that approved process was followed

# 2010 and 2011 Industrial Programs

**Objective:** Create energy efficient plants.

- Energy Audit Funding Program – incentives up to \$20,000
- Pulp and Paper Industry Heat Exchanger Pilot Program (Estimated energy savings 70,000 GJ/yr)
- Certified Pilot Plant Project – ISO 50001 “Energy Management Standard”. Available in Q3 2011.
- Automated Burner Management System (Mk6 BMS) (Estimated savings 2000 GJ/yr)

# 2010 and 2011 Enabling Activities

## **Energy Specialist Pilot Program**

- Currently 14 Energy Specialists in the market
  - 4 more about to be hired
- Evaluation in early Q3 2011
- Progress to date shows successful integration with Energy Manager and large quantity of gas related projects
- Total pilot program investment = \$1.2 million

## **TrakSmart – program tracking**

- Initial programs to be launched in TrakSmart in Q2 2011
- Total project investment = \$1.4 million

# Enabling Activity: Efficiency Partners Program





## 2010 Milestones

### Research, Communication and Outreach Activity

- Contractor Study undertaken to inform EEC Contractor Program and the LiveSmart BC Program
- Consultation workshops held on Vancouver Island, LM
- Focus group sessions held in the LM
- Established quarterly newsletter
- Outreach to trade associations and organizations



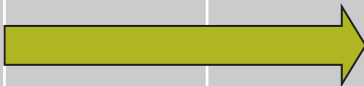
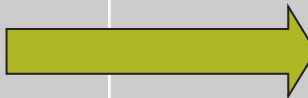



# 2011 Efficiency Partners Program Timeline

Planned Activities	Q 1	Q 2	Q 3	Q 4
Contractor Program Launch				
Website development/ <b>launch</b>				
Develop/deliver training				
Co-op advertising				

# 2010 Conservation Education and Outreach Investments

Program Area (Audience)	Total (Non Incentive) Expenditures (\$ 000's)
Residential and General Public Education	\$1,118
Commercial Customers Education	\$313
Conservation for Affordable Housing Education	\$10
Schools	\$143
Total	\$1,616

# 2011 Conservation Education and Outreach Timeline

Planned Activities	Q 1	Q 2	Q 3	Q 4
Home Efficiency Measures				
Small Business Education Sessions				
BC Housing Tenant Engagement Pilot				
Post Secondary Program				





# FortisBC Conservation Potential Review 2010

(please note this presentation has been deleted from the slide deck as the CPR study numbers have not yet been finalized as of March 31, 2011)



# Addressing the TRC-Carbon Gap

## Alternatives to Conventional California B/C Tests for DSM Programs

Prepared for FortisBC

March 15, 2011

Habart & Associates Consulting, inc  
CADMUS GROUP, INC

# Background & Objectives

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- FortisBC rapidly expanding initiatives
- Provincial / Federal GHG targets
  - Require aggressive DSM
- Current program screening approaches do not allow adequate investment in EEC programs
  - Project to develop alternate approaches to screening
- Issue occurring in other jurisdictions

# Approach

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- Literature review / networking
- Identify Range of Options
- 3 Streams of Discussion:
  1. Change TRC input assumptions
  2. Change screening test
  3. Change approach to B/C testing to better reflect GHG objective

# GHG Targets

## (Residential)

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- GHG Reduction Targets
  - BC – 33% below 2007 by 2020
  - Federal – 17% below 2005 by 2020
- BC
  - 1,439 kt CO<sub>2</sub>e
  - 28,383 TJ
- Federal
  - 735 kt CO<sub>2</sub>e
  - 14,502 TJ
- Residential Economic Potential (2020)
  - 8,260 TJ

# Current Practice

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- California Standard Practices Tests (CST)
  - Total Resource Cost Test (TRC)
    - Balance investment between usage & supply
    - Economic efficiency of energy system
  - Societal Cost Test (SCT)
    - Expands TRC to societal perspective
  - Utility Cost Test (UTC)
    - Perspective of utility
    - Cost of program vs cost of add't supply
- CST not intended for GHG screening

# Current Practice

---

- Total Resource Cost Test
  - Conceptually simple, but
    - Assumes consumers are economically rational
    - Assumes non-energy benefits can be quantified / monetized by DSM planners
  - Counter intuitive outcomes
    - Provide incentives for marginally more efficient DWH but no incentive for much more efficient tankless DWH
    - Measure may reduce cost for homeowner, but not pass utility screening if mortgage % < screening %

# Option #1: Change B/C Inputs

---

- Critical Inputs
  - Avoided / marginal costs
  - Discount rate
  - Free rider / Spillover treatment
  - Treatment of non-energy benefits
  - Program & measure life



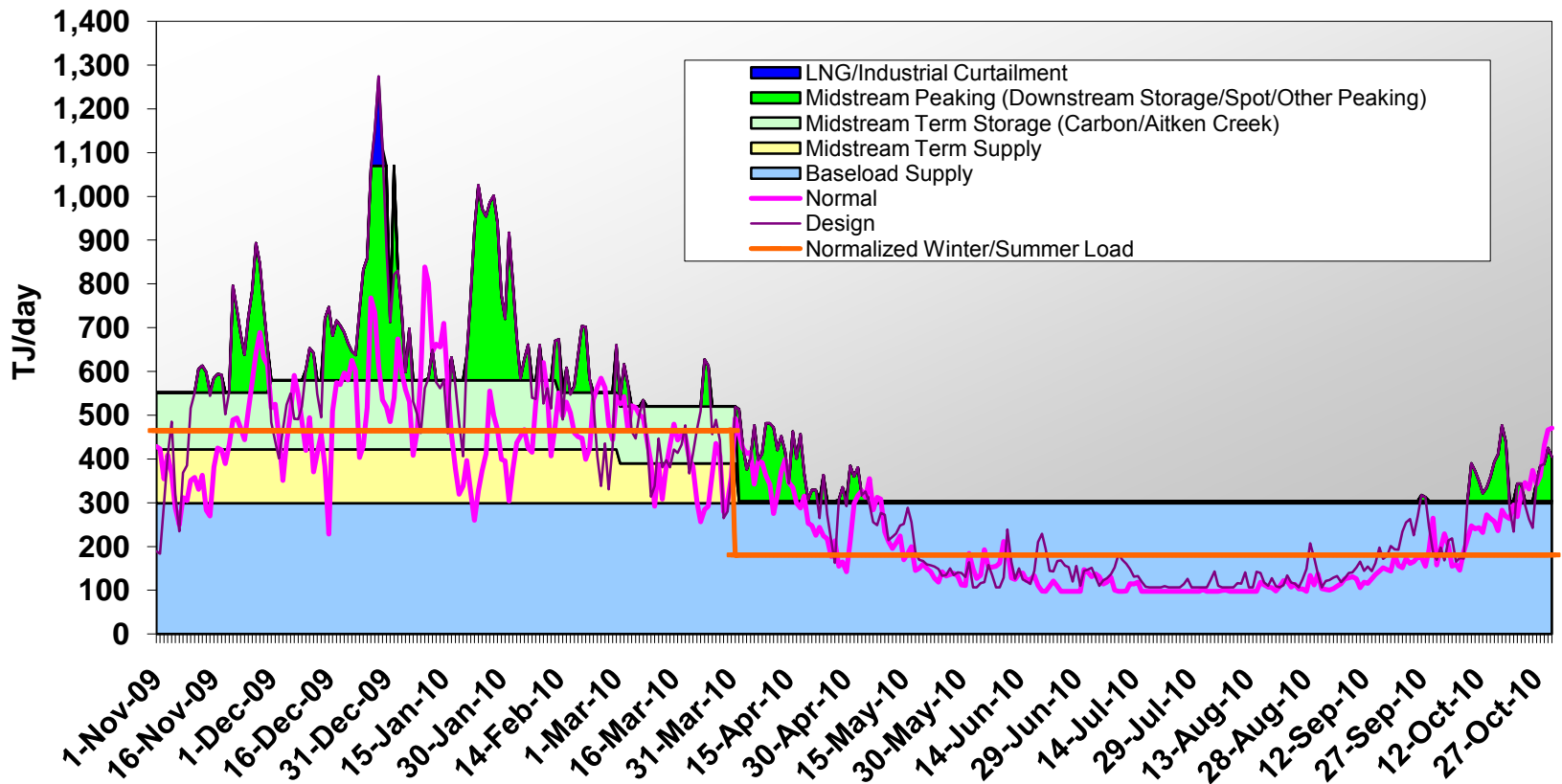
# #1 - Avoided / Marginal Costs

---

- The Issue
  - Marginal cost intended to reflect the avoided cost of supply for that measure
- Options & Challenges
  - Utilities often use “average” marginal costs
    - Seasonal marginal costs
      - Summer / flat loads have a different cost than winter
  - Is MC of fossil fuel the “right” screen?
    - Some jurisdictions have higher feed-in rates for green energy
    - CST allows use of higher MC from other utilities
    - FortisBC – MC gas \$7.03 vs \$9.90 - \$15.28 for biogas (2011)

# Supply Load Shape

## 2009-10 TGI Normal & Peak Day Loads vs Supply Portfolio



# #1 - Avoided / Marginal Costs

---

- Impact(s)
  - Seasonal marginal costs
    - Not quantified.
  - Marginal cost of biogas (SOC)
    - Possible 40% increase in MC
    - Tankless water heater
      - Base B/C 0.37
      - MC + 40% 0.53

# #1 - Discount Rate

---

- The Issue
  - High discount rate reduces future benefits
  - TRC specifies weighted cost of capital
    - FortisBC ~ 7.85%
- Options
  - SCT allows the use of a social discount rate
    - Intergenerational equity (ie: building shell > 50 years)
    - Discussion of 2.5 – 3.5% as appropriate in Canada
- Precedents
  - Some US states use Treasury Bill rates (2.5 – 3.5%)
  - US Center of Disease Control uses 3%
  - UK uses 3.5%

# #1 - Discount Rate Impacts

		Discount Rate					
	Measure Life	9.0%	7.0%	5.0%	3.0%	1.0%	0.0%
NPV Measure Benefits @\$100 annual benefit stream	5	\$389	\$410	\$433	\$458	\$485	\$500
	10	\$642	\$702	\$772	\$853	\$947	\$1,000
	15	\$806	\$911	\$1,038	\$1,194	\$1,387	\$1,500
	20	\$913	\$1,059	\$1,246	\$1,488	\$1,805	\$2,000
	50	\$1,096	\$1,380	\$1,826	\$2,573	\$3,920	\$5,000
Percentage NPV reduction relative to zero discount rate	5	78%	82%	87%	92%	97%	
	10	64%	70%	77%	85%	95%	
	15	54%	61%	69%	80%	92%	
	20	46%	53%	62%	74%	90%	
	50	22%	28%	37%	51%	78%	

# #1 - Discount Rate Impacts

---

- Impact
  - Tankless water heater
    - Base B/C 0.37
    - 3.5% Disc 0.57

# #1 - Discount Rate Impacts

---

- Impact
  - Tankless water heater
    - Base B/C 0.37
    - 3.5% Disc 0.57
    - (both) 0.81

# #1 - Free Riders / Spillover

---

- The Issues
  - Attribute motivations for decisions
    - Free Riders – Would they have done it without the program.
    - Spillover – Installed that / other measures, but no rebate
  - No consensus on “correct” methodologies
    - All methods have biases / provide different results
  - Can add significantly to evaluation time / cost
  - Evaluations tend to focus on FRR, not spillover



# #1 – Free Riders / Spillover

---

- Options & Challenges
  - Full estimation of both FRR and Spillover
    - Accuracy still uncertain
    - Expensive
  - Assume FRR and Spillover equal out
    - Current practice in some jurisdictions
      - Minnesota, Wisconsin, Oregon, Iowa etc.

# #1 - Free Riders / Spillover (cont'd)

---

- Impacts
  - Remove significant distraction
  - Reduce cost of evaluations
  - Does require control to avoid “easy, but they would do it anyway” programs
  - For given program if FRR / Spillover understated
    - For society, same energy at same cost
    - More financial burden on non-participants

# #1 - Treatment of Non-energy Benefits

---

- The Issue
  - Many EEC products not “identical”
  - TRC screening requires EEC planners to determine / monetize non-energy benefits
    - Expensive / arguable
- Options & Challenges
  - Include quantifiable benefits
    - I.e.: labour savings for CFL's
  - Estimate incremental cost of efficient component(s)
  - Adders for low income programs
  - “Deemed” non-energy benefits?

# #1 - Treatment of Non-energy Benefits

---

- Impact(s)
  - Likely significant, especially for building shell measures

# #1 - Measure Life

---

- The Issue
  - Some jurisdictions artificially cap measure life
  - Discount rates negate longer term benefits
- Options & Challenges
  - Use the “best estimate” of measure life
  - Use sensitivity analysis to determine the shortest measure life that provides a positive B/C
  - Focus on discount rates.

# #1 – Measure Life Disc. Impacts

		Discount Rate					
	Measure Life	9.0%	7.0%	5.0%	3.0%	1.0%	0.0%
NPV Measure Benefits @\$100 annual benefit stream	5	\$389	\$410	\$433	\$458	\$485	\$500
	10	\$642	\$702	\$772	\$853	\$947	\$1,000
	15	\$806	\$911	\$1,038	\$1,194	\$1,387	\$1,500
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	10	64%	70%	77%	85%	95%	
	15	54%	61%	69%	80%	92%	
	20	46%	53%	62%	74%	90%	
	50	22%	28%	37%	51%	78%	

# #1 - Program and Measure Life

---

- Impact(s)
  - Significant with long life / low discount rates

# Summary – TRC Changes

---

- Summary
  - Avoided Cost
    - Biogas ~ +40%
  - Discount Rate
    - Societal discount rate ~ 3.5%
  - Free rider / spillover
    - Not include?
  - Full measure life
    - Significant for building shell etc.



# Option #2: Change B/C Test

---

- Options - Use
  - Societal Cost Test
  - Utility Cost Test

# Summary of Tests

Elements		TRC	UCT	SCT
Benefits	Avoided Supply Costs	√	√	√
	Avoided T&D Costs	√	√	√
	Bill Reductions (Primary Fuel)			
	Conservation "Adder" or Externalities (Environmental)			√
	Indirect Fuel Benefits	√		√
	Bill Reductions (Indirect Fuel)			
	Other Indirect Benefits			√
Costs	Direct Utility Costs	√	√	√
	Direct Customer Costs	√		√
	Utility Program Administration	√	√	√
	Lost Revenues			
Discount Rate		WACC	WACC	SDR

# #2 – Use Societal Cost Test

---

- Pros
  - Allows use of a societal discount rate
  - Allows the use of higher marginal costs
    - Possible to use MC of biogas?
  - Allows expanded treatment of environmental impacts

# #2 – Use Societal Cost Test

---

- Cons
  - Still screens against the MC of new supply
  - Still requires quantification / monetization of non-energy benefits
  - Does not change issues such as RIM, Free riders/spillover
  - Still requires monetization of environmental impacts
    - May use adders from other jurisdictions

# #2 – Use Societal Cost Test

---

- Impact on EEC
  - Likely significant for EEC programs
  - Less for GHG

# Summary of Tests

Elements		TRC	UCT	SCT
Benefits	Avoided Supply Costs	√	√	√
	Avoided T&D Costs	√	√	√
	Bill Reductions (Primary Fuel)			
	Conservation "Adder" or Externalities (Environmental)			√
	Indirect Fuel Benefits	√		√
	Bill Reductions (Indirect Fuel)			
	Other Indirect Benefits			√
Costs	Direct Utility Costs	√	√	√
	Direct Customer Costs	√		√
	Utility Program Administration	√	√	√
	Lost Revenues			
Discount Rate		WACC	WACC	SDR

# #2: Use Utility Cost Test

---

- Pros

- More like new supply analysis
- Avoids non-energy benefits
  - Respects consumers to make choices that provide them value for money.

- Cons

- Weakens linkage with cost of energy to society
  - Can promote non-cost effective technologies
- Does not change issues such as RIM, free riders etc
- Still linked to the MC of new supply

- Used by Michigan / Connecticut

# #2: Use Utility Cost Test

---

- Impact on EEC
  - Can't model, as only impacts program cost / incentive
  - May not provide sufficient incentive for technologies such as tankless water heaters
    - Incremental cost – \$2,400
    - Incremental savings – 6 GJ/yr
    - Value of savings - \$1,000



# Summary – Screening Tests

---

- Summary
  - TRC
    - Screens against cost of new supply
    - Practical limits to DSM investment
  - SOC
    - Greater potential for DSM investment
    - Still screens against cost of new supply
  - UCT
    - Avoids “non-energy benefits”
    - No cost effectiveness boundary

# #3: GHG Based Approach

---

- The Issue
  - Provincial target is
    - -33% by 2020
    - -80% by 2050
  - Screening against MC of gas likely doesn't provide sufficient reduction.
    - Use of SCT will improve this.

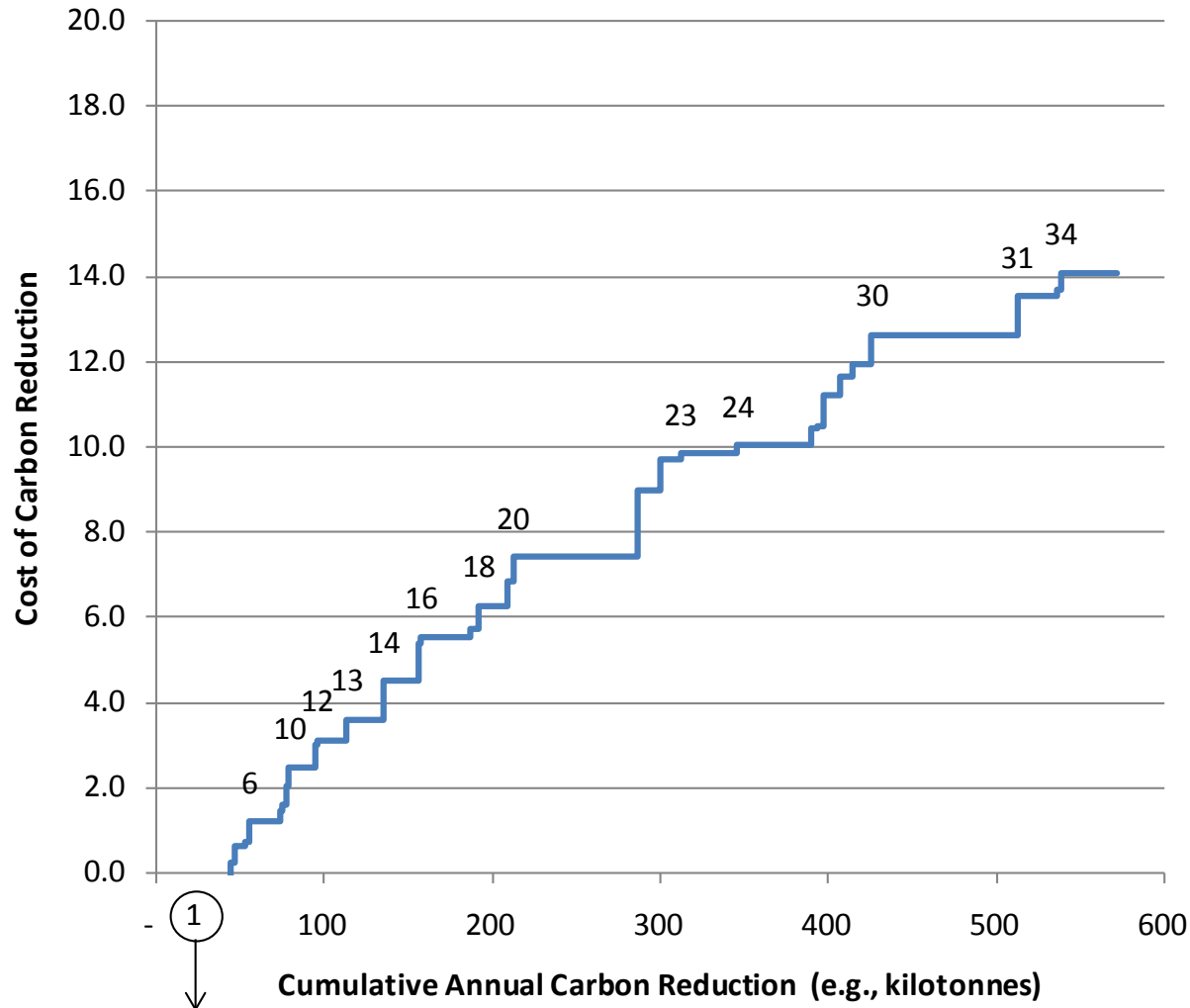
# #3: GHG Based Approach

---

- Options & Challenges
  - Screen against value of GHG
    - No agreed value for GHG damage or mitigation
    - May be like valuing environmental benefits
- Alternative
  - Use CPR data to provide a carbon supply curve
  - Determine desired level of carbon reduction & associated costs
  - Negotiate with Government / BCUC for necessary
    - Funding & Approval process

# Carbon Reduction Supply Curve

(Concept only)



# Carbon Reduction Supply Curve

## (Concept only)

---

- Supply Curve Development Requires
  - CPR Technical Potential
  - Add't Measures that were not screened
- Note: measures lower on the chart are “free”
  - I.e: paid for by DSM savings.

# #3: GHG Based Approach

---

- Pro
  - Provides data to make an informed choice
    - GHG reduction vs. cost / types of initiatives
  - Breaks the link with marginal cost of fossil fuel
  - Directly addresses the GHG policy objective
  - Avoids forecasting MC of gas
- Con
  - Breaks new ground – no precedents
  - Who needs to approve?
  - Who needs to set values / funding?

---

**Thank you**

# 2012 - 2013 EEC Funding Application

Sarah Smith

March 15, 2011



# Strategy

- 2012 – 2013 Revenue Requirements Application submission May 2 2011
  - 2 year period
- Long Term Resource Plan submission Summer 2012
  - 20 year planning horizon
  - 5 year EEC funding ask

# Funding approval request – 2012 and 2013

	2012 ask (\$000's)	2013 ask (\$000's)
Program Area	Total	Total
Residential	9,500	9,500
Joint Initiatives	n/a	n/a
High Carbon Fuel Switching	1,500	1,500
Low Income	5,000	5,000
Commercial	16,000	20,000
Innovative Technology	12,050	17,690
Conservation Education and Outreach	5,000	5,000
Industrial	3,000	3,000
Portfolio Level	5,000	5,000
Furnace Scrap-It program	10,000	10,000
<b>Totals</b>	<b>67,050</b>	<b>76,690</b>

\*Note: the numbers are preliminary and could be modified for the Revenue Requirement Application

# Additional Items

- Split 75% FEI, 24% FEVI, less than 1% FEW
- Change in timing of expenditure recovery in rates
- Societal test as primary test
  - Social discount rate
  - Biogas as avoided cost of gas
  - Deemed adder for non-energy benefits
  - Free riders and spillover cancel each other out
  - Exclusion of CEO and Enabling costs from portfolio-level calcs
- Joint Initiatives consolidated with Residential
- EE Financing not included in ask
- S18 programs, with exception of NGV, not included in ask

**FortisBC EEC Stakeholder Meeting – Stakeholder 2011 Priorities**  
**March 15, 2011**

<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
Greater Vancouver Home Builders' Association	Protecting interests of new home buyers  Housing affordability and choice  Education  Marketing and networking	700+ members Builders Developers Trades Suppliers Architects & designers → Voice of residential construction industry	Combating the downloading of taxes, fees and levies of homebuyers	Keep us informed about new programs and implementation dates	Let us know what we can do to support funding application
<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
BC Apartment Owners and Managers' Association	Sector sustainability through offering lobbying, education, partnerships with affiliates and associates (price points)  Member strength through retention and growth	3000 members Apartment owners & managers (landlords) + associates (suppliers) + affiliates -sustainability	Successful energy specialist program  Green renovations  Dealing with controlled revenue and uncontrollable costs  Member relations and growth  Education  Deal with split incentives  Zero rating of HST	Assist energy specialist to promote programs and to have member participation  Expand programs to involve BC Hydro programs with our energy specialist.  Examine ways to shorten pay-back times  Facilitate workshops for our members  Cross promotion in each other's communication vehicles	Create a workshop for us on operations and maintenance  Assist with tenancy engagement  Advertise in BCAOMA communication vehicles and participate in events  Assist us with a gas pooling program.

<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
National Energy Equipment (distributor of Trane)	<p>Increase market creation of home comfort systems for retrofit market</p> <p>Incorporate “clean air” offering into heating and cooling products</p>	<p>(52) HVAC dealers</p> <p>-homeowners that purchase Trane equipment</p>	Promote consumer education and leverage available programs of energy conservation for new homes and retrofits	<p>Promote homeowners education</p> <p>Provide 2-3 year master plan for stakeholders</p> <p>Explain where and why Fortis is promoting EEC</p>	<p>Establish homeowners online portal</p> <p>Create stakeholder partner program</p>
<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
Consumers Council of Canada	<p>Consumers more aware of energy efficiency options</p> <p>Consumers knowledgeable about the costs/payback/justification of energy efficient purchases</p> <p>Ensure the consumer voice is at the policy table</p>	Residential consumers of energy	Consume access to energy efficiency information, both in general and specific to their needs	Support consumers councils proposal to develop the councils energy web pages to make them useful and relevant to consumers	<p>Meet the needs of residential consumers who want to implement energy efficiency measures in their homes</p> <p>Increased support of contractors.</p>

<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
Urban Development Institute	<p>To connect our industry with governments and the public</p> <p>Improve our industry through professional development and education</p> <p>Having a reasonable cost of &amp; regulatory environment for our members</p>	<p>Developers &amp; professionals that support them.</p> <p>500 corporate members (architects, engineers, banks)</p>	<p>Embarking on an Environmental Leadership Initiative (ELI)</p> <p>Affordable housing</p> <p>Communication</p>	<p>Partner with Fortis on ELI</p> <p>Members need more information on district energy, renewable energy, solar, and construction</p>	<p>Would like to do a seminar on District and Renewable Energy.</p> <p>A presentation on Fortis Programs for developers</p>
<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
Crosby Property Management	<p>Energy savings</p> <p>Green technology</p>	<p>25,000 residential strata owners</p>	<p>Continued implementation of boiler efficiency program</p>	<p>Good representation in place with Ramsay Cook</p>	

<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
Rate 1 customer/landlord/ New Climate Strategies consultant	Improve energy efficiency infrastructure in my home	Rate 1 customers across BC	Weather proofing  Assess insulation cost/benefit in older homes  Replace aging water heaters	Continue to push “weatherization” as a contractor specialty – consider incentives to increase accessibility/visibility	Help us understand cost/benefit of weatherization and insulation  Educate about tankless HW options
<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
Fraser Basin Council	Vision: strong communities, healthy ecosystems and vibrant economies in the Basin and beyond Goals: climate change mitigation/adaptation (reducing GHGs/energy efficiency) -smart planning for communities -regional and sub-regional (local) issue resolution -aboriginal engagement	All form orders of Canadian government including First Nations + private sector + community/civil society interests	Action on climate change and air quality  Clean water and watersheds  Sustainable communities	Partner on outreach to fleets  Find ways to link local governments climate plans with Fortis EEC programs	Adjust TRC analysis

<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
Canadian Manufacturers and Exporters	Help Canadian Manufacturers and Exporters success in domestic and international markets with a focus on: <ul style="list-style-type: none"> <li>- Productivity</li> <li>- Energy / Environment</li> <li>- Workplace skills</li> <li>- Business development</li> </ul>	Largest economic footprint in BC	Energy Efficiency Programs for Medium Sized Manufacturers	Fund an EE study / implementation program for medium sized manufactures.	
<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
BC Non Profit Housing Association	Build sustainable future for non-profit housing in BC.	650 non-profit societies with 1500 buildings	10-20% reduction in natural gas over the next two years  Customized incentive programs with Fortis for NP Housing retrofits	Creative incentive programs that fit with unique need of non-profit housing societies  Funded energy specialist position as soon as possible  Operator training and tools for energy management	Streamlines and bundled incentive programs  Increased collaboration with BC Hydro  Pilot studies and project M&V – share these as case studies with public or stakeholders



<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
Hemmera	Private sector servicing public sector	>3000 client base  144 employees	Expand renewable energy and environmental services to public sector	Provide incentives for feasibility studies and construction at renewable energy projects	Implement societal cost as discount rate base
<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
Canfor Pulp	See website	Mike Todd Stuart Gairns	Implementing ECM's already identified	Energy specialist program  Incentives based on GJ Savings  End use assessments/studies	Roll out energy specialist program

<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
BC Hydro	Pursue cost effective DSM	PowerSmart	Integrated resource plans  2011 DSM targets	Improve consultation on key DSM industry issues before making allegations and proposals to broad audiences that could harm other interests.	
<b>Organization</b>	<b>Goals of Organization</b>	<b>Members represented</b>	<b>Priorities for 2011</b>	<b>How FortisBC can help organization (2-3 ways)</b>	<b>Action Item for FortisBC in 2011</b>
BC Sustainable Energy Association	Shift BC to 100% sustainable energy use: educate British Columbians on sustainable energy	BC citizens interested in sustainable energy	Green Landlords project  Green Condos Retrofit Project	Partner on projects	More energy efficiency

Missing: BC Utilities Commission, IBC Technologies, Consolidated Management Consultants, City of Vancouver, Ministry of Energy and Mines, and Canadian Home Builders' Association of BC

Appendix I

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**EFFICIENT BOILER PROGRAM TERMS AND CONDITIONS**

# Efficient Boiler Program

## Terms and conditions



**Saving you money.** We've got our best people on it.



## Table of contents

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## The incentives

Efficient boiler incentives are made up of two parts: a purchase incentive which is based on the type of boiler purchased, plus either a new construction incentive or a retrofit incentive.

### Purchase incentive

For all participants, the incentive applies to the incremental purchase price of a natural gas near-condensing or condensing boiler over the purchase price of a standard-efficiency boiler. The purchase price incentive is based on space-heating and ventilating load. They will be calculated as follows:

- near-condensing boilers: \$4,000 per boiler plus \$3 per MBH plant input
- condensing boilers: \$6,000 per boiler plus \$9 per MBH plant input

The purchase price of a standard-efficiency boiler will be estimated using \$7 per MBH of the input required to meet the space-heating load.

In addition to the purchase price incentives above, FortisBC will also contribute additional incentives to your upgrade project as outlined below.

### New construction

FortisBC will contribute 50 per cent of engineering fees to a maximum of \$1,500 toward the cost of estimating the annual gas usage for space-heating using a standard-efficiency boiler system versus

a higher efficiency boiler system. Purchase price incentive payments are limited to a maximum of 75 per cent of the purchase price premium over a standard boiler.

### Retrofit of existing buildings

The program will pay your contractor up to a maximum of \$400 for performing an estimate of the peak space-heating load. It will also pay 50 per cent of the cost of necessary venting modifications up to a maximum of \$2,000. During the first year of operation you are also entitled to a monitoring incentive of \$1,500 plus \$1 per gigajoule of total natural gas saved. Purchase price incentive payments are limited to a maximum of 50 per cent of the purchase price premium over a standard-efficiency boiler.

## The benefits

### Greater savings

- operating savings from lower energy expenditures
- up to 40 per cent lower fuel costs over a standard-efficiency boiler

### Higher performance

- improved operating efficiency through correct boiler sizing

### Energy efficiency assistance

- assistance in determining your facility's potential for energy improvements
- help in finding ways to save money and improve your facility's operation

### Space efficiency and comfort

- requirement for less space in mechanical rooms
- excellent opportunity to increase occupant comfort and reduce building maintenance

### Increased marketability

- improved efficiency appealing to customers who recognize the value it adds to their investment

### Environmental benefits

- lower gas usage resulting in fewer CO, CO<sub>2</sub> and NO<sub>x</sub> emissions
- responsible use of one of the cleanest burning fossil fuels

# Program terms and conditions

*Note: Subject to change without notice.*

## 1.0 Overview

- 1.1 The Efficient Boiler Program (the program) from FortisBC Energy Inc. and FortisBC Energy (Vancouver Island) Inc., collectively "FortisBC", is designed to stimulate investment in appropriately sized energy-efficient space-heating boilers that will reduce natural gas usage and associated operating costs. The program is targeted to both new construction and replacement markets.
- 1.2 The program offers all market participants an incentive payment to partially offset the higher purchase price of higher efficiency boilers, a contribution to the cost of accurately estimating the building's space-heating load.
- 1.3 In new construction, the program contributes to the engineering fees for estimating the building's annual natural gas usage for space-heating with a standard efficiency boiler and comparing it to that with a higher efficiency boiler. It also partially offsets the higher boiler purchase price incurred by a developer, builder or owner. FortisBC will also recognize the developer's, builder's or owner's commitment to energy efficiency on behalf of tenants, end users and subsequent owners.
- 1.4 In the replacement market, the program compensates a mechanical contractor to accurately estimate the peak space-heating load. It also reduces the building owner's higher purchase price for an energy-efficient boiler, including an allowance for required venting upgrade modifications. It also promotes proper ongoing operation and maintenance of the heating plant to reduce annual space-heating costs, maintain efficiency and lower life cycle costs by paying building owners a monitoring incentive and a natural gas-saving bonus.
- 1.5 By taking part in this offer, your boiler may use less natural gas and produce fewer emissions. You agree FortisBC may record any resulting emission reductions you have along with those of other participating customers and credit them to our Greenhouse Gas Management Program.

## 2.0 Participant eligibility criteria

- 2.1 The applicant must be a building developer, builder, building owner or owner's designated representative.
- 2.2 The facility where the boiler is installed must be in the FortisBC service territory in the Lower Mainland, Vancouver Island, Sunshine Coast, or the Interior of B.C. (not available in Whistler).
- 2.3 The facility where the boiler is installed must use natural gas purchased according to one of the following FortisBC Rate Schedules: 2, 2U, 3, 3U, 23, 5, 25, AGS, SCS-1, SCS-2, LCS-1, LCS-2 or LCS-3.
- 2.4 Only eligible boilers under the program qualify for the incentive (see Section 4.0 for the boiler eligibility criteria).
- 2.5 The incentive will only be paid for space-heating boilers. When the boiler is used for space-heating as well as other applications such as domestic hot water and pool heating, the domestic hot water load and the pool heating load will be subtracted from the boiler input to determine the space-heating load for incentive calculations.
- 2.6 Standby or backup space-heating boiler plants will not normally qualify under this program. Standby or backup boilers are defined as boilers that normally only operate during peak heating load. However, a boiler plant that is not the primary source (i.e., does not provide over 50 per cent) of space-heating for the facility, can qualify if the facility uses natural gas for domestic hot water and make-up air units.



## 3.0 Program process

### All market participants

- 3.1 Applicant's contractor or qualified professional determines the capacity of the space-heating plant, type of boiler (i.e., condensing or near-condensing), capacity and number of boilers required to meet the space-heating requirements of the building.
- 3.2 Applicant completes Efficient Boiler Program Application Form and submits it along with required documentation (See Section 7.0) to FortisBC.
- 3.3 FortisBC reviews application for completeness.
  - (i) If application is complete, FortisBC estimates the incentive that is payable to the applicant.
  - (ii) If application is incomplete, FortisBC will ask applicant for additional information.
  - (iii) If required documents are not completed and submitted within one month of the application date the application may be cancelled.
- 3.4 Applicant receives a letter from FortisBC stating whether the application was approved or rejected. If approved, an estimate of the incentive(s) payable to the applicant will be attached to the letter.
- 3.5 Applicant purchases and installs the boiler within 12 months from the date of approval (provided in Section 3.4) by FortisBC.
- 3.6 Applicant submits required documentation to FortisBC within one month of boiler installation. (See Section 7.0 for documentation.)
- 3.7 FortisBC reviews documents for completeness.
  - (i) If all documents are in order and the applicant has met all the requirements of the program and the boiler capacity has not changed from original application, FortisBC issues a boiler incentive cheque to the applicant.
  - (ii) If all documents are in order and the applicant has met all the requirements of the program, but the installed boiler capacity and/or purchase price has changed since the application was first submitted, FortisBC recalculates the incentive and issues a cheque for the revised boiler incentive.

### New construction market participants

- 3.8 The contribution of FortisBC to the engineering fees required to estimate annual gas usage will be included in the boiler incentive cheque issued to the applicant.

### Replacement market participants

- 3.9 The contributions of FortisBC to the contractor's cost to estimate the peak space-heating load, and to the cost of the required venting upgrades, will be included in the boiler incentive cheque issued to the applicant.
- 3.10 FortisBC will send the reporting requirements for the monitoring incentive and gas-saving bonus to the applicant with the incentive cheque.
- 3.11 Applicant prepares the reports that are required for the monitoring incentive and gas-saving bonus.
- 3.12 Applicant submits the reports to FortisBC. One report is submitted six months after boiler installation; the second report is submitted 12 months after boiler installation.
- 3.13 FortisBC reviews the reports for completeness.
  - (i) If applicant meets the reporting requirements, FortisBC calculates the monitoring incentive and gas-saving bonus and issues a cheque. Cheque is issued after FortisBC receives the two complete sequential six-month reports.
  - (ii) If applicant has not met the reporting requirements, FortisBC advises applicant that reporting requirements have not been met and applicant does not qualify for monitoring incentive and gas-saving bonus.

## 4.0 Eligible boilers

### All boilers

- 4.1 Must be a natural gas space-heating boiler system (propane boilers in Revelstoke can also qualify). Multiple boiler modules housed in a single jacket constitute one boiler.
- 4.2 The minimum boiler input rating is 300,000 Btu/hr.
- 4.3 The maximum boiler input rating is 5,000,000 Btu/hr.
- 4.4 The minimum space-heating plant input rating is 300,000 Btu/hr.
- 4.5 The maximum space-heating plant input rating is 10,000,000 Btu/hr.
- 4.6 The incentive will only be paid for space-heating boilers. (See Section 2.5 for details.)
- 4.7 Boiler efficiency ratings must be independently tested in accordance with BTS-2000 Testing Standard for Efficiency of Commercial Space-heating Boilers from the Hydronics Institute Division of AHRI ([www.ahrinet.org](http://www.ahrinet.org)) or CSA 4.9 Gas-Fired Low Pressure Steam and Hot Water Boilers.
- 4.8 Third-party documentation of boiler combustion efficiencies must be provided for boiler eligibility. Acceptable documentation includes either
  - (i) combustion efficiency test reports from testing laboratories accredited by the Canadian Standards Association (CSA International) or the American National Standards Institute or from the Hydronics Institute Division of AHRI;
  - (ii) a combustion efficiency certification letter from CSA International; or
  - (iii) inclusion in the I=B=R Ratings for Boilers, Baseboard Radiation and Finned Tube (Commercial) Radiation Directory, January 2008 Edition, with the steady state combustion efficiency rating published in the directory ([www.ahrinet.org](http://www.ahrinet.org)).
- 4.9 Boiler must be installed in accordance with the manufacturer's specification and must comply with applicable laws, codes, standards and ordinances.
- 4.10 The boiler must be new. Used or rebuilt boilers do not qualify for the incentive.
- 4.11 Boilers must be covered by a standard or optional minimum two-year parts and labour warranty.

## Near-condensing boilers

### 4.12 Definition of near-condensing boiler:

- (i) has a minimum steady state combustion efficiency of 85 per cent as tested throughout the turn down range in accordance with BTS-2000<sup>i</sup> or CSA 4.9<sup>ii</sup>
- (ii) has a factory installed intermittent ignition
- (iii) has a forced draft or induced draft burner that properly controls excess air
- (iv) conforming boilers will have continuous capacity modulation (not staged burner output control) to enable AHRI at reduced output down to 50 per cent or less of maximum continuous output. This turndown will be achieved by continuously varying fuel and air input quantities

## Condensing boilers

### 4.13 Definition of condensing boiler:

- (i) has a minimum steady state combustion efficiency of 88 per cent throughout the turn down range as tested in accordance with BTS-2000<sup>i</sup> or CSA 4.9<sup>ii</sup>
- (ii) a Category IV boiler that vents through a Class II Type BH stack or a stack that complies with the manufacturer's recommendations
- (iii) conforming boilers will have continuous capacity modulation (not staged burner output control) to enable operation at reduced output down to 50 per cent or less of maximum continuous output. This turndown will be achieved by continuously varying fuel and air input quantities
- (iv) the boiler can continuously withstand heating system return water temperatures that do not exceed 49°C

## List of eligible boilers

- 4.14 A list of eligible boilers is available on our website at [fortisbc.com](http://fortisbc.com). This list may be updated during the course of the program.

*i - BTS 2000 Testing Standard for Efficiency of Commercial Space-heating Boilers, Hydronics Institute Division of AHRI - 2000*

*ii - Gas-Fired Low Pressure Steam and Hot Water Boilers, Canadian Standards Association*



## 5.0 Incentives

### All market participants

- 5.1 Boiler purchase price incentives will be calculated as follows:
  - (i) near-condensing boilers: \$4,000 per boiler plus \$3.00 per MBH plant input for space-heating load
  - (ii) condensing boilers: \$6,000 per boiler plus \$9.00 per MBH plant input for space-heating load
- 5.2 The purchase price of a standard efficiency boiler will be estimated using \$7.00 per MBH of input for space-heating load.
- 5.3 The boiler purchase price is the applicant's purchase price of the boiler net of any vendor rebates excluding installation labour, venting and accessories.
- 5.4 FortisBC reserves the right to limit the number of incentive payments it provides for the program.

### New construction market participants

- 5.5 In new construction, FortisBC will pay 50 per cent of a qualified professional's fees to compare the estimated annual natural gas usage for space-heating using a standard efficiency boiler to that with a higher efficiency boiler to a maximum of \$1,500. This will be payable to the applicant at the time the boiler purchase price rebate is paid to the applicant and will not be paid unless an eligible boiler is actually installed. Proof of payment must be submitted with the application. The energy modelling must be completed by a qualified professional using DOE, EE4, TRACE, HAP or equivalent program and must compare the space-heating energy use of the building using a standard efficiency boiler and a higher efficiency boiler.
- 5.6 In new construction, boiler purchase price incentive payments are limited to a maximum of 75 per cent of the premium over a standard efficiency boiler.

### Replacement market participants

- 5.7 In replacement applications, FortisBC will pay a maximum \$400 of the cost incurred to estimate the peak space-heating load. This will be payable to the applicant at the time the purchase price incentive is paid and will not be paid unless an eligible boiler is actually installed. Proof of payment must be submitted with the application.
- 5.8 In replacement applications, boiler purchase price incentive payments are limited to a maximum of 50 per cent of the premium over a standard efficiency boiler.
- 5.9 In replacement applications, the total amount of the boiler purchase price incentive and the venting replacement incentive is subject to a maximum limit equal to the price of the installed boiler.
- 5.10 In replacement applications, FortisBC will pay a monitoring incentive of \$1,500 plus \$1.00/GJ of gas-saving bonus for each GJ of annual weather-normalized reduction in total natural gas consumption. The weather-normalized gas consumption in the 12-month period following the boiler installation will be compared to the weather-normalized gas consumption during the 12-month period prior to the boiler installation. The applicant must report the data from the following inspections:
  - (i) perform combustion analysis and record combustion efficiency, %CO<sub>2</sub>, %O<sub>2</sub>, ppm NO<sub>x</sub> and flue gas temperature every six months
  - (ii) perform a diagnostic check of the controls weekly
  - (iii) perform visual check of system components weekly
  - (iv) record boiler water outlet temperature weekly
  - (v) record boiler water inlet temperature weekly
  - (vi) record boiler room temperature weekly
- 5.11 Applicant must submit reports that include the data listed above to FortisBC six months and 12 months after the boiler installation to qualify for the monitoring incentive and gas-saving bonus.