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May 10, 2011

Commercial Energy Consumers Association of British Columbia c/o Owen Bird Law Corporation P.O. Box 49130 Three Bentall Centre 2900 – 595 Burrard Street Vancouver, BC V7X 1J5

Attention: Mr. Christopher P. Weafer

Dear Mr. Weafer:

Re: FortisBC Energy Inc. ("FEI") and FortisBC Energy (Vancouver Island) Inc. ("FEVI") (collectively the "Companies")

Energy Efficiency and Conservation ("EEC") Natural Gas Vehicle ("NGV") Incentive Review

Response to the Commercial Energy Consumers Association of British Columbia ("CEC") Information Request ("IR") No. 1

On March 31, 2011, the Companies filed the EEC 2010 Annual Report as referenced above. In accordance with Commission Order No. G-70-11 setting out the Regulatory Timetable for the NGV Incentive Review, the Companies respectfully submit the attached response to CEC IR No. 1.

If there are any questions regarding the attached, 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: Shawn Hill
- *For:* Diane Roy

Attachment

cc (e-mail only): Alanna Gillis, Acting Commission Secretary Registered Parties



The Commission will initiate a regulatory process to examine and determine the following: 1) Was it appropriate for the Companies to change the scope of the Innovative Technologies program to include NGV purchase incentives via the EEC Stakeholder Group and the EEC Program – 2009 Report (filed March 31, 2010)?

1.1 Please identify and describe the scope of the Innovative Technologies program.

Response:

The Innovative Technologies Program Area is intended to support the deployment of forwardlooking low carbon technologies. It is intended to support technologies that are market ready and commercially available, but that have little or no market penetration in the BC marketplace. Please see also the response to CEC IR 1.1.3, where various references to the scope of Innovative Technologies activity are listed.

1.2 Please clarify whether or not the scope and mandate of particular programs is defined in terms of the sub-component projects or whether it is defined by criteria for fit or qualification to be part of the program.

Response:

The FEU believe it is the latter. Based on that understanding, the FEU have added a variety of new programs within existing Program Areas, not just limited to Innovative Technologies Program Area. In all Program Areas, including Innovative Technologies, programs that are added to the Program Area should support the general area of activity, be within Program Area scope, and support goals for that Program Area.

1.3 Please provide all documents or references to evidentiary material in regard to the documentation of the scope of the Innovative Technologies program.

Response:

Please see the references below.

Material referring to scope of the Innovative Technologies Program Area is underlined for ease of reference in the material presented below.



1) 2008 EEC Application

Section: 6.9 Innovative Technologies, NGV and Measurement Program Area (\$3 million)

Page: 69

Reference: "The Companies are in a unique position to foster and further the deployment of <u>forward-looking low carbon technologies</u>, including measurement <u>technologies</u>, and are therefore seeking funding with this Application, specific to this arena. The amount and activity 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 to the ability to fund such a program over the funding timeframe. <u>The activity in this area would be in the nature of pilot programs, with limited time frames, geographic areas and number of installations. Some reasons that program activity would be considered not viable would be if the technologies prove to be prohibitively costly, or cannot be readily installed or serviced using local trades people, or are found to not provide adequate long term potential for widespread implementation.</u>

This Section of the Application provides an overview of <u>potential areas of opportunity</u> for innovative technology investment that the Companies intend to pursue if the Application is approved. The information is divided into <u>energy efficiency and fuel substitution</u> <u>activities, and by sector (Residential and Commercial)</u>.

It should be noted that the initiatives listed in this Section do not include all the innovative technologies that the Companies may pursue, but rather provide an overview of the types of initiatives the Terasen Utilities intend to pursue, all having the same underlying characteristics:

1) Each promotes the efficient use of natural gas through sustainable design

2) None are currently a mainstream technology

3) Each offers the potential for at least a 10% GHG benefit.

For all sectors, programs for fuel-substitution include plans that displace less efficient and dirtier fuels with natural gas or add cleaner renewable fuels to natural gas for further efficiency and GHG benefits."

Section: 6.9.1 Innovative Technologies

Reference: "This Section provides an overview of energy efficiency initiatives the Companies intend to pursue through the use of innovative technologies, if the



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Application is approved. The target market would include all residential and commercial applications."

Section: 6.13

Reference: "In the case of the Innovative Technologies and Measurement components of the proposed funding (refer to Section 6.9), the relative newness of some of these technologies under consideration mean that equipment costs are high due to low market penetration. Further, good data on energy savings from deploying these new technologies in the Companies' service area may not be available due again to the relative newness of the technology. The Companies propose that programs in this area would be in the nature of pilot programs, where installations are restricted in both number and by geography, so as to give the Companies a better understanding of the costs and benefits of these newer technologies."

2) 2008 EEC Application IRs

Section: BCUC IR1.33.1

Page: 65

Reference: "Please confirm that Terasen is asking for approval in the Application for spending levels of \$500,000 per year for each of 2008, 2009 and 2010 for TGI and TGVI combined for each of the residential and commercial sectors. Please provide the detailed budget estimate behind the requested amount. Is this program properly described as research and development?

Response: That is correct. A detailed budget has not yet been developed for Innovative Technologies, NGV and Measurement. As noted on page 69 of the Application: *"The amount and activity for Innovation Technologies, NGV and Measurement will need to be refined..."* This program area is more accurately defined as supporting commercialization of newer technologies such as solar thermal water pre-heating than research and development."

Section: BCUC IR1.33.5

Page: 66



Reference: "Could Terasen conceptually examine programs in this area and, if an effective program could be developed, apply for funding? If not, why not?

Response:

Conceptually this is an option; however the Companies see this as being inferior to the option proposed with the Application. As noted on page 51 of the Application, in order to reduce the administrative burden and eliminate the need for a further application, the Companies are proposing that the Commission approve the overall expenditure level by utility, rather than approving the funding by program area or by individual program initiative. This maximizes value for ratepayers by keeping the administrative costs associated with regulatory filings down. The initiatives being proposed for the Innovative Technologies, NGV and Measurement program area could be pilot programs, of a limited duration, which typically require fairly quick turnaround times. These would be developed in conjunction with various market actors are busy with their core businesses; getting their attention to assist with developing a program that may or may not come to fruition dependent on whether funding was approved or not would be challenging."

Section: BCUC IR 1.36.2

Page: 71

Reference: "What specific funding level is being proposed for the Hydrogen / Compressed Natural Gas blended project area?

Response:

The initiatives listed in Section 6.9 of the Application do not include all the innovative technologies that the Companies may support, but rather provide an overview of the types of initiatives the Terasen Utilities are aiming to promote that all have the same underlying characteristics; 1) they promote the efficient use of natural gas through sustainable design 2) are not currently mainstream technology 3) offer at a minimum a GHG benefit. Hydrogen / Compressed Natural Gas blended projects (HCNG) represent one of the most near-term opportunities for utilizing hydrogen in vehicles and moving towards a hydrogen economy. As hydrogen burns cleaner than natural gas, further emission reductions are gained and 10-20 % GHG reductions achieved. The Terasen Utilities see participation in this field as a viable choice for promoting cleaner burning natural gas vehicles. The Companies have not yet developed a budget specifically for HCNG projects. As the Companies move forward with the identification and prioritization of various opportunities it will determine what resources are required for specific initiatives such as HCNG."



3) 2009 EEC Annual Report

Section: 5.1 Three New Program Areas

Page: 75

Reference: <u>"The Innovative Technology Programs will promote and pilot emerging</u> <u>commercially available technologies.</u> The current portfolio of Innovative Technologies includes Solar Thermal Hot Water, NGV for Commercial Vehicles, Hydronic and Combination Space Heating Systems, Residential Ground Source Heat Pumps ("GSHP") and Commercial and Industrial GSHP Systems."

Section: 5.12 Innovative Technologies

Page: 124

Reference: "Innovative Technologies are best described as market ready technologies that have little or no market penetration in the BC energy efficiency landscape. They can be defined as emerging and/or enabling technologies. Some of these technologies include, but are not limited to, solar thermal DHW systems, GSHPs, hydronic systems, sterling engines, micro co-generation, natural gas transportation, 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 though programs delivering energy reductions and savings to our customers for now and into the future."

Section: 5.12.3 Late 2009 – Early 2010: Establishing the Innovative Technologies Framework

Page: 125

Reference: "<u>TGI and TGVI restructured the existing portfolio list of Innovative</u> <u>Technologies to include Solar Thermal Hot Water, NGV for Commercial Vehicles,</u> <u>Hydronic and Combination Space Heating Systems, Residential GSHP and Commercial</u> <u>and Industrial GSHP Systems.</u> TGI and TGVI will treat NGV fuel switching from diesel as part of or normal course of EEC activities."



Section: 5.12.4 Striving to Establish Appropriate Incentives

Page: 125

Reference: "Utility incentives for Innovative Technologies are designed to promote emerging technologies"

4) 2010 EEC Annual Report

Section: 10.1.1.1 Definition

Page: 188

Reference: "Innovative technologies are best <u>described as market ready technologies</u> that have little or no market penetration in BC. They can be defined as emerging and/or <u>enabling technologies</u>. 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."

Reference: "Innovative technologies are solutions the Companies can support through programs delivering energy reductions and savings to their customers for now and into the future. <u>All programs within this program area are to "foster and further the deployment of forward-looking low carbon technologies."</u>

Section: 10.1.1.5 Innovative Technologies Program Area Goals

Page: 193

Reference: "Supporting local, provincial, and federal governments with climate action goals and policies and regulations <u>focused on market-ready technologies; and</u> <u>Evaluating market-ready technologies and conducting pilot studies to validate</u> <u>manufacturer's claims about equipment and system performance and energy efficiency.</u>"

Reference: "In support of the objectives outlined above, the Companies also <u>strive to</u> <u>seek out new market ready technologies as well as improving the awareness of existing</u> <u>ones.</u> More specifically, their focus is to:

<u>Establish "proof of concept" projects based on certain methods, ideas, or market-ready technologies to demonstrate energy savings.</u> This data will be used to confirm savings claims and guide the development of future programs;



• <u>Conduct pre-feasibility studies to gauge the energy savings potential for market-</u> ready technologies within the residential, commercial, and industrial sector;"

Section: 10.1.5.3.1 Solar Air Heating PSECA Program

Page: 208

Reference: "As referenced in the 2009 Annual Report, <u>the innovative technologies</u> 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."

5) G-140-09 TGVI 2010-2011 RRA RDA NSA

Section: Energy Efficiency and Conservation ("EEC") Funding for 2010

Page: 8, Section 6 paragraph c

Reference: "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 Total Resource Cost (<u>"TRC") of 1.0 or more</u>. TGVI will consult with stakeholders on the practical application of the weighted average TRC through the EEC Advisory Committee."

6) G-141-09 TGI 2010-2011 RRA RDA NSA

Section: EEC Funding for 2011

Page: 6, Section 11 paragraph d

Reference: "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



(<u>"TRC"</u>) of 1.0 or more. TGI will consult with stakeholders on the practical application of the weighted average TRC through the EEC Advisory Committee."

7) 2010-2011 RRA NSA IRs

Section: BCUC IR 1.23.1.2

Page: 52

Reference: "What is the estimate number of customer additions for each test year relating to this innovative technology as described in the above statement.

Response:

As noted in response to BCUC IR 1.23.1.1, Innovative Technologies are an EEC program (i.e. not one of the Alternative Energy Solutions) whereby customers will receive incentives for Hydronic Heating Systems, Integrated Energy Systems, Solar Thermal and Ground Source Heat Pumps. These programs do not necessarily have a direct relation to the addition of customers on the Gas system. In some cases customers may be added, in others customer may already be on the system and simply be supplementing or changing their heating appliances in their home."

Section: BCUC IR 2.66.1

Page: 183

Reference: "For the EEC Pilot projects identified in the Application, please provide further details regarding expected outcomes, deliverables, milestones, and budgets for each of the EEC Pilot projects.

Response:

TGI proposes the Innovative Technologies programs be run as pilots that would subsequently provide data to enable the Company to establish, expected outcomes, deliverables and key milestones in the Innovative Technologies area."

8) 2010 Long Term Resource Plan

Section: 5.4.2 Innovative Technologies



Page: 119

Reference: "Innovative Technologies <u>are defined as market ready technologies that</u> have little or no market penetration in British Columbia. The Terasen Utilities' incentives for this portfolio are designed to promote emerging technologies. The current portfolio of Innovative Technologies includes Solar Thermal Hot Water, NGV, Hydronic and Combination Heating Systems, Residential Ground Source Heat Pump ("GSHP") Systems and Commercial/Industrial GSHP Systems. We are conducting market research to determine potential programs for these technologies, and their associated savings. It should be noted that the technologies in this portfolio and the resulting impact on load are subject to change depending on market conditions, including adoption rates and introduction of new technologies."

9) 2010 Long Term Resource Plan IR's

Section: BCUC IR 1.34.3

Page: 77

Reference: "Terasen Utilities defines Innovative Technologies as "market ready technologies that have little or no market penetration in British Columbia". Please also discuss how Terasen Utilities has assessed each of the determinants in reaching the conclusion that they are market ready technologies and that they are suitable for British Columbia. For example, please explain what market failures have occurred to date that could have hindered the emergence of Innovative Technologies in British Columbia and which necessitate financial incentives to be overcome the market failures.

Response:

The Terasen Utilities assess the number of manufacturers, active installers and actual number of systems installed within BC in order to determine if the technology is market ready. There have been several market failures that have affected each technology such as the lack of experienced installers and enforced best practices, limited system performance monitoring and inconsistent funding from provincial and federal governments. All these factors have affected the credibility and adoption of these technologies within British Columbia. The Terasen Utilities believes that offering incentives for market ready technologies will help overcome these shortcomings and add another layer of system enforcement, measurement and awareness. It is to be noted that technologies in the portfolio are subject to change depending on market conditions, introduction of new technologies and obtaining further data."



Summary:

There are numerous instances where the scope of the Innovative Technologies Program Area has been defined more broadly, rather than as the sum of specific programs. Natural Gas Vehicles fit within the defined scope of the Innovative Technologies Program Area, being a market-ready low-carbon technology with very little market penetration in BC, and an incentive program that is pilot by nature, and limited in number and geographic scope.

1.4 Please provide documentation with respect to the mandate of the EEC Stakeholders Group.

<u>Response:</u>

The original invitation to the EEC Stakeholder group is provided in the response to BCUC IR 1.3.3, Attachment 3.3. The invitation states the following:

"To add transparency and accountability to our EEC portfolio, we intend to hold biannual EEC workshops with stakeholders, at which we will present updates on program progress and monies allocated. The one-day workshops would also function as a forum to stakeholder input on developing new programs and refining existing programs."

This description of the group's intended function flows from Section 6.14 of the EEC Application which states:

"The Companies intend to hold annual EEC workshops with stakeholders, at which the Companies would present updates on program progress. The workshops would also be a forum for stakeholder input on developing new programs and refining existing programs, as well as providing some opportunity for oversight and comment by the Stakeholders on the Companies' EEC activity."

The Stakeholder Group is one of the accountability mechanisms that was accepted by the Commission in their Decision in the EEC Proceeding.

The group is intended to function in a consultative fashion, with the group acting as a forum for stakeholder input on developing new programs and refining existing programs. The Companies solicit feedback from the members of the EEC Stakeholder group that is specific to a particular issue, and the Companies' practice is to email the members, asking for such feedback. The Companies' intent to include NGV within the Innovative Technologies Program Area was presented to the EEC Stakeholder Group in the March 11, 2010 meeting. Subsequently, an email was sent to the stakeholder group specifically requesting feeback on NGV; one response



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was received, from a Stakeholder other than the Commission, on the Companies' proposed treatment of partner incentives within the TRC for Innovative Technologies. The FEU's email is provided in the response to BCUC IR 1.5.4, Attachment 5.4. The first EEC incentive award was made in September 2010, approximately 6 months after the Companies stated in the presentation to the EEC Stakeholder Group that they intended to include NGV in the Innovative Technologies portfolio. The presentation is included in the response to BCUC IR 1.5.4, Attachment 5.4, as well as part of the EEC Stakeholder presentation materials provided in response to CEC IR 1.1.5 under Attachment 1.5. Further information on EEC stakeholder presentations and dialogue are outlined in the 2010 EEC Annual Report on page 216 and 217 of that report which is Exhibit A2-1 in this proceeding.

1.5 Please provide documentation in regard to the discussions and requests for consultation consensus made at the EEC Stakeholder Group meetings.

Response:

The meeting minutes from the first stakeholder group meeting held December 9, 2009, are included in Attachment 1.5. As can be seen from the minutes of this first meeting, time was spent at this meeting informing the stakeholder group on the nature of DSM/EEC, where EEC fits in Resource Planning, and providing a fairly high-level overview of the EEC application, approvals, planned programs and government policy activity.

At the second meeting of the group, held on March 11, 2010, presentations were given on results of 2009 activity in the various Program Areas, and planned 2010 activity for each Program Area. Also included in Attachment 1.5 is the presentation given at that meeting for the Innovative Technologies Program Area, which does specify NGV as one of the planned programs. As noted in the response to BCUC IR 1.1.4 above, an email specifically soliciting feedback on Innovative Technologies, including planned programs, was sent to EEC Stakeholder Group members. The Companies received one response to this email, from a stakeholder other than the Commission. That response did not question the use of EEC funds for NGV, but rather addresses the treatment of partner incentives in the TRC for Innovative Technologies. The minutes of the March 11, 2010 EEC Stakeholder Group meeting are also provided in Attachment 1.5.

The third meeting of the EEC Stakeholder group was held November 24, 2010. During that meeting, the NGV Program Manager gave a fairly detailed presentation on the Commercial NGV Demonstration program. That presentation is also included in Attachment 1.5, as are the minutes from the November 2010 meeting. No objections were raised to the use of EEC funds for NGV incentives.



The most recent meeting of the EEC Stakeholder group was held March 15, 2011. At that meeting, the NGV Program Manager once again presented the EEC/NGV initiative, and described the timeline of events and why the Companies feel that the use of EEC funds for NGV incentives is appropriate and within the guidelines established for EEC activity. That presentation is also included in Attachment 1.5, as are the minutes from the March 2011 meeting. It can be seen from the minutes that at least one stakeholder felt that the issue of EEC for NGV's had already been addressed in the last EEC Stakeholder meeting, and questioned why the issue was being addressed again.

1.6 Please provide documentation of the outcomes of the EEC Stakeholder Group meetings in regard to EEC programs and particularly the NGV purchase incentives.

Response:

Please see the response to CEC IR 1.5.1.

1.7 To the extent that documentation was not taken of particular point in any of the above questioned areas please provide managements recollection of the discussions, consensus and decisions.

Response:

Please see the response to CEC IR 1.5.1.



If the scope of the Innovative Technologies program was appropriately changed, does the associated NGV purchase incentive funding become:

- a) a Commission-approved expenditure; or
- b) an approved EEC expenditure; or
- c) an expenditure eligible for cost recovery from rate payers in whole or part?

<u>Response:</u>

The FEU believe that the NGV-related programs fell within the original scope of the Innovative Technologies Program Area, and the scope of the Program Area has not changed. Please see the responses to CEC IRs 1.1.1 and 1.1.2, and BCUC IR 1.1.1 in this regard.

The legal effect of NGV-related programs being within the Innovative Technologies Program Area is only that it forms part of an "accepted" expenditure schedule under section 44.2 of the UCA. (Although parties often use the term "approved" in reference to section 44.2, the wording in the UCA is actually "accepted", not "approved".) As described in the response to BCUC 1.9.1, cost recovery must be dictated in the rate setting process with reference to the prudence of forecast expenditures (in this case, the forecast amortization of previously incurred NGV-related expenditures). The Commission must undertake this assessment in the rate setting process regardless of whether there is a prior section 44.2 acceptance, although having a previously accepted expenditure schedule that is supported by a finding that the expenditures are in the public interest provides the utility with practical certainty that the amortization expense will not be disallowed based on a determination in a revenue requirements process that the type of expenditures undertaken are inappropriate. Thus, the NGV-related expenditures to date, or more specifically the amortization expense associated with the expenditures, is eligible for cost recovery in future years regardless of whether it is included within the scope of the Innovative Technologies Program Area.

2.1 Please define a Commission approved expenditure.

Response:

The Companies assume that the reference to "approved" in the Commission's three issues in L-30-11 is getting at whether the NGV-related expenditures fell within the scope of an accepted expenditure schedule. Although parties often use the term "approved" in reference to section 44.2, the term "approved" is actually not used in section 44.2. Section 44.2 contemplates the "acceptance" of an expenditure schedule that the utility elects to submit, and not the "approval" of expenditures.



2.2 Please describe whether or not the Innovative Technologies program spending for all spending except NGV purchase incentives is a Commission approved expenditures.

Response:

The FEU believe that the expenditures are part of an "accepted" expenditure schedule under section 44.2 of the UCA. Please see the response to CEC IR 1.2.1 and BCUC IR 1.9.1.

2.3 If these expenditures are Commission approved expenditures please define under which section of the UCA the approval took place, when it took place, and what the Commission approval said.

Response:

Please see the response to CEC IR 1.2.1 and BCUC IR 1.9.1.

2.4 If these expenditures are Commission approved expenditures please define any difference between these expenditures and the NGV purchase incentives as they may relate to the approval of the Commission.

Response:

Please see the response to CEC IR 1.2.1 and BCUC IR 1.9.1.

2.5 Please define an approved EEC expenditure.

Response:

Please see the response to CEC IR 1.2.1 and BCUC IR 1.9.1.

2.6 Please describe whether or not the Innovative Technologies program spending for all spending except NGV purchase incentives are approved EEC expenditures.



Response:

Please see the response to CEC IR 1.2.1 and BCUC IR 1.9.1.

2.7 If these expenditures are Commission approved EEC expenditures, please define under which section of the UCA the approval took place, when it took place, and what the Commission approval said.

Response:

Please see the response to CEC IR 1.2.1 and BCUC IR 1.9.1.

2.8 If these expenditures are Commission approved EEC expenditures, please define any difference between these expenditures and the NGV purchase incentives as they may relate to the approval of the Commission.

Response:

Please see the response to CEC IR 1.2.1 and BCUC IR 1.9.1.

2.9 Please define an expenditure eligible for cost recovery from ratepayers in whole or in part.

Response:

In order for rates to be just and reasonable under the UCA, they must be fixed to recover the forecast costs for the test period that the Commission reasonably considers will be prudently incurred. A cost eligible for recovery is thus a prudently incurred cost, regardless of whether the utility has sought prior acceptance of an expenditure schedule for expenses. For capital expenditures under the CPCN threshold, and for O&M generally, it is less common to have section 44.2 approval than to proceed to a revenue requirements proceeding without one. Please see the response to CEC IR 1.2.1 and BCUC IR 1.9.1.



2.10 Please describe whether or not the Innovative Technologies program spending for all spending except NGV purchase incentives is an expenditure eligible for cost recovery from ratepayers in whole or in part.

<u>Response:</u>

Yes, such expenditures are eligible for cost recovery regardless of whether the utility has obtained in advance an optional section 44.2 expenditure schedule. Please see the response to CEC IRs 1.2.1, 1.2.9 and BCUC IR 1.9.1.

2.11 If these expenditures are expenditure eligible for cost recovery from ratepayers in whole or in part and please, define under which section of the UCA the approval would take place, when it would take place, and what the Commission approval criteria are.

Response:

Rate setting is addressed in sections 59-61 of the UCA. It is normally done in the context of a revenue requirements process, at which time the Commission approves forecast expenditures as part of the revenue requirement to be recovered in rates. In order for rates to be just and reasonable under the UCA, they must be fixed to recover the forecast costs for the test period that the Commission reasonably considers will be prudently incurred; thus, the applicable criterion is prudence. Please see the response to CEC IR 1.2.1 and BCUC IR 1.9.1.

2.12 If these expenditures are expenditure eligible for cost recovery from ratepayers in whole or in part, please define any difference between these expenditures and the NGV purchase incentives as they may relate to the approval of the Commission.

Response:

All EEC expenditures are eligible for cost recovery, regardless of whether they are a part of an accepted expenditure schedule. The same prudence test dictates cost recovery in rates in the case of both non-NGV EEC funding and NGV EEC funding. Please see the responses to CEC IR 1.2.9 and BCUC IR 1.9.1. There are a variety of factors that support the prudence of NGV-related expenditures, which are outlined in the response to BCUC IR 1.7.4.



If NGV purchase incentive funding is found to be inappropriately included in the Innovative Technologies program, should incentive payments already made by the Companies be eligible for cost recovery from rate payers in whole or part?

Response:

Yes. Please see the response to BCUC IR 1.9.1 and BCUC IRs 1.7.3 and 1.7.4.

3.1 Under what basis and criteria could the NGV purchase incentives funding not be appropriately included in the Innovative Technologies program?

Response:

FEI's working definition for an "Innovative Technology" is a technology that is market ready but one where there is no significant level of market penetration within the service territory. FEI believes that NGVs fit this definition and should be considered part of the Innovative Technologies program area.

A potential basis for excluding NGVs from Innovative Technologies would be if NGV share in the target market of heavy duty transportation was to increase to a significant level where the use of NGVs was seen to be a commonly available technology solution for heavy duty transportation applications.

3.2 If the Commission holds a view that the NGV purchase incentives funding cannot be appropriately included in the Innovative Technologies program how could and or would the Companies proceed to recover the costs from ratepayers.

Response:

Cost recovery is addressed in future revenue requirements processes based on prudence, and not by whether or not the existing expenditure schedule includes NGV related activities. Please see the response to BCUC IRs 1.9.1, 1.7.3 and 1.7.4.



- (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.
- 4.1 Please identify in this approved agreement clause where there is any indication that NGV purchase incentive funding is specifically excluded from Innovative Technology programs.

Response:

NGV purchase incentive funding is not specifically excluded in the approved agreement clause referenced in the CEC question. FEI believes that the NGV program was included in the Innovative Technologies program area.



- (c) EEC funding for innovative technologies will be \$2.3 million for 2010, which is the amount requested by TGI in the Application.
- 5.1 Please identify where the funding approval in this clause includes or excludes the NGV purchase incentive funding.

Response:

The funding approval language referenced in the CEC question neither includes nor excludes NGV purchase incentive funding.



- (d) EEC funding for innovative technologies will be \$4.669 million for 2011, which is the amount requested by TGI in the Application.
 - 6.1 Please identify where the funding approval in this clause includes or excludes the NGV purchase incentive funding.

Response:

The funding approval language referenced in the CEC question neither expressly includes nor excludes NGV purchase incentive funding. The FEU believed that Innovative Technologies was defined with respect to its objectives, rather than as the sum of individual programs as that had been the approach taken in the 2008 EEC Application. Please see the response to BCUC IR 1.1.1.



- (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.
- 7.1 Can the Commission approve any EEC funding request for costs not yet recovered by the utility in its approval of 2011 funding under the clause above, including any NGV purchase incentive funding which is not yet fully recovered, if necessary?

Response:

Yes, the FEU believe that Commission can accept new EEC expenditure schedules that extend beyond the scope of schedule accepted as part of the NSA. However, the FEU believe that the approved rates for 2011 should not change. For the funds that have already been spent to date, but that the Commission determines fell outside of the existing schedule, the import of the new expenditure schedule acceptance covering those expenditures will be to support cost recovery of the remaining nine years of amortization expense in future revenue requirements applications filed during that period. For the current year's (2011) amortization expense associated with those EEC expenditures, no issue of disallowance arises regardless because the FEU were not prohibited from spending the money even if it fell outside of the accepted expenditure schedule. For 2011 the effect of an adverse finding in this process would be the same as if the FEU spent O&M in 2011 that was not included in the O&M approved level in the NSA, i.e. since rates had been fixed, such extra spending comes out of the shareholder's pocket and ratepayers are unaffected because they continue to pay the rates agreed to in the NSA.



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.
 - 8.1 Please identify where in this approval document NGV purchase funding incentives whether through EEC Innovative Technologies programs or otherwise are specifically excluded.

Response:

NGV purchase funding incentives are not specifically excluded in the approval document referenced in the CEC question.



9. Reference: Order G-36-09

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.
- 9.1 Please identify whether or not Order G-36-09 is on the record in this proceeding.

Response:

Order No. 36-09 and its associated Decision are on the record in this proceeding and marked as Exhibit A2-3.



9.2 Please confirm that the above text is a copy of the Order.

Response:

Confirmed.

9.3 Please confirm that Order G-36-09 is on the record as part of this proceeding, if it is not already on the record.

Response:

Confirmed. Please refer to the response to CEC IR 1.9.1.

9.4 Please clarify whether there is any component of the Order which precludes Innovative Technologies expenditure approvals, funding or cost recovery from being resubmitted at any time in the future after this order.

Response:

Order No. G-36-09 does not preclude future funding request for Innovative Technologies. In fact, on page 26 of the Order, the Commission indicated 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. <u>Terasen may wish to bring forward projects in this program area for consideration as they become more fully developed.</u>" [Emphasis Added]

Subsequent to Order No. G-36-09, FEI and FEVI sought funding approval for EEC Programs related to Innovative Technologies in their respective 2010-2011 Revenue Requirements Applications.

In November 2009, in the orders approving the 2010-2011 RRA Negotiated Settlement Agreements for each of the Companies, FEI received approval for Innovative Technologies program budget of \$2.334 million in 2010 and \$4.669 million for 2011, for a total budget of \$7.003 million. FEVI also received approval for Innovative Technologies budget of \$478,000 in 2010 and \$958,000 for 2011, for a total budget of \$1.435 million.



9.5 Please clarify under the UCA whether or not there is any right or ability to preclude any expenditure or recovery of costs forever or indefinitely into the future.

<u>Response:</u>

The FEU believe that this would not be possible under the UCA. The FEU note that the approvals sought were optional section 44.2 applications for acceptance of an expenditure schedule. There is no prohibition on EEC activities, and a public utility does not require a section 44.2 approval to spend its funds on EEC. Thus, the FEU would have been able to undertake Innovative Technologies activity even after the Commission denied its inclusion in the expenditure schedule in the EEC Application. The FEU would not willingly take that approach, however, because of the additional financial risk present in the context of future rate setting in the absence of a prior Commission determination that expenditures are in the public interest. For the same reason, the FEU would not have proceeded with NGV-related initiatives after the 2010-2011 RRA had we not believed that the activities were within the scope of the section 44.2 expenditure schedule accepted as part of the 2010-2011 RRA NSA approval.

9.6 Please clarify whether or not how, when and where expenditure approval requests or approvals were made following this Order G-36-09.

<u>Response:</u>

Subsequent to Order No. G-36-09, further funding for 2010 and 2011 was accepted pursuant to section 44.2 for each of the Companies in their respective 2010- 2011 Negotiated Settlement Agreements (for FEI Order No. G-141-09 and for FEVI Order No. G-140-09, both dated November 26, 2009). This further funding included the program area of Innovative Technologies.

Attachment 1.5

<u>Terasen Gas Energy Efficiency & Conservation Stakeholder Meeting</u> <u>December 9, 2009</u>

Attendees

Alison Richter, British Columbia Utilities Commission, Regulatory Analyst – First Nations and Sustainability Amy Spencer-Chubey – Greater Vancouver Home Builders' Association, Director of **Government Relations** Bridget Macgowan - IBC Technologies, CFO Casey Edge - CHBA Victoria, Executive Director Cindy Stern – Tseshaht First Nation, CEO Dan Pasacreta – Crosby Property Management, Licensed Strata Agent David Craig- Consolidated Management Consultants, President Erik Kaye – Ministry of Energy, Mines, and Petroleum Resources, Acting Manager, Energy Efficiency Policy Jen Richards – City of Vancouver, Sustainability, Program Assistant Keith Veerman – FortisBC, Manager – Energy Efficiency Kevin Kwok – City of Vancouver, Manager, Environmental Services Marni Vistisen, City of Prince George, Energy Manager Nir Kushnir – National Energy Equipment, General Manager (Trane) Rob Noel – BC Mechanical Contractors Association, Commercial Contractors Steve Hobson – BC Hydro, Director Power Smart Vanessa Joehl – CHBA-BC, Built Green BC Program Administrator

Terasen Gas Staff

Beth Ringdahl Dave Bennett Doug Stout Jenny Chia Ken Ross Gary Lengle Lee Robson Michelle Petrusevich Ned Georgy Negar Ghavami Paola Blendl Ramsay Cook Samuel Nyabando Sarah Smith Shawn Hill

Regrets

Al Kemp, Rental Owners and Managers Society of BC Angela Reid, City of Kelowna, Councillor Eugene Kung, BC Public Interest Advocacy Centre, Barrister & Solicitor Jeff Fischer, Urban Development Institute, Deputy Executive Director John Cockburn, Natural Resources of Canada, Senior Chief, Equipment Standards and Labeling Housing, Building and Regulations Mark Hartman, City of Vancouver Sustainability, Building Energy Programs Manager Sharon Slager, CHBA Northern BC, Executive Director Tammy Jackson, CHBA Central Okanagan, Executive Director

Shawn Hill, Manager Regulatory Affairs

Why is DSM Important

- 1) Does the recession have an impact on the price?
 - a. The supply is there to meet demand
- 2) Is natural gas priced on a national (Canadian) or global basis?
 - a. Historically (early 2000's), oil and natural gas were substitutes → global and interchangeable
 - b. As the price of natural gas decouples from that of oil, gas has become a North American market
 - c. AECO is priced on Canadian price for GJs
 - d. Long term, resources are there to produce gas
 - e. Is there a demand to justify further extraction? It is a very efficient market

Ken Ross, Resource Planning Analyst Integrated Resource Planning

- 1) How does the Integrated Resource Planning stakeholder group compare and contrast with other stakeholder groups that Terasen might be convening?
 - a. EEC group is designed to give us feedback about the overall EEC portfolio and input as to whether we are moving in the right direction with the programs we are putting together
 - b. The Integrated Resource Planning stakeholder group: Are our assumptions in the planning environment the same as what our stakeholders see?

Sarah Smith, Manager, Marketing & Energy Efficiency EEC Overview

- 1) Does the EEC Application incorporate LiveSmart BC?
 - a. No. We were contributing \$250 to the LiveSmart furnace incentive, but we also offer the funace incentive separate from LiveSmart
- 2) On what basis did the BC Utilities Commission scale back the request?
 - a. In regulatory processes, there are a number of people that intervene.
 - b. Certain customers do not want their money spent on EEC activities, because the funding comes from rate increases.
- 3) Innovative technologies and trade relations was cut why?
 - a. There are certain benefit/cost thresholds that have to pass
 - b. Innovative technologies are not cost effective: they have very long paybacks
 - c. Trade relations: funding was included in the non-incentive budgets that were put forward
 - d. We have incorporated trade relations in other areas of our EEC budget
- 4) We want to get our biggest bang for our buck, why are we focusing on affordable housing and post-secondary students. Has the commission been swayed and is focusing on groups that do not offer the greatest potential?

- a. The home construction sector falls under the commercial sector
- b. Targeting the home builders associations is going to be a major focus

Michelle Petrusevich, DSM Program Development Lead Historical Program Results and DSMS

- 1) How were the Destination Conservation savings projected?
 - a. Evaluation report conducted by a consultant suggests that each school saves 113 GJs per year
 - b. No savings attribution to behavior changes as a result of the program
 - c. Behavioural change brought about through education
- 2) What have you learned about incentives regarding DSM? What motivates/ drives EEC/DSM decisions?
 - Residential: biggest reason for change in consumption is financial incentive, environment is far down the list (from Residential End Use Study)
 - b. Communications is key
 - c. Commercial: we don't have a lot of research in that area yet
- 3) How do you broaden conservation and sustainability and make the messaging appealing to different audiences?
 - a. Take other factors into consideration, besides financial
 - b. Health and environmental benefits
 - c. Have not yet promoted health benefits and used illness to pitch the case
 - d. Our experience in commercial efficiency, we concentrate on investment and payback → Reference BC Hydro lighting program
- 4) Will a new tracking system be able to provide feedback to contractors and manufacturers?
 - a. We have the ability to do so today, but need feedback on whether or not to do it share that information with manufacturers (eg. Market share of furnaces by manufacturer)
- 5) Will there be a financing program for customers (residential?)
 - a. We don't have the capability to do it with our current Customer Information System
 - b. The new Customer Information System, which we are including in the current Customer Care Enhancement Application, can do it
 - c. Terasen asked in application for an extra body to research and design a financing program
 - d. Terasen could see that as an extension of our business
 - i. E.g. Terasen Energy Systems: we own the system and make them pay back over bills (strata example of extending gas lines into homes)
 - e. Government looking at options where homeowners moving can get their home labeled (Prince George labeling pilot)
 - f. Recognized need for financing, but the question is whether or not the utility should be involved
 - g. Manitoba Hydro example

Erik Kaye, Acting Manager, Energy Efficiency Policy Government Regulation

- Post 2012, where is government policy going regarding carbon tax and regulation? Is there room for discussion and negotiation between Terasen and gov't to map that out?
 - a. Absolutely. Government meets with utilities frequently to discuss policy initiatives like fuel choice, role of NGVs, DES, etc.
- 2) What messaging does the government want contractors to convey when talking to homeowners? This is a sensitive question: customers see BC Hydro and Terasen Gas as one bill. Heat pumps are the most common installation, should customers be going electric?
 - a. We want to convey energy efficiency and conservation
 - b. Reducing greenhouse gas is the imperative, so we don't want people to switch to higher carbon fuels. However, we don't want everyone going electric.
- 3) There is a concern about increasing the efficiency of homes through retrofits without due diligence (no educational or financial considerations).
 - a. Homeowners are taking permits, and not knowing what they're doing
 - b. Professional builders sometimes don't have the appropriate training
 - c. Renovators are not properly educated or licensed
 - d. Government is working on a comprehensive strategy on building capacity to make sure workmanship aligns with code
 - e. Terasen also has a concern about training, which is why we're engaging with the housing branch and supporting Energy Efficient Building Strategy, and building capacity
- 4) There is a shift to electric technology and the government seems to be supporting that.
 - a. e.g. LiveSmart heat pump has a larger incentive
 - b. Manufacturers are confused on what to recommend to customers
 - c. Natural gas and electricity markets operate differently and market prices do not normally reflect what is best

Beth Ringdahl, EEC Program Manager, Residential Residential Programs

- 1) Who is eligible for the furnace scrap it program (e.g. what about firehalls? residential or commercial?)
 - a. We may not have to limit it to one market
- Discuss SPIFF (ie. sales person incentive) process with BC Hydro

 Pat Mathot has had success with SPIFF uptakes
- 3) Dishwasher program:
 - a. Similar to Powersmart incentives but for customers with gas hot water
- 4) Consumer awareness and demand for tankless heaters increasing, so why don't we have an incentive for them?
 - a. We have not found any independent third party evidence suggesting they save energy/money

- b. North America is the only place that still sell hot water tanks
- c. Potential for TG to partner up with manufacturers to find conclusive data
- 5) Audit (Eco-energy) project:
 - a. NRCan putting in \$225 million for project
 - b. Cost of the audit process is unnecessary. Some customers just want to purchase a new appliance and the government is spending all this money on an audit unnecessarily
 - i. The idea is that customers get the benefit of a 'whole home' audit. They will maybe upgrade other parts of their home.
- 6) Furnace scrap it- why do you need incentives?
 - a. We want to encourage early retirement.
 - Need to do market research prior to starting program design what do folks plan to do in the face of the introduction of the EE regulations
 - ii. Anecdotally we are hearing about stock piling of mid efficient furnaces
 - iii. Lots of people do not know about the regulation: we need to build awareness
 - b. Fundamental economics: to stop them from coming back into the market. Issue→ what is the curve/ resistance look like?
 - i. How long are the units going to be there?
 - ii. Portfolio level TRC
 - iii. Average furnace is in for 13 years
 - iv. Can we provide incentive for upgrading the infrastructure since new venting sometimes needs to be put in?
- 7) Scrap it program
 - a. How are the old furnaces disposed? Are they recycled? Will be investigated as part of program design.
 - b. Scrap it for boilers as well? Yes
 - c. Replace furnace \rightarrow very complex process
 - i. Need a consumer portal: average customer can get info easily
 - d. Many of the program application processes are also too complex and admin heavy for contractors (too much bureaucracy)
 - e. Lighting program has been successful but struggled at the beginning
 - i. There is a balance between simplicity and due diligence (spending money wisely)

Ramsay Cook, EEC Program Manager, Commercial Commercial Programs

- 1) What is the market momentum with efficient hot water heaters?
 - a. Biggest barrier is the upfront capital cost
 - b. Lack of awareness that there is an economic Net Present Value
 - c. Tankless water heaters are covered as long as they are energy efficient (94%)
 - d. Incentives are significant enough to consider uptake
 - e. Working on simplifying process
- Commissioning- some LEED buildings are using more energy as a result of operations
 - a. LEED study- some LEED buildings are using up to 27% more energy than standard buildings

- b. There is a current misconception of what LEEDS is → LEED ≠ energy efficient. Building may be LEED for proximity to transportation, building materials, etc.
- 3) What about a Pre Rinse Spray Valve program for restaurants?
 - a. Terasen Gas ran a Pilot Program in the Interior and Okanagan in 2009
 - b. Best run in geographic pockets
 - c. Currently are running some measurement and verification tests for the Okanagan spray valve program

Ned Georgy, EEC Program Manager, Conservation for Affordable Housing Conservation for Affordable Housing Programs

- 1) What are the opportunities in First Nation new housing?
 - a. Terasen's focus has been retrofits in current housing due to high energy savings
 - b. Build housing through Canada Mortgage and Housing Corp on tight budgets (\$40K)
 - c. Usually multiple homes, which has economies of scale
 - d. But contractors are forced to choose cheapest routes
- 2) First Nations talk to each other, work with administrator
- 3) How do you get program participation in First Nations?
 - a. Lots of forums
 - b. Lots of social marketing and word-of-mouth
- Many manufacturers have programs tailored to low income households → the problem is clarifying what project qualifies
 - a. There is a potential for partnership with Terasen
 - b. The larger the savings, the more willing manufacturers are to participate
- 5) Good idea to let administrators know about programs because they hire contractors
- 6) Criteria for programs
 - a. Need regulatory reform on new projects
 - b. Gear programs to zoning/regulation change
 - c. e.g. Habitat for humanity in Saanich
 - d. caution of stepping into world of social policy tools because we are an investor-owned utility
- 7) Who is the target audience in conservation for affordable housing?
 - a. Certain percentage are provided by public housing and social conscience or are renters
 - b. Energy Savings Kits \rightarrow not expensive for us to produce
 - c. Energy Conservation Assistance Program → some mechanisms in place for landlord to sign contract to not increase rent
 - d. Problem \rightarrow slum landlords
 - i. Get landlord advisory (residential tenancy branch) involved
 - ii. Rent controls provide some incentive (increase margins).
 - e. There are many associations out there: Rental Owners and Managers Society of BC, BC Hydro split incentives group

Gary Lengle, EEC Program Manager, Qualified Dealer Program Efficiency Partners Program

- 1) Challenges in up-selling energy efficient appliances:
 - a. Consumers feel the contractor is trying to up-sell them
 - b. Consumers have more info thanks to the internet and are educated
 - c. Customers trust utilities. Having the Terasen brand will give some credibility
- 2) Can we roll out programs earlier than Q4? Even if it's not perfect?

Jenny Chia, EEC Communications, Education & Outreach Manager Conservation Education, and Outreach

- 1) Can Terasen attend Victoria Spring Home Show?
 - a. Not this year. Simply a matter of lack of resources and Olympic timing (hard to commute)

Sarah: Follow up items:

- 1) Determine if there are additional stakeholders to include
- 2) File BCUC report \rightarrow need feedback on report in January
- 3) Going to schedule two meetings in 2010 (March and Sept)
- 4) What additional information does the group need?
- 5) Terasen budgets are not entirely committed \rightarrow open to ideas
- 6) Jenny to send out survey on ideas, feedback, etc.



Energy Efficiency and Conservation Innovative Technologies

Doug Tufts and Arvind Ramakrishhnan

Terasen Gas. A Fortis company.
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



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



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





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.

	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
РСТ	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.

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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



TGI

Programs	TRC Ratios	Program costs	
	2010 2011	1 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	5,000
Portfolio level-TGI	1.2 1.2	\$1,928,500 \$3,895,500 \$5,824	,000

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TGVI

Programs	TRC Ratios		Program costs	
	2010 20	1 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

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Portfolio Level summary(TGI, TGVI)

000000	Dortfolio Ioval TDC	Program Costs(\$)				
company		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

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Innovative Technologies –TGVI Break up^{rerasen}

2010						Ratios	
		per partic	ipant		PCT	RIM	TRC
Innovative Technologies	<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 partic	ipant		PCT	RIM	TRC
Innovative Technologies	<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	erasen Gas.	A Fortis con	ipany.



Innovative Technologies –TGI Break up

2010					Ratios		
		per partici	pant		PCT	RIM	TRC
Innovative Technologies	participants	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 partici	pant		PCT	RIM	TRC
Innovative Technologies	participants	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	asen Gas. A	Fortis comp	anv

Innovative Technologies



Innovative Technologies Portfolio

				Total
	Estimated	Alternative	Measure	Incremental
<u>Programs</u>	savings(GJ)	savings	Life	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

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TGVI with partner costs included

Programs	TRC Ratios		Program costs	
	2010 201	1 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

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TGI with partner costs included

Programs	TRC Ratios	Program costs	
	2010 201	1 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

<u>Terasen Gas Energy Efficiency & Conservation Stakeholder Meeting</u> <u>March 11, 2010</u>

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 – Tseshaht 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
Jenny Chia
Ken Ross
Gary Lengle
Michelle Petrusevich
Arvind Ramakrishhnar
Shawn Hill

Ned Georgy Ramsay Cook Sarah Smith John Turner Doug Tufts Mark Grist

John Turner Alternative Energy Solutions

(no questions)

Doug Tufts Arvind Ramakrishhnan 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 TGVI?

a. Dollars is proportionally based on the # of customers we have on TGVI

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 Petrusevich Structure and Overview of EEC report

(no questions)

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 TGVI

Whole Home program – under joint initiatives in the report.

Hot water tank program – hard to get industry information, such as lit 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 no 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)

Jenny Chia Conservation Education & Outreach

Q: Co-op on tradeshows?

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 Tseshaht 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

Natural Gas Vehicle Program for BC





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



Source: LiveSmart BC website (2006)

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BC's Motor Fuels Market





NGVs: A Proven Technology Worldwide Leading players based in BC



Terasen

FORTISBC

Historical Diesel Pricing vs. NG (DLE)



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







FORTISBC



Terasen Gas. A Fortis company.

Market Penetration Forecast





FORTISBC

GHG Implications

- 17% of diesel demand can be replaced by natural gas under this scenario by 2030
- GHG savings of 865,000 tonnes CO2e by 2030
 - Equivalent to displacing 368 million litres of diesel
 - Equivalent to taking 165,000 passenger cars off the road





FORTISB

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

FORTISBC

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	Number of	TRC	Displaced Diesel	Annual GHG Savings	
	Туре	Vehicles		Volume (L/yr)	(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)



FORTISB

Questions?





CNG **Proposed TGI Service Offering** Customer **Current TGI Service** (1) Natural Gas Supply (2) Compression Dispensing (3) Vehicles Operating & on CNG **Gas Supply to Meter Compression & Dispensing** LNG **Proposed TGI Service Offering** Customer **Current TGI Service**

Current TGI ServiceProposed rol service OfferingCustomerImage: Current TGI ServiceImage: CustomerImage: CustomerImage: Current TGI ServiceImage: Current



FORTISBC

CNG Fleet & Station (Seattle)





LNG Example – Low Volume Applications

• LNG Pricing (FOB Tilbury Tank)

Commodity (Avg. Sumas Index)	\$4.27/GJ
 Terasen Tariff 	\$3.89/GJ
 Fuelling Station Charge 	\$6.00/GJ
 LNG Delivery 	\$0.67/GJ
Carbon Tax	<u>\$0.99/GJ</u>
• TOTAL	\$15.97/GJ
 Diesel Litre Equivalent 	\$0.62 /DLE (converted)
Diesel Price (excludes GST)	\$0.92 /litre

*Note: GST/HST not included for either fuel – flow through cost

Upfront capital cost is still barrier.



NG is Less Carbon Intensive Than Conventional Fuels

Fuel	Base Carbon Intensity (gms CO ₂ e /MJ)	Engine Efficiency Factor	Adjusted Carbon Efficiency (gms CO ₂ e /MJ)
Gasoline	90.56	1.0	90.56
Ultra Low Sulphur Diesel	93.56	1.2	77.97
CNG	62.16	1.1	56.51
CNG (Digester Gas)	-3.25	1.1	-2.95
LNG	61.69	1.2	51.41
LNG (Digester Gas)	-3.25	1.2	-2.71

Source: LCFRR Intentions Paper

- Conventional CNG has a net carbon intensity value that is 38% lower than reformulated gasoline and 28% lower than ultra-low sulphur diesel.
- Conventional LNG has comparable reductions in net carbon intensity



FORTISBO

BC's Motor Fuels Market



Motor fuels market is larger than electricity or natural gas markets in BC

Trucking sector is 45% of total – good target for GHG reductions



LNG Stations and Storage





FORTISBC





Terasen Gas EEC Stakeholder Meeting Minutes

Wednesday November 24, 2010

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 – Tseshaht 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 Jenny Chia Colin Norman Jim Kobialko Hakan Kok Gina Lego Ned Georgy Ramsay Cook Sarah Smith Mark Grist Doug Stout

Doug Stout, Corporate Overview (FortisBC Integration)

Question: What is the FortisBC debt/equity ratio? TG response: 60/40

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)

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 rerequested funding approval in our Revenue Requirement application later in 2009.

Terasen EEC Stakeholder Meeting Minutes November 24, 2010 Page 3

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/rightsizing, 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 \rightarrow 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 \rightarrow program targets (eg. EBP applications)
 - BC Hydro describes as Sector Enabling
 - -CHBA BA request
 - -CHOA?
- community energy manager \rightarrow 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 \rightarrow 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 \rightarrow 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

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, \$4.7 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 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 Terasen 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 (2009)

- March 11
 - Presentation of proposed Innovative Tech budget
 - Included budget projections for NGVs
- November 24th
 - 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. Surrey



EEC Incentives for NGV: Summary





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





FortisBC EEC Stakeholder Meeting Minutes

Tuesday March 15, 2011

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 – Tseshaht First Nation

FortisBC Staff

Beth Ringdahl Jenny Chia Colin Norman Jim Kobialko Hakan Kok Gina Lego Ned Georgy Ramsay Cook Sarah Smith Mark Grist Ryan Findlay 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.

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.

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