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March 30, 2012

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

Attention: Ms. Alanna Gillis, Acting Commission Secretary

Dear Ms. Gillis:

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

**Energy Efficiency and Conservation Program - 2011 Annual Report**

**British Columbia Utilities Commission (the "Commission") Decision dated April 16, 2009 and Order No. G-36-09 Compliance Filing**

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On April 16, 2009, the Commission issued its Decision and Order No. G-36-09 (the "Decision") on the Companies' Energy Efficiency and Conservation ("EEC") Application, approving funding for FEI and FEVI for 2009 and 2010 programs. In the Decision, the Companies were directed to file an annual EEC report on all of the EEC initiatives and activities, expenditures, and results by the end of the first quarter following year-end. Further funding for 2010-2011 was approved for each of the Companies in their respective 2010-2011 Revenue Requirements Applications and Negotiated Settlement Agreements approved by the Commission on November 26, 2009 for FEI by Order No. G-141-09 and FEVI by Order No. G-140-09.

In compliance with the EEC Application Decision, the Companies enclose their third annual report, the Energy Efficiency and Conservation Program – 2011 Annual Report (the "Report").

If you have any questions regarding the information contained in the Report, please contact Ken Ross, Integrated Resource Planning Manager at 604-576-7343. If you require further information about this submission in general, please contact the undersigned.

Yours very truly,

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

***Original signed:***

Diane Roy

Attachments

cc (email only): EEC Stakeholder Group


# FortisBC Energy Inc.
# FortisBC Energy (Vancouver Island) Inc.

# Energy Efficiency and Conservation Program - 2011 Annual Report

**March 30, 2012**

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# 1 REPORT OVERVIEW

## 1.1 Background

FortisBC Energy Inc. ("FEI") and FortisBC Energy (Vancouver Island) Inc. ("FEVI"), collectively referred to as the "Companies", have been involved with Energy Efficiency and Conservation ("EEC") since the 1990s[1]. The Companies' earlier EEC activities were referred to in previous regulatory filings with the British Columbia Utilities Commission (the "Commission" or the "BCUC") as Demand Side Management ("DSM") activities. On May 28, 2008, FEI (then TGI) and FEVI (then TGVI) collectively filed their EEC Programs Application (the "EEC Application"), seeking approval of increased funding of EEC programs for the timeframe of 2008-2010. On April 16, 2009, the Commission issued Order No. G-36-09 (the "EEC Decision"), which approved funding in aggregate of $41.5 million ($34.4 million for FEI and $7.1 million for FEVI). A further $32.35 million in EEC expenditure for FEI and $6.1 million for FEVI was approved on November 26, 2009 as part of the Negotiated Settlement Agreements ("NSAs") in the 2010-2011 Revenue Requirements Application ("RRA") for FEI and FEVI by Commission Order Nos. G-141-09 and G-140-09 respectively. The Companies have subsequently submitted requests for additional EEC funding as part of the 2012-2013 RRA, for which a decision is pending at this time.

This EEC Annual Report ("Report") differs in information, content and structure from the EEC Annual Reports for 2009 and 2010. The Report has been changed pursuant to discussions with Commission staff to make the document a more concise and focused submission. Previous Annual Reports contained additional background information which the Companies believe was appropriate due to the relative newness of the EEC spending increase and rapid expansion of EEC programs. The 2011 Annual Report builds on and refers back to the 2009 and 2010 Annual Report information and focuses on reporting EEC Program spending and results.

Further, in contrast to the Companies' 2009 and 2010 EEC Annual Reports, this Report outlines the Companies' actual results and expenditures for 2011 but does not cover any planned activities for the next year, as the Companies submitted a detailed 2012-2013 EEC Plan in the 2012-2013 RRA. The format of this Report relies more on detailed tables to demonstrate the results and expenditures.

As the Report will describe, the Companies are making appropriate use of the approved funds to promote EEC activities, which help customers save money and at the same time support the Province's energy policy goals.

[1] FortisBC Energy (Whistler) Inc. had not received approval from the Commission for EEC expenditures during the reporting period and is therefore not included in this report.

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

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

> *"A requirement that Terasen submit annually to the Commission, by the end of the first quarter following year-end, for each year of the funding period, a report on all EEC initiatives and activities, expenditures and results for TGI and TGVI."*[2]

Second, this Report outlines the Companies' achievements and activities in each Program Area and on a portfolio level as requested in the EEC Decision. Specifically, the Commission required that the following information be included in the EEC Annual Report:

> *"The Commission panel accepts Terasen's accountability undertakings, and considers that, while the proposal to evaluate the EEC project using the TRC test at the Portfolio level has been accepted, TRC calculations for each Program Area, initiative and measure should also be included in the accountability reporting as a means of assessing the components of the Project and their ongoing effectiveness.*
>
> *Commission Panel directs that the annual EEC Report include the following:*
>
> - *TRC, RIM, UC, and Participant test calculations of DSM at the Program Area initiative and individual measure levels in addition to the total Portfolio level reporting. Reporting of the Residential & Commercial EE Program Areas should also be made at the New Construction and Retrofit levels.*
> - *Any inter and intra Program Area initiative funding transfers, with supporting rationale, and the impact of such transfers on the transferor and transferee Program Areas, initiatives, and measures as the case may be.*
> - *Data for fuel switching programs should be tracked in a manner which allows for reporting types of fuels replaced by natural gas, including estimated GHG impacts.*
>
> *The Commission Panel also directs Terasen to include in its annual EEC Report to the Commission a discussion of its internal data gathering, monitoring and reporting control processes. The discussion should include a description of how these processes ensure that funds expended and the statistical results of the programs implemented are completely and accurately recorded and monitored, including any related internal check and audit processes. The report should also discuss how Terasen has measured or estimated the results of the EEC expenditure initiatives."*[3]

[2] EEC Decision, page 2
[3] Ibid, page 42

This Report provides TRC calculations and the remaining California Standard Practice Test results (RIM, Participant Cost Test, and Utility Cost Test) for the overall Portfolio and each Program Area in Section 2, and for each program or measure in the respective Program Area sections. There were no inter or intra Program Area funding transfers in 2011. Information on the Companies' data gathering, monitoring and reporting control processes is contained in Section 14.

### 1.3 Organization of the EEC Annual Report

The following describes how each section of the Report presents the results of 2011 EEC activities:

**Section 1: Introduction**

- Provides a high-level background for the Report.

**Section 2: EEC Portfolio Overview**

- Provides a summary and details regarding the actual 2011 expenditures for EEC activities, along with an explanation of the variance from original 2008 EEC Application approval as well as variations from spending projections as presented in the 2010 Annual Report.

**Section 3: EEC Stakeholder Group Activities**

- Provides information regarding EEC Stakeholder Group activities in 2011, including a summary of meetings and accountability considerations.

**Sections 4 - 10 provide information on:**

- Residential Energy Efficiency Program Area;
- High Carbon Fuel Switching;
- Low Income Program Area;
- Commercial Energy Efficiency Program Area;
- Innovative Technologies Program Area;
- Industrial Sector Energy Efficiency Program Area; and
- Joint Initiatives Program Area.

Each section contains one (1) table summarizing the projected and actual expenditures for the respective Program Area in 2011, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost test results. Actual 2011 spending and results are compared to planned spending and results as presented in the

2010 Annual Report.[4] Additional tables outline the specific 2011 programs, including program and measure descriptions as well as a breakdown of non-incentive spending. Any program closings or planned programs that were not launched are also included in these sections.

**Section 11: Conservation, Education and Outreach Program Area**

- Provides both summary and detail regarding actual 2011 expenditures for the Conservation, Education and Outreach Program Area.

**Section 12: Enabling Activities**

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

**Section 13: Program Evaluations Update**

- Provides both summary and detail regarding pending and actual expenditures for 2011 program evaluations.

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

- Provides an update on the implementation of the Companies' DSM Tracking System, and a high level description of the Companies' internal approval process for programs.

### 1.4 Summary

This Report is intended to meet one of the accountability mechanisms originally put forth by the Companies in the EEC Application. It is intended to detail spending and program results for the 2011 initiatives in a transparent and open manner. In providing these results, this Annual Report has been simplified from previous years' reports. The Companies have laid a good foundation for future EEC activity, and look forward to implementing and continuing to grow the EEC initiative through 2012 and beyond.

[4] Planned spending (2011 Projections) may differ from those indicated in the 2010 EEC Annual Report as programs that were planned but not launched have been excluded from the 2011 Program Overview tables.

# 2 PORTFOLIO OVERVIEW

In this Section, the Companies provide their EEC energy savings, expenditures and cost benefit test results on an overall portfolio level for 2011. A summary of the overall portfolio results is provided in Table 2.1. It should be noted that gas savings reported throughout this document are net of free ridership, and do not incorporate spillover effects; nor do the savings reported reflect any attribution of savings due to the introduction of any regulations. As such, the savings reported, in the Companies' view, are lower than the savings experienced in the marketplace as a result of the Companies' EEC activity.

**Table 2.1: Overall EEC Portfolio Results for 2011**

| Indicator - 2011 Results | | Service Territory | | Total |
|---|---|---|---|---|
| | | FEI | FEVI | |
| Annual Gas Savings (GJ/yr.) | | 204,202 | 42,000 | 246,202 |
| NPV of Gas Savings (GJ) | | 1,559,178 | 255,179 | 1,814,357 |
| Utility Expenditures, Incentives ($000s) | | 5,669 | 1,448 | 7,117 |
| Utility Expenditures, Non-Incentives ($000s) | | 7,668 | 1,397 | 9,065 |
| Utility Expenditures, Total ($000s) | | 13,337 | 2,845 | 16,182 |
| Benefit/Cost Ratios | TRC | 0.9 | 1.0 | 0.9 |
| | Utility | 1.3 | 0.8 | 1.2 |
| | Participant | 2.8 | 5.4 | 3.2 |
| | RIM | 0.6 | 0.3 | 0.5 |

Notes:

- The summary data in Table 2.1 is calculated across the entire portfolio and includes the innovative technologies portfolio.
- The gas savings reported in Table 2.1 include the impacts of the residential fuel switching program (Switch 'n Shrink – see Section 5) from higher carbon fuels to natural gas.

Table 2.2 provides the TRC results by Program Area for both the conventional EEC portfolio (defined as all EEC activity outside the Innovative Technology Program Area), and for the Innovative Technology Program Area.[5]

[5] Recent changes to the Province's Demand Side Measures Regulation (the "DSM Regulation") are expected to impact how the results for the Innovative Technology Program Area are reported in future annual reports. Due to the changes in the DSM Regulation, Innovative Technology programs that meet the definition set out in the Regulation are to be considered a specified demand-side measure and are not required to pass conventional cost-benefit tests. Instead, the cost effectiveness of Innovative Technology programs are to be determined by the overall cost effectiveness of the portfolio. The regulations are found at : http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/10_326_2008

Table 2.2: Overall EEC Portfolio Level Results by Program Area

| Portfolio and Service Territory | Annual Gas Savings (GJ/yr.) | | NPV Gas Savings (GJ) | Utility Expenditures ($000s) | | | | | | Benefit/Cost Ratios | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incentives | | Non-Incentives | | All Spending | | | | | |
| | 2011 Projected | 2011 Actual | | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | TRC | Utility | Participant | RIM |
| Portfolio Level Activities | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | 6,123 | 3,790 | 6,123 | 3,790 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | 1,008 | 752 | 1,008 | 752 | | | | |
| Total | | | | N/A | N/A | 7,131 | 4,542 | 7,131 | 4,542 | | | | |
| Residential Sector | | | | | | | | | | | | | |
| FEI | 17,030 | 14,034 | 123,767 | 1,473 | 1,055 | 589 | 632 | 2,062 | 1,687 | 0.7 | 0.8 | 15.6 | 0.4 |
| FEVI | 4,258 | 2,976 | 27,123 | 343 | 205 | 129 | 122 | 472 | 327 | 0.9 | 0.9 | 80.0 | 0.4 |
| Total | 21,288 | 17,010 | 150,890 | 1,816 | 1,260 | 718 | 754 | 2,534 | 2,014 | 0.8 | 0.8 | 19.4 | 0.4 |
| High Carbon Fuel Switching | | | | | | | | | | | | | |
| FEI | (1,720) | (2,021) | (20,111) | 100 | 94 | 21 | 0 | 121 | 94 | 1.9 | N/A | 2.4 | 0.7 |
| FEVI | (6,880) | (7,160) | (72,593) | 320 | 333 | 83 | 22 | 403 | 355 | 1.8 | N/A | 1.7 | 0.9 |
| Total | (8,600) | (9,181) | (92,704) | 420 | 427 | 104 | 22 | 524 | 449 | 1.8 | N/A | 1.8 | 0.9 |
| Joint Initiatives | | | | | | | | | | | | | |
| FEI | 76,330 | 45,717 | 483,353 | 2,429 | 1,079 | 514 | 339 | 2,943 | 1,418 | 1.2 | 3.7 | 2.0 | 0.7 |
| FEVI | 8,736 | 2,803 | 29,612 | 250 | 58 | 91 | 76 | 341 | 134 | 1.0 | 2.4 | 1.9 | 0.7 |
| Total | 85,066 | 48,520 | 512,965 | 2,679 | 1,137 | 605 | 415 | 3,284 | 1,552 | 1.2 | 3.6 | 2.0 | 0.7 |
| Low Income | | | | | | | | | | | | | |
| FEI | 10,815 | 11,082 | 67,920 | 1,170 | 260 | 868 | 320 | 2,038 | 580 | 1.5 | 1.5 | 58.7 | 0.7 |
| FEVI | 2,704 | 2,073 | 12,430 | 292 | 31 | 216 | 57 | 508 | 88 | 1.8 | 1.8 | N/A | 0.6 |
| Total | 13,519 | 13,155 | 80,350 | 1,462 | 291 | 1,084 | 377 | 2,546 | 668 | 1.5 | 1.6 | 73.4 | 0.7 |
| Commercial Sector | | | | | | | | | | | | | |
| FEI | 114,974 | 117,754 | 752,270 | 2,697 | 2,372 | 109 | 322 | 2,806 | 2,694 | 1.7 | 3.0 | 4.4 | 0.8 |
| FEVI | 16,034 | 39,092 | 233,062 | 407 | 646 | 24 | 107 | 431 | 753 | 1.2 | 2.8 | 8.3 | 0.4 |
| Total | 131,008 | 156,846 | 985,332 | 3,104 | 3,018 | 133 | 429 | 3,237 | 3,447 | 1.6 | 3.0 | 5.2 | 0.7 |

**Table 2.2: Overall EEC Portfolio Level Results by Program Area (continued)[6]**

| Portfolio and Service Territory | Annual Gas Savings (GJ/yr.) | | NPV Gas Savings (GJ) | Utility Expenditures ($000s) | | | | | | Benefit/Cost Ratios | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incentives | | Non-Incentives | | All Spending | | | | | |
| | 2011 Projected | 2011 Actual | | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | TRC | Utility | Participant | RIM |
| Conservation, Education, and Outreach | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | 2,890 | 2,005 | 2,890 | 2,005 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | 648 | 242 | 648 | 242 | | | | |
| Total | | | | N/A | N/A | 3,538 | 2,247 | 3,538 | 2,247 | | | | |
| Industrial Sector | | | | | | | | | | | | | |
| FEI | 70,000 | Program Development Only | | 520 | 20 | 53 | 139 | 573 | 159 | Program Development; Results Not Available | | | |
| **TOTAL CONVENTIONAL PORTFOLIOS** | | | | | | | | | | | | | |
| **FEI** | **287,429** | **186,566** | **1,407,199** | **7,869** | **4,880** | **11,114** | **7,547** | **18,983** | **12,427** | **0.9** | **1.3** | **3.3** | **0.6** |
| **FEVI** | **24,852** | **39,784** | **229,634** | **1,612** | **1,273** | **2,199** | **1,378** | **3,811** | **2,651** | **1.1** | **0.8** | **8.3** | **0.3** |
| **Total** | **312,281** | **226,350** | **1,636,833** | **9,481** | **6,153** | **13,313** | **8,925** | **22,794** | **15,078** | **1.0*** | **1.2** | **4.0** | **0.5** |
| Innovative Technologies | | | | | | | | | | | | | |
| FEI | 1,878 | 17,636 | 151,979 | 145 | 789 | 31 | 121 | 176 | 910 | 0.7 | 2.0 | 1.3 | 0.7 |
| FEVI | N/A | 2,216 | 25,545 | 5 | 175 | 0 | 19 | 5 | 194 | 0.3 | 1.5 | 0.7 | 0.6 |
| Total | 1,878 | 19,852 | 177,524 | 150 | 964 | 31 | 140 | 181 | 1,104 | 0.7 | 1.9 | 1.2 | 0.7 |
| **ALL PORTFOLIOS** | | | | | | | | | | | | | |
| **FEI** | **289,307** | **204,202** | **1,559,178** | **5,585** | **5,669** | **1,618** | **7,668** | **7,203** | **13,337** | **0.9** | **1.3** | **2.8** | **0.6** |
| **FEVI** | **24,852** | **42,000** | **255,179** | **1,367** | **1,448** | **452** | **1,397** | **1,819** | **2,845** | **1.0** | **0.8** | **5.4** | **0.3** |
| **Total** | **314,159** | **246,202** | **1,814,357** | **6,952** | **7,117** | **2,070** | **9,065** | **9,022** | **16,182** | **0.9** | **1.2** | **3.2** | **0.5** |

[6] Any differences in Totals between Table 2.2 and the Program Area sections is due to rounding.

Notes:

- * The total conventional portfolio TRC result is 1.0, thereby meeting the target. The Companies typically report cost-benefit results at one decimal point, however if two decimal places are used the total conventional portfolio is 0.96. In the spirit of full transparency the Companies wish to note this rounding effect.
- Portfolio Level Activities are those activities for which the costs cannot be assigned to an individual Program Area such as: the Conservation Potential Review (CPR), the program tracking tool, Enabling Activities, EEC Stakeholder Activities, and EEC Energy Solutions Managers.
- Innovative Technologies - NGV incentives removed from 2011 reporting consistent with Commission Orders G-6-11 and G-128-11.

## 2.1 Portfolio Level and Innovative Technologies TRC Results

For 2011, the Companies' overall conventional EEC portfolio has a TRC ratio of 1.0; the result for FEI is 0.9 and for FEVI, the result is 1.1. The Companies believe that this is a commendable result and are happy with the progress made in the EEC programs.

There are many effects which if recorded or accounted differently would have a further positive effect on the TRC resulting in a value greater than 1.0 for the conventional portfolio; these are noted below.

- **Net to Gross Ratio** - The Net-to-Gross ratio that the Companies are using to report energy savings from EEC activity is highly conservative in that it includes free ridership impact which serves to reduce reported energy savings, but does not include the energy savings benefits of spillover effect or attribution of savings from the introduction of government regulations supported by EEC activity. In the future, the Companies intend to begin incorporating spillover and attribution from regulation into their reporting of energy savings impacts from EEC activity[7].
- **Ramp Up** - Through 2011, the Companies remained in a period of ramp-up or development for the expanded EEC portfolio. As such, there were some costs applied to the Portfolio level, including $292,000 for development of the new DSM Tracking tool development and $278,000 for the Conservation Potential Review studies. There are no direct energy savings offsetting the impact of these costs to the portfolio-level results, yet these are expenditures that provide ongoing value to the overall portfolio. Without the ability to spread the reporting of these types of costs over multiple years to match the period that they benefit the Portfolio, acquiring these important resources will always have an added downward impact on the reported TRC in the year that they occur.

[7] A request for inclusion of spillover effects in reporting energy savings has been made in the Companies' 2012-2013 Revenue Requirement Application.

The Companies' early ramp-up period challenges have also impacted the amount of incentives that the Companies have been able to deliver to customers in 2011, causing a short term imbalance in the amount of incentive and non-incentive spending across the entire portfolio[8], while on a program by program basis for most of the incentive based programs, incentive spending has been greater than non-incentive spending.

- **Evaluation, Measurement and Verification** - The Companies committed $535,000 (see table 13.1) across all Program Areas. This expenditure has no direct energy savings to offset the impact of these costs to the overall portfolio results.

- **"Unlaunched" Programs** - There were 2011 program level development costs in some Program Areas for programs that were not formally launched in 2011 but will be launched in 2012. No direct energy savings can be attributed to such costs in 2011; however, savings are expected to be substantial over the life of the program. Examples include the Low Income Energy Conservation Assistance Program in which $110,000 (see Section 7) of development costs were spent in 2011 for a 2012 launch, the Residential EnerGuide 80 Program and Pilot with $57,000 of program development spending in 2011 (see Section 4), and the Residential Energy Efficiency Financing Program development with $16,000 in program development spending in 2011. Although there is currently no mechanism to do so, the ability to report such costs in the launch year for the program would reduce the temporary skewing of the cost benefit results (note that since these costs will not be reported against energy savings in 2012 there will be an upward impact on the TRC in the year the program is launched).

- **Conservation, Education and Outreach** - had costs of more than $2.2 million. These activities do result in energy savings and yet, since these savings remain difficult to calculate, the Companies do not currently attribute energy savings to them.

- **Enabling Activities Program** - similarly had program costs of $1.2 million in 2011 that contribute to energy savings that are not attributed to program spending. For example the majority of these costs ($900,000) was spent on the Energy Specialists Program which funds energy efficiency specialists to work for customers to achieve energy savings. Energy savings that will grow over time are certainly created from the Specialists' work but are difficult to quantify and therefore not attributed to the spending.

- **Market Environment** - The relatively low gas price[9] and the economic conditions experienced through 2011 have likely had an impact on customers' willingness to invest in natural gas energy efficiency activities, and created a drag on program participation growth. Changes to DSM regulations will help to mitigate this effect.

[8] One of the Companies' EEC Principles is to keep non-incentive costs less than or in line with incentive costs at a Portfolio level.

[9] The Companies avoided cost of gas for cost-benefit calculations in 2011 was $7.32/GJ.

- **Non Incentive Expenditures** - The non-incentive expenditures include research costs such as studies and memberships as well as measurement and monitoring costs. While it is common that pilots don't pass the cost benefit test, they do play an important role in encouraging innovation and the longevity of portfolio savings. The Provincial government recognized this important benefit in its recent amendments to the Demand Side Measures Regulation that designate innovative technology programs as a specified demand-side measure and removing the requirement for specified measures to pass cost-effectiveness tests going forward.

Innovative Technology portfolio in 2011 resulted in a TRC below 1.0 for both FEI and FEVI. There are four reasons for this result:

1. Innovative technology programs involve measures that by nature have a low market penetration rate resulting in high equipment and installation costs against which to attribute energy savings.

2. Much of the activity in Innovative Technologies is pilot activity, which by its very nature has a small participant sample size realizing gas savings combined with a high fixed non-incentive expenditure.

3. The Companies have taken a conservative approach in estimating the gas savings from the measures under review in Innovative Technologies activity.

4. As noted, the NGV incentive program, which had a high TRC and substantial planned spending, were removed from the EEC Portfolio. Removing the positive TRC results for NGV incentives from the portfolio created an additional challenge for the rest of the Innovative Technology portfolio activities, many of which were underway when the decision to remove NGV from the portfolio was made, to meet a combined TRC of 1.0.

## 2.2 Portfolio Variance Explanation

Tables 2.1 and 2.2 above compare the actual spending and results to the 2011 plan presented in the 2010 Annual Report. A further variance that should be explained is that between the spending levels approved by the Commission in 2009 and actual spending in 2011. This variance explanation has been fully documented in the Companies' 2012-2013 RRA and is summarized below.[10]

The Companies received initial approval for an increase in EEC activity in May 2009, and current expenditure levels were approved in late November 2009. The approval received in the 2008 EEC Application and the 2010-2011 RRA increased the total amount of DSM funding available from approximately $4.5 million annually for the Mainland and Vancouver Island service territories prior to May 2009 to $31.0 million in 2010 and $35.3 million in 2011.

[10] For a detailed explanation of this issue see: FEU 2012-2013 RRA, Exhibit B-9, Response to BCUC IR 1.192.1

This substantial increase in funding required a "ramping up" period, with the addition and training of new staff. The Companies added human resources over the summer of 2009, and again in the late spring/summer of 2010. As EEC expertise is a fairly rare commodity in the marketplace, it took a significant amount of time to train the new staff, on the natural gas distribution business and on EEC. The Companies are currently in the process of increasing the staffing levels within the EEC group again, having recognized that current staffing levels are not adequate to develop and deploy all of the potential programs made possible by the increased approved expenditure levels.

Another key factor in the Companies not spending to approved levels was the economic downturn, and a degree of uncertainty within the marketplace created by changes in government programs. The Companies believe that with staffing levels more aligned with the degree of EEC activity made possible by the increased funding approval levels, more programs and initiatives will be developed and deployed, higher numbers of customers will participate in the Companies' programs and activities. Therefore, actual spending levels should meet approved expenditure levels.

### 2.3 Compliance with Adequacy Requirements in the Demand Side Measures Regulation

The DSM regulation has the following requirements for a utility's portfolio of EEC activity to be considered adequate:

> *"A public utility's plan portfolio is adequate for the purposes of Section 44.1 (8) c of the Act only if the plan portfolio includes all the following:*
>
> *a) A demand-side measure intended specifically to assist residents of low-income households to reduce their energy consumption;*
> *b) If the plan portfolio is introduced on or after June 1, 2009, a demand-side measure intended specifically to improve the energy efficiency of rental accommodations;*
> *c) An education program for students enrolled in schools in the public utility's service area;*
> *d) If the plan portfolio is submitted on or after June 1, 2009, an education program for students enrolled in post-secondary institutions in the public utility's service area."*

The Companies believe that they have met all the requirements for adequacy. There are a number of programs for low income customers, which are discussed in their own section (see Section 6). A number of the commercial programs are intended for use by owners of rental buildings (see Section 7). Similarly, all residential programs are available to rental properties.

In terms of education programs, the Companies fund a variety of initiatives for K-12 students, including BC Green Games, BC Lions Energy Champion School Assembly Presentations, Beyond Recycling, and post-secondary student engagement, encouraging post-secondary students to learn and apply their knowledge of natural gas energy conservation through interactive and fun competitions (see Section 11).

## 2.4 Summary

The Companies are proud that they have achieved the overall portfolio TRC of 1.0 including both conventional and innovative technologies EEC activity. Although the Companies did not reach the approved levels of expenditure for 2011, significant progress was made toward laying a strong foundation for future growth in EEC activity. The Companies are of the view that both the portfolio and the resulting TRC are conservative and benefits from additional activities, such as conservation education and outreach, play a very important role in supporting the development and delivery of programs, as well as in creating a culture of conservation in British Columbia. Additionally, the Companies continue to focus on acquiring the human resources necessary to deliver EEC programs to approved expenditure levels to our customers. The Companies expect that with a more complete approach to the Net-to-Gross ratio, and with the recent changes to the DSM regulation, cost-effectiveness of the EEC portfolio will be positive.

# 3 EEC STAKEHOLDER GROUP ACTIVITIES

The Companies continue to host an active EEC Stakeholder Group ("Stakeholder Group") as part of the accountability mechanisms established during the 2008 EEC Application regulatory review process.[11] This group consists of approximately 30 external stakeholders drawn from groups that have historically intervened in the Companies' regulatory proceedings, and from industry organizations, trade allies, the BC government, municipalities, non-government organizations, customer group representatives and BCUC staff. While the Companies strive to maintain consistent and ongoing participation throughout this group, the total number of stakeholders can fluctuate with some turnover and new members joining from time to time.

Annual spring and fall meetings of the Stakeholder Group were held in 2011 on March 15 and November 22 in Vancouver. Two of the primary objectives of the spring meeting were reviewing and discussing the Companies' Conservation Potential Review study results and proposed 2012-2013 EEC Funding request that was being prepared for submission in the 2012-2013 RRA. Status updates and results of 2010 EEC activities by Program Area was also provided to the Stakeholder Group at this meeting. Stakeholder Group understanding and support for FEI's Natural Gas for Transportation initiative (a high carbon to low carbon Fuel Switching program) was also sought during this meeting.

In the fall meeting, the Companies presented and discussed a draft Terms of Reference document for the EEC Stakeholder Group and compared the draft Terms of Reference to other jurisdictions. In general, stakeholders felt that the group's role in the Companies' accountability mechanism of the Stakeholder Group should be better explained and understood with an emphasis on the process by which feedback is sought and tracked, and more interactive meeting formats. The Stakeholder Group indicated that they did not want such a detailed, restrictive and binding Terms of Reference as can be found in the Ontario Energy Board example. Continued refinements of the Companies' draft Terms of Reference were requested.

During the fall meeting, a representative of the Ministry of Energy and Mines spoke to the Stakeholder Group about a number of BC Government initiatives in energy efficiency and conservation. Initiatives presented included an update on LiveSmartBC, a potential efficiency financing program in conjunction with utilities, DSM regulation amendments under consideration at that time, potential standards amendments, efficiency labeling pilot programs and industrial energy efficiency. Finally, the Companies provided updates on their regulatory activities related to EEC and 2011 EEC achievements. A post-meeting survey focused on preferred future meeting formats and feedback mechanisms is helping to improve stakeholder meeting design going forward.

[11] In BCUC Order G-36-09, the Commission accepted the Companies' proposal for accountability mechanisms which included the forming and engaging of "…an EEC stakeholder group with membership representing a broad cross section of stakeholders identified in the Application." (page 41 of the EEC Decision)

Costs for conducting these two annual meetings are included in the Portfolio Level Activities expenditure in Table 2.2 of this Report. Copies of all materials and minutes for these meetings have been distributed to all members of the EEC Stakeholder Group.

# 4 RESIDENTIAL ENERGY EFFICIENCY PROGRAM AREA

## 4.1 Overview

The Residential Energy Efficiency Program Area provides value to customers by encouraging households to reduce their overall consumption of natural gas and manage their energy bills. Residential programs serve over 850,000 households in the FEI and FEVI service territories for home retrofit applications. New construction applications are under development. For EEC purposes, these customers include end-use customers living in a residential single-family home, row house, townhouse or mobile home.[12]

Residential programs, in combination with the Companies' education and outreach activities, are an important component in driving the culture of conservation in the Province. Table 4.1 summarizes the projected and actual expenditures for all Residential programs in 2011, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost test results. A program by program breakdown follows.

[12] Programs for Multifamily Dwellings served under Rate Schedule 2 or 3 are included in the Commercial Energy Efficiency Program Area (please refer to Section 7)

**Table 4.1: 2011 Residential Energy Efficiency Program Area Results Summary**

| Program and Service Territory | Annual Gas Savings (GJ/yr.) | | Actual NPV Gas Savings (GJ) | Utility Expenditures ($000s) | | | | | | Benefit/Cost Ratios | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incentives | | Non-Incentives | | All Spending | | | | | |
| | 2011 Projected | 2011 Actual | | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | TRC | Utility | Participant | RIM |
| Non Program Specific Expenses | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | 160 | 105 | 160 | 105 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | 40 | 24 | 40 | 24 | | | | |
| Total | | | | N/A | N/A | 200 | 129 | 200 | 129 | | | | |
| Energy Efficient Residential Hot Water Heater Storage Tank Program (0.62 EF Water Heater Program) | | | | | | | | | | | | | |
| FEI | 5,722 | 3,878 | 32,141 | 429 | 161 | 138 | 211 | 567 | 372 | 0.7 | 0.9 | 4.0 | 0.5 |
| FEVI | 1,430 | 226 | 1,897 | 107 | 10 | 34 | 21 | 141 | 31 | 0.5 | 0.7 | 5.6 | 0.3 |
| Total | 7,152 | 4,104 | 34,038 | 536 | 171 | 172 | 232 | 708 | 403 | | | | |
| EnerChoice Fireplace Program | | | | | | | | | | | | | |
| FEI | 11,309 | 10,156 | 91,626 | 576 | 382 | 117 | 116 | 693 | 498 | 2.0 | 2.0 | N/A | 0.7 |
| FEVI | 2,827 | 2,750 | 25,226 | 144 | 113 | 29 | 38 | 173 | 151 | 1.8 | 1.8 | N/A | 0.5 |
| Total | 14,136 | 12,906 | 116,852 | 720 | 495 | 146 | 154 | 866 | 649 | | | | |
| "Give your Furnace/Fireplace Some TLC" – Service Campaign | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | 368 | 511 | 120 | 95 | 488 | 606 | No Direct Savings | | | |
| FEVI | | | | 92 | 82 | 26 | 23 | 118 | 105 | | | | |
| Total | | | | 460 | 593 | 146 | 118 | 606 | 711 | | | | |
| Residential High Efficiency Water Heater Pilot Program | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | 0 | N/A | 47 | N/A | 47 | No Direct Savings | | | |
| FEVI | | | | N/A | 0 | N/A | 0 | N/A | 0 | | | | |
| Total | | | | N/A | 0 | N/A | 47 | N/A | 47 | | | | |
| EnerGuide 80 New Construction Program and Pilot | | | | | | | | | | | | | |
| FEI | N/A | Program development only in 2011 | | 100 | 0 | 54 | 45 | 154 | 45 | Program development only in 2011 | | | |
| FEVI | N/A | | | 0 | 0 | 0 | 12 | 0 | 12 | | | | |
| Total | N/A | | | 100 | 0 | 54 | 57 | 154 | 57 | | | | |
| Financing Program Development | | | | | | | | | | | | | |
| FEI | N/A | Program development only in 2011 | | N/A | 0 | N/A | 13 | N/A | 13 | Program development only in 2011 | | | |
| FEVI | N/A | | | N/A | 0 | N/A | 3 | N/A | 3 | | | | |
| Total | N/A | | | N/A | 0 | N/A | 16 | N/A | 16 | | | | |
| **ALL PROGRAMS** | | | | | | | | | | | | | |
| **FEI** | **17,031** | **14,034** | **123,767** | **1,473** | **1,054** | **589** | **632** | **2,062** | **1,686** | **0.7** | **0.8** | **15.6** | **0.4** |
| **FEVI** | **4,257** | **2,976** | **27,123** | **343** | **205** | **129** | **121** | **472** | **326** | **0.9** | **0.9** | **80.0** | **0.4** |
| **Total** | **21,288** | **17,010** | **150,890** | **1,816** | **1,259** | **718** | **753** | **2,534** | **2,012** | **0.8** | **0.8** | **19.4** | **0.4** |

Notes:

- 2011 projections for the 0.62 EF Efficient Water Heater Program are higher than actual program results because the projections were based on the expectation that ENERGY STAR® technologies would have been introduced into the program in Q3 or Q4 2011. The delay was in incorporating these technologies was due to low TRC results and the new program is on hold pending approval for 2012-2013 EEC funding requested in the 2012-2013 RRA.
- 2011 non-incentive spending is higher than 2010 projections due to the fact that dealer incentives were transferred from incentives in 2010 to non-incentive spending in 2011. Dealer Sales Promotion Incentive Fund (SPIF) is provided to the dealer and not the participant.
- 2011 actuals for the TLC Furnace Servicing program are higher than projected because the Companies added Fireplace servicing to the program and saw excellent engagement by contractors to promote the program.
- 2011 actuals for the EnerGuide 80 New Construction Program and Pilot were lower than projected because the program launch was delayed due to low TRC results. The program is on

hold pending approval of the FortisBC 2012-2013 EEC Plan. In addition, pilot program incentives will not be paid until 2012.

- Energy Efficiency Financing Program Development – This financing program is mandated by amendments to the BC Clean Energy Act and promotes energy efficiency home retrofits with no up-front costs to participants. The program is designed to integrate with LiveSmart BC and involves collaboration with utility partners.[13] The Companies are working on a pilot initiative to test financing concepts and expect to launch their pilot in 2012.

## 4.2 Residential TRC Results

Although Residential programs are challenged in meeting a conventional TRC test in a low gas cost environment, EEC Program Principles state that programs will have a goal of being universal, offering access to energy efficiency and conservation for all residential and commercial customers. Residential programs, in combination with the Companies' education and outreach activities, are an important component in driving the culture of conservation in the Province. The 2011 TRC is below 1.0 due to the incorporation of two programs: the water heater program, which does not pass the TRC but which was the first component of water heater market transformation; and the TLC Furnace Servicing program, for which energy savings are not recorded, but which the Companies believe leads to savings through equipment maintenance and replacement.

A discussion of the Companies' 2010 TLC Furnace Servicing program participation survey provides additional background. In responding to that survey, 4 percent of customers identified gas leaks, and 15 percent of customers were advised by the service contractor to either upgrade or replace their appliance. Intuitively, a heating system that is well maintained will run more smoothly and consume less energy. Ongoing evaluation is being conducted in 2012 in support of this program that has broad-based appeal while providing opportunities to educate customers about energy efficient appliances and energy saving behaviours.

In the 2012-2013 RRA, the Companies have proposed incorporating the current Joint Initiatives programs into the Residential Program Area, which will have a positive effect on the overall Residential TRC. Additionally, the recent changes to the DSM Regulation will likely enable the inclusion of lower TRC programs into the Residential portfolio, furthering the objectives of universality and the culture of conservation.

## 4.3 2011 Residential Energy Efficiency Programs

Tables 4.2 through 4.6 outline the specific Residential programs undertaken in 2011, including program and measure descriptions as well as a breakdown of non-incentive spending.

[13] Utility partners include BC Hydro and FortisBC Inc. (electric utility).

**Table 4.2: 0.62 Efficient Water Heater Program Summary**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Program Description | The 2010 0.62 EF water heater program was introduced primarily as a compliance engagement program but was extended to December 31, 2011. This extension enabled the Companies to continue to promote hot water efficiency to manufacturers, contractors, retailers, and customers. | | | | | | |
| Target Market | Residential | | | | | | |
| New vs Retrofit | Retrofit | | | | | | |
| Eligible Measures | Water Heaters rated 0.62 EF or higher | | | | | | |
| Incremental Measure Cost | $100 | | | | | | |
| Incentive Amount | $50 rebate cheque for consumer<br>$50 rebate cheque for contractor/dealer | | | | | | |
| Savings Per Participant | 2.0 GJ | | | | | | |
| Measure Life & Source | 13 years; Caneta Research for MEMPR | | | | | | |
| Free Rider Rate & Source | 40%; Overall average from introduction of 0.62 products in 2010 through penetration of compliant products in 2011. | | | | | | |
| Participants | Service Region | 2011 Projected | 2011 Actual | Dealers | | | |
| | FEI | 2,980 | 3,232 | 3,211 | | | |
| | FEVI | 745 | 190 | 188 | | | |
| | Total | 3,725 | 3,422 | 3,399 | | | |
| 2011 Expenditures ($,000s) | 2011 | | | | | | |
| | | | Admin | | | | |
| | Service Region | Incentives | Dealer Incentives | Other Admin | Communication | Research & Evaluation | Total |
| | FEI | 162 | 161 | 34 | 0 | 16 | 373 |
| | FEVI | 10 | 9 | 8 | 0 | 3 | 31 |
| | Total | 171 | 170 | 42 | 0 | 20 | 403 |

### 4.3.1 0.62 EF EFFICIENT WATER HEATER PROGRAM CLOSING

Due to the Provincial *Energy Efficiency Act* Standards for minimum standards of water heaters, this program has met its objectives. It appears that there is good market compliance. The Companies established relationships with contractors, manufacturers and retailers that will facilitate a more successful launch of the ENERGY STAR® water heater program in 2012 as part of a longer term water heater market transformation strategy.

## Table 4.3: EnerChoice Fireplace Program

| | |
|---|---|
| Program Description | This Program provides financial rebates to customers that install an EnerChoice fireplace. To help drive program awareness and participation, the Program also provides a dealer incentive. The goal is to educate consumers and dealers about the importance of selecting natural gas fireplaces based on energy efficient performance rather than just decorative features. |
| Target Market | Residential customers |
| New vs Retrofit | Retrofit |
| Eligible Measures | EnerChoice Fireplace |
| Incremental Measure Cost | $150 |
| Incentive Amount | $150 Consumer Incentive from program start to May 31 and $300 Consumer Incentive from June 1 though Dec 31. This resulted in a weighted average of $204 for FEI and $223 for FEVI.<br>June 1 - a $50 Dealer Incentive was also introduced to the program although the expense is captured in Non-Incentive Expenditures. |
| Savings Per Participant | 7.75 GJ |
| Measure Life & Source | 15 years - Conservation Potential Review, and application form data |
| Free Rider Rate & Source | 30% based on findings of previous programs and greater market penetration of manufacturers that provide EnerChoice models. |

Participants

| | 2011 Projected | 2011 Actual | | |
|---|---|---|---|---|
| Service Region | | $150 Program | $300 Program | Total |
| FEI | 1,920 | 1,197 | 675 | 1,872 |
| FEVI | 480 | 262 | 245 | 507 |
| Total | 2,400 | 1,459 | 920 | 2,379 |

Expenditures ($,000s)

| 2011 | | Admin | | | | |
|---|---|---|---|---|---|---|
| Service Region | Incentives | Dealer Incentives | Admin | Communication | Research & Evaluation | Total |
| FEI | 382 | 34 | 29 | 43 | 10 | 498 |
| FEVI | 113 | 12 | 8 | 16 | 3 | 151 |
| Total | 495 | 46 | 37 | 59 | 13 | 649 |

## Table 4.4: TLC Furnace Servicing Program

| | |
|---|---|
| Program Description | This Program educates the market about the benefits of energy efficient appliances and other benefits of regular appliance maintenance. In addition, this program creates opportunities to upgrade appliances to more efficient models. In fact, the 2010 Program evaluation determined that 4 percent of customers identified gas leaks and 15 percent of customers were advised to either upgrade or replace their appliance. |
| Target Market | Residential customers |
| New vs Retrofit | Retrofit |
| Eligible Measures | Furnace service and fireplace service |
| Incremental Measure Cost | $150 was the average service cost based on participant data |
| Incentive Amount | $25 value to participant |
| Savings Per Participant | Unknown - Working on combustion analysis project to determine savings |
| Measure Life & Source | N/A |
| Free Rider Rate & Source | N/A |

Participants

| Service Region | 2011 Projected | 2011 Actual |
|---|---|---|
| FEI | 16,000 | 22,219 |
| FEVI | 4,000 | 3,583 |
| Total | 20,000 | 25,802 |

2011 Expenditures ($,000s)

| Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | 511 | 69 | 26 | 0 | 606 |
| FEVI | 82 | 16 | 7 | 0 | 105 |
| Total | 593 | 85 | 33 | 0 | 711 |

**Table 4.5: Residential High Efficiency Water Heater Pilot**

| | |
|---|---|
| Program Description | The Companies are conducting a pilot program as part of their domestic hot water heater market transformation strategy. This research is in support of proposed federal Energy Efficiency Act standards for 0.80 technologies in 2020. The purpose of the program is to obtain installation, performance, and customer acceptance information regarding residential Domestic Hot Water ("DHW") technologies with an Efficiency Factor ("EF") of 0.80 or better. Research is being conducted as a collaborative initiative between the Canadian Gas Association (CGA), Natural Gas Technology Centre (NGTC) and other utilities. |
| Target Market | Residential |
| New vs Retrofit | Retrofit |
| Eligible Measures | The main (0.80 EF) systems identified to date are:<br>Tankless water heaters; Condensing Tankless water heaters<br>Condensing storage tank water heaters;<br>Hybrid systems; |
| Incremental Measure Cost | Variable based on measure installed |
| Incentive Amount | 50% of the installed cost of the measure up to $2500 |
| Savings Per Participant | To be determined through pilot program |
| Measure Life & Source | To be determined through pilot program |
| Free Rider Rate & Source | 0% - Pilot program |

| Participants | Service Region | 2011 Projected | 2011 Actual |
|---|---|---|---|
| | FEI | N/A | N/A |
| | FEVI | N/A | N/A |
| | Total | N/A | N/A |

| Expenditures ($,000s) | 2011 | | | | | |
|---|---|---|---|---|---|---|
| | Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 0 | 0 | 1 | 46 | 47 |
| | FEVI | 0 | 0 | 0 | 0 | 0 |
| | Total | 0 | 0 | 1 | 46 | 47 |

Note:

- Research and Evaluation costs pertain to sub-metering equipment required to measure natural gas consumption on water heater technologies.

**Table 4.6: EnerGuide 80 New Construction**

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | This Program will provide education and financial incentives to new home builders that attain EnerGuide for Homes (EGH) 80 through building envelope measures. This program will support the pending efficiency updates to the BC Building Code (2013) and will also educate consumers about the benefits of purchasing energy efficient new homes. The Companies will be collaborating with BC Hydro Power Smart New Homes program. | | | | | |
| Target Market | Builders of residential properties – single family homes and townhomes | | | | | |
| New vs Retrofit | New Construction | | | | | |
| Eligible Measures | EGH 80 & building envelope incentives | | | | | |
| Incremental Measure Cost | FEI: $2,360<br>FEVI: $2,965 * - Based on weighted average of Single Family Detached and townhomes | | | | | |
| Incentive Amount | FEI: $442 + $198 BC Hydro* / FEVI: $517 + $219 BC Hydro* | | | | | |
| Savings Per Participant | FEI: 8.2 GJ / FEVI: 10.4 GJ - * | | | | | |
| Measure Life & Source | 25+ years - SAR Engineering report and Dunsky Consulting | | | | | |
| Free Rider Rate & Source | 10% - Focus groups will help determine current EGH 80 market share | | | | | |
| Participants | Service Region | 2011 Projecte | 2011 Actual | | | |
| | FEI | N/A | 0 | | | |
| | FEVI | N/A | 0 | | | |
| | Total | N/A | 0 | | | |
| Expenditures ($,000s) | 2011 | | Program | | | |
| | Service Region | Incentives | Development | Communication | Research & Evaluation | Total |
| | FEI | 0 | 45 | 0 | 0 | 45 |
| | FEVI | 0 | 12 | 0 | 0 | 12 |
| | Total | 0 | 57 | 0 | 0 | 57 |

Note:

- Expenditures are related to program development costs including energy modelling studies, builder focus groups, and Non-Energy Benefits study. These evaluations were cost shared with BC Hydro and Power Authority ("BC Hydro").

## 4.4 2011 Residential Programs – Planned for 2011 But Not Launched

There were several programs identified in the 2010 Annual Report with an anticipated 2011 launch that did not occur.

### 4.4.1 SIMPLE HOME EFFICIENCY MEASURES PROGRAM

This program was intended to build on opportunities for homeowners to self-install low-cost hot water and heat-saving energy measures through community engagement programs, partner programs, retailer coupons, and distribution of the units at events. The program was not launched because with the announcement of the Government of Canada's re-investment in EcoENERGY, the Companies chose to utilize their fall marketing channels to promote LiveSmartBC / EcoENERGY, enabling customers to take advantage of enhanced incentives to perform Home Energy Retrofits. Therefore, the Home Energy Assessment promotion (please refer to Joint Initiatives, Section 10.5) was developed rather than promoting low-cost installs.

### 4.4.2 ENERGY STAR® WATER HEATERS PROGRAM

As outlined in Section 4.1, the launch of this program was delayed pending new DSM regulations and approval of the EEC funding requested in the 2012-2013 RRA.

#### 4.4.3 ENERGUIDE 80 NEW CONSTRUCTION PROGRAM

As outlined in Section 4.1, the launch of this program was delayed pending new DSM regulations and approval of the EEC funding requested in the 2012-2013 RRA.

### 4.5 Summary

In summary, although the Residential Program Area TRC was below 1, the Companies' 2011 residential energy efficiency activities provided value to customers through engaging customers in upgrading appliances to capture energy savings, supporting the introduction of new provincial regulations, and establishing relationships with the trades community for education and program awareness. The combination of financial incentives, policy support, contractor outreach, and effective marketing is key to the ongoing success of these programs in generating natural gas savings and the culture of conservation in BC.

# 5 HIGH CARBON FUEL SWITCHING PROGRAM AREA

## 5.1 Overview

The High Carbon Fuel Switching Program Area includes initiatives designed to result in lower overall greenhouse gas ("GHG") emissions by using natural gas in place of higher emissions carbon fuels such as coal, oil, diesel, or propane. This program area qualifies as a demand-side measure as defined in the *Clean Energy Act* because it promotes energy efficiency through the installation of high efficiency natural gas heating equipment, and encourages switching from higher carbon to lower carbon-emitting fuels, thereby decreasing the greenhouse gas emissions in British Columbia. The Fuel Switching program available to customers is a residential retrofit program called 'Switch N Shrink,' focused on converting oil or propane heating systems to ENERGY STAR® natural gas heating appliances.

Table 5.1 summarizes the projected and actual expenditures for High Carbon Fuel Switching in 2011, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost test results.

**Table 5.1: 2011 High Carbon Fuel Switching Program Area Results Summary**

| Program and Service Territory | Annual Gas Savings (GJ/yr.) | | NPV Gas Savings (GJ) | Utility Expenditures ($000s) | | | | | | Benefit/Cost Ratios | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incentives | | Non-Incentives | | All Spending | | | | | |
| | 2011 Projected | 2011 Actual | | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | TRC | Utility | Participant | RIM |
| Non Program Specific Expenses | | | | | | | | | | | | | |
| FEI | There are no non-program specific expenses to report in the High Carbon Fuel Switching Program Area for 2011 | | | | | | | | | | | | |
| FEVI | | | | | | | | | | | | | |
| Total | | | | | | | | | | | | | |
| Switch N Shrink | | | | | | | | | | | | | |
| FEI | (1,720) | (2,021) | (20,111) | 100 | 94 | 21 | 0 | 121 | 94 | 1.9 | FS | 2.4 | 0.7 |
| FEVI | (6,880) | (7,160) | (72,593) | 320 | 333 | 83 | 21 | 403 | 354 | 1.8 | FS | 1.7 | 0.9 |
| Total | (8,600) | (9,181) | (92,704) | 420 | 427 | 104 | 21 | 524 | 448 | | | | |
| **ALL PROGRAMS** | | | | | | | | | | | | | |
| **FEI** | **(1,720)** | **(2,021)** | **(20,111)** | **100** | **94** | **21** | **0** | **121** | **94** | **1.9** | **FS** | **2.4** | **0.7** |
| **FEVI** | **(6,880)** | **(7,160)** | **(72,593)** | **320** | **333** | **83** | **21** | **403** | **354** | **1.8** | **FS** | **1.7** | **0.9** |
| **Total** | **(8,600)** | **(9,181)** | **(92,704)** | **420** | **427** | **104** | **21** | **524** | **448** | **1.8** | **FS** | **1.8** | **0.9** |

Note:

- Actual non-incentive spending in 2011 was less than projected due to lower spending on communications and marketing initiatives.

## 5.2 2011 High Carbon Fuel Switching Program

Table 5.2 provides additional detail for the High Carbon Fuel Switching program, undertaken in 2011, including program and measure descriptions as well as a breakdown of non-incentive spending.

**Table 5.2: Residential High Carbon Fuel Switching Program**

| | |
|---|---|
| Program Description | This Program encourages customers to switch from higher carbon oil and propane heating systems to lower carbon natural gas (or propane). Promotional efforts included a combination of education, contractor outreach and financial incentives. |
| Target Market | Residential customers |
| New vs Retrofit | Retrofit |
| Eligible Measures | Heating system conversion to ENERGY STAR® natural gas appliances |
| Incremental Measure Cost | $1,000 |
| Incentive Amount | $1,000 + $50 Variable Speed Moter incentive provided by electric utilities |
| Savings Per Participant | 46 GJ in fuel oil savings, 43 GJ increase in natural gas consumption |
| Measure Life & Source | 18 years - Navigant Consulting report, BC Hydro Power Smart QA Standard, NRCan |
| Free Rider Rate & Source | 50% - Based on 40% used in 2009 furnace program |
| Participants | Service Region 2011 Projected 2011 Actual<br>FEI 100 94<br>FEVI 320 333<br>Total 420 427 |
| 2011 Expenditures ($,000s) | 2011<br>Service Region Incentives Admin Communication Research & Evaluation Total<br>FEI 94 2 -2 0 94<br>FEVI 333 6 15 0 354<br>Total 427 8 13 0 448 |

## 5.3 Summary

The residential Switch 'n' Shrink program adds value to new and existing customers through reduced fuel costs, minimizing the environmental hazards associated with oil storage tanks, decreasing the need to import propane and heating oil fuel from other provinces, and improving air quality in the home. The Companies will continue to promote high carbon to lower carbon demand side measures in order to reduce GHG emissions in the Province.

# 6 LOW INCOME ENERGY EFFICIENCY PROGRAM AREA

## 6.1 Overview

The Low Income Program Area is specifically designed to meet the needs of the Companies' low income customers. One of the EEC principles is that "programs will have a goal of being universal, offering access to energy efficiency and conservation for all residential and commercial customers, including low income customers." The Companies are staying true to this principle by developing and implementing programs that are of no cost or low cost to low income participants. Further, as per the Demand-Side Measures Regulation, a utilities' DSM portfolio is considered adequate only when there is "a demand-side measure intended specifically to assist residents of low income households to reduce their energy consumption."

In addition to the Companies' own Low Income programs, the Companies also continue to make progress on investing the $5.155 million funds granted to the Companies by the Ministry of Energy and Mines. In 2011, the Companies invested $130,000 primarily in the Super-Efficient New Construction initiative.

Table 6.1 summarizes the projected and actual expenditures for Low Income programs in 2011, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost test results.

**Table 6.1: 2011 Low Income Program Results Summary**

| Program and Service Territory | Annual Gas Savings (GJ/yr.) | | Actual NPV Gas Savings (GJ) | Utility Expenditures ($000s) | | | | | | Benefit/Cost Ratios | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incentives | | Non-Incentives | | All Spending | | | | | |
| | 2011 Projected | 2011 Actual | | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | TRC | Utility | Participant | RIM |
| Non Program Specific Expenses | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | 0 | 7 | 5 | 7 | 5 | No Direct Savings | | | |
| FEVI | | | | N/A | 0 | 3 | 1 | 3 | 1 | | | | |
| Total | | | | N/A | 0 | 10 | 6 | 10 | 6 | | | | |
| Residential Energy Efficiency Works (REnEW) | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | 0 | 150 | 81 | 150 | 81 | No Direct Savings | | | |
| FEVI | | | | N/A | 0 | 35 | 0 | 35 | 0 | | | | |
| Total | | | | N/A | 0 | 185 | 81 | 185 | 81 | | | | |
| Energy Saving Kit (ESK) | | | | | | | | | | | | | |
| FEI | 5,267 | 10,613 | 63,009 | 88 | 206 | 98 | 137 | 186 | 343 | 2.4 | 2.4 | n/a | 0.8 |
| FEVI | 1,317 | 2,073 | 12,430 | 22 | 31 | 25 | 33 | 47 | 64 | 2.5 | 2.5 | n/a | 0.6 |
| Total | 6,584 | 12,686 | 75,439 | 110 | 237 | 123 | 170 | 233 | 407 | | | | |
| Energy Conservation Assistance Program (ECAP) | | | | | | | | | | | | | |
| FEI | 5,548 | Program development only in 2011 | | 1,082 | 0 | 613 | 89 | 1,695 | 89 | Program development only in 2011. | | | |
| FEVI | 1,387 | | | 270 | 0 | 153 | 21 | 423 | 21 | | | | |
| Total | 6,935 | | | 1,352 | 0 | 766 | 110 | 2,118 | 110 | | | | |
| Non-Profit Heating Upgrade | | | | | | | | | | | | | |
| FEI | N/A | 469 | 4911 | N/A | 55 | N/A | 0 | N/A | 55 | 1.0 | 1.3 | 4.4 | 0.7 |
| FEVI | N/A | N/A | N/A | N/A | 0 | N/A | 0 | N/A | 0 | N/A | N/A | N/A | N/A |
| Total | N/A | 469 | 4911 | N/A | 55 | N/A | 0 | N/A | 55 | | | | |
| Mobile Home Study | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | 0 | N/A | 8 | N/A | 8 | No Direct Savings | | | |
| FEVI | | | | N/A | 0 | N/A | 2 | N/A | 2 | | | | |
| Total | | | | N/A | 0 | N/A | 10 | N/A | 10 | | | | |
| **ALL PROGRAMS** | | | | | | | | | | | | | |
| **FEI** | **10,815** | **11,082** | **67,920** | **1,170** | **261** | **868** | **320** | **2,038** | **581** | **1.5** | **1.5** | **58.7** | **0.7** |
| **FEVI** | **2,704** | **2,073** | **12,430** | **292** | **31** | **216** | **57** | **508** | **88** | **1.8** | **1.8** | **N/A** | **0.6** |
| **Total** | **13,519** | **13,155** | **80,350** | **1,462** | **292** | **1,084** | **377** | **2,546** | **669** | **1.5** | **1.6** | **73.4** | **0.7** |

## 6.2 2011 Low Income Programs

Tables 6.2 through 6.3 outline the specific Low Income programs undertaken in 2011, including program and measure descriptions as well as a breakdown of non-incentive spending.

### Table 6.2: REnEW Program

| | |
|---|---|
| Program Description | This Program provides energy efficiency trade training by industry experts at no cost to participants. The participants are selected by the delivery agents in the community and this program is specifically targetted to marginalized people and people facing employment barriers. The training program is based on materials developed by the Companies and is focused on the Energy Efficiency trade industry. The program also includes First Aid, Workplace Hazardous Materials Information System ("WHMIS") and other trade industry certifications, a set of tools and a tool belt, and two meals per day during training. This training program is offered in partnership with BC Hydro and FortisBC Inc (electric utility). |
| Target Market | Low income individuals facing barriers to employment |
| New vs Retrofit | Retrofit |
| Eligible Measures | N/A |
| Incremental Measure Cost | N/A |
| Incentive Amount | N/A |
| Savings Per Participant | N/A |
| Measure Life & Source | N/A |
| Free Rider Rate & Source | N/A |

Participants

| Service Region | 2011 Projected | 2011 Actual |
|---|---|---|
| FEI | 44 | 20 |
| FEVI | 11 | 0 |
| Total | 55 | 20 |

Expenditures ($,000s)

| 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | 0 | 77 | 4 | 0 | 81 |
| FEVI | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 77 | 4 | 0 | 81 |

### Table 6:3 Energy Savings Kits (ESK) Program

| | |
|---|---|
| Program Description | This Program provides a bundle of easy-to-install energy efficiency measures for low-income households, and is offered in partnership with BC Hydro. |
| Target Market | Low Income Residential Customers |
| New vs Retrofit | Retrofit |
| Eligible Measures | Faucet aerators, Low Flow Showerhead, Water Heater Pipe Wrap, Caulking, Draft proofing, Outlet Gaskets, Window Film |
| Incremental Measure Cost | $12.50 - Average cost |
| Incentive Amount | $12.50 - Based on the full cost of the gas measures included in the ESK and pro-rated by the proportion of participants that use natural gas for space or water heating |
| Savings Per Participant | 0.86 GJ |
| Measure Life & Source | 8 years - Average based on the individual gas measures included in the Energy Saving Kit |
| Free Rider Rate & Source | 27% - Based on participant survey |

Participants

| Service Region | 2011 Projected | 2011 Actual |
|---|---|---|
| FEI | 8,400 | 15,756 |
| FEVI | 2,100 | 3,155 |
| Total | 10,500 | 18,911 |

Expenditures ($,000s)

| 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | 206 | 84 | 36 | 17 | 343 |
| FEVI | 31 | 19 | 10 | 4 | 64 |
| Total | 236 | 103 | 46 | 22 | 407 |

**Table 6.4: Energy Conservation Assistance Program (ECAP)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | This is a full-service direct-install program that will provide opportunities for deep energy savings in low-income households. The Program will target low-income homes with moderate to high gas consumption and install a customized assortment of energy saving measures as well as measures that improve the health and safety of participants, such as improving ventilation and installing carbon monoxide detectors, and will be offered in partnership with BC Hydro. | | | | | |
| Target Market | Low Income Residential Customers | | | | | |
| New vs Retrofit | Retrofit | | | | | |
| Eligible Measures | Basic Stream of measures includes direct Installation of: Faucet aerators, Low Flow Showerheads, Water Heater Pipe Wrap, Caulking, Draftproofing, Outlet Gaskets, Window Film, and Basic Draftproofing.<br>Advanced Stream of measures includes all the above and, in some cases: Insulation, Advanced Draftproofing, Carbon Monoxide Detectors and Ventilation. | | | | | |
| Incremental Measure Cost | $1,150 - Average cost | | | | | |
| Incentive Amount | $1,150 - Based on the full cost of the gas measures installed | | | | | |
| Savings Per Participant | 5.78 GJ | | | | | |
| Measure Life & Source | 13 years - Average based on the individual gas measures included in ECAP | | | | | |
| Free Rider Rate & Source | 4% - Primarily third-party studies | | | | | |
| Participants | Service Region | 2011 Projected | 2011 Actual | | | |
| | FEI | 960 | 0 | | | |
| | FEVI | 240 | 0 | | | |
| | Total | 1,200 | 0 | | | |
| Expenditures ($,000s) | 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 0 | 89 | 0 | 0 | 89 |
| | FEVI | 0 | 21 | 0 | 0 | 21 |
| | Total | 0 | 110 | 0 | 0 | 110 |

Note:

- This program was planned for 2011 but has not been officially launched to participants. 2011 funds spent on this program were for program development, and the Companies will report on participants and actual results in 2012.

**Table 6.5: Non-Profit Heating Upgrade**

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | The purpose of this program is to establish an application procedure for low-income non-profit societies (such as churches, community based projects, etc.) who request assistance from FortisBC for the installation of an Energy Star furnace or boiler. | | | | | |
| Target Market | Non-profit organizations that are seeking assistance in upgrading their heating equipment. | | | | | |
| New vs Retrofit | Retrofit | | | | | |
| Eligible Measures | Heating Equipment | | | | | |
| Incremental Measure Cost | Custom | | | | | |
| Incentive Amount | Custom | | | | | |
| Savings Per Participant | Varies | | | | | |
| Measure Life & Source | 20 years | | | | | |
| Free Rider Rate & Source | 0 | | | | | |
| Participants | Service Region | 2011 Projected | 2011 Actual | | | |
| | FEI | N/A | 2 | | | |
| | FEVI | N/A | 0 | | | |
| | Total | N/A | 2 | | | |
| Expenditures ($,000s) | 2011 | | | | | |
| | Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 55 | 0 | 0 | 0 | 55 |
| | FEVI | 0 | 0 | 0 | 0 | 0 |
| | Total | 55 | 0 | 0 | 0 | 55 |

## 6.3 Summary

The Low Income Program Area has been a priority for the Companies since the initial creation of our EEC Program principles. Our goal of creating programs that are accessible to all has already been achieved through the launch of our Energy Saving Kit program and the REnEW program, and the partnership with BC Hydro on the Energy Conservation Assistance program will see greatly expanded investment and a deeper level of savings for our low income customers.

# 7 COMMERCIAL ENERGY EFFICIENCY PROGRAM AREA

## 7.1 Overview

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

The Companies serve over 80,000 commercial accounts, representing a wide variety of organizations, both private and public in nature. Commercial customers consume anywhere from 100 to over 40,000 GJ/year, and are provided services through various customer rate schedules. Typical examples include small and large multi-unit residential buildings, small businesses, food services such as restaurants, hotels, retail stores, large commercial office space, schools and universities, government buildings, hospitals, and manufacturing facilities.

Table 7.1 summarizes the projected and actual expenditures for Commercial EEC initiatives in 2011, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost test results.

## Table 7.1: 2011 Commercial Energy Efficiency Program Results Summary

| Program and Service Territory | Annual Gas Savings (GJ/yr.) | | Actual NPV Gas Savings (GJ) | Utility Expenditures ($000s) | | | | | | Benefit/Cost Ratios | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incentives | | Non-Incentives | | All Spending | | | | | |
| | 2011 Projected | 2011 Actual | | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | TRC | Utility | Participant | RIM |
| Non Program Specific Expenses | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | N/A | 197 | N/A | 197 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | N/A | 73 | N/A | 73 | | | | |
| Total | | | | N/A | N/A | N/A | 270 | N/A | 270 | | | | |
| Efficient Boiler Program | | | | | | | | | | | | | |
| *New Construction* | | | | | | | | | | | | | |
| FEI | 7,013 | 1,555 | 16,280 | 197 | 170 | 2 | 3 | 199 | 173 | 1.8 | 4.5 | 3.2 | 0.8 |
| FEVI | 205 | 277 | 2,962 | 12 | 17 | 1 | 1 | 13 | 18 | 1.2 | 1.6 | 10.0 | 0.4 |
| *Reftrofit* | | | | | | | | | | | | | |
| FEI | 40,482 | 45,015 | 471,377 | 1,308 | 1,371 | 25 | 40 | 1,333 | 1,411 | 1.4 | 3.0 | 3.0 | 0.8 |
| FEVI | 3,211 | 11,513 | 123,017 | 107 | 390 | 6 | 10 | 113 | 400 | 1.3 | 2.6 | 4.8 | 0.5 |
| Total | 50,911 | 58,360 | 613,636 | 1,624 | 1,948 | 34 | 54 | 1,658 | 2,002 | | | | |
| Light Commercial Boiler Program | | | | | | | | | | | | | |
| *New Construction* | | | | | | | | | | | | | |
| FEI | 971 | 415 | 4,345 | 14 | 6 | 1 | 0 | 15 | 6 | 1.7 | 8.9 | 2.3 | 0.9 |
| FEVI | 0 | 0 | 0 | 0 | N/A | 0 | N/A | 0 | N/A | N/A | N/A | N/A | N/A |
| *Reftrofit* | | | | | | | | | | | | | |
| FEI | 10,922 | 4,453 | 46,626 | 156 | 53 | 9 | 7 | 165 | 60 | 1.7 | 13.5 | 2.1 | 1.0 |
| FEVI | 1,615 | 180 | 1,928 | 29 | 4 | 3 | 2 | 32 | 7 | N/A | N/A | N/A | N/A |
| Total | 13,508 | 5,048 | 52,899 | 199 | 59 | 13 | 9 | 212 | 68 | | | | |
| Efficient Commercial Water Heater Program | | | | | | | | | | | | | |
| *New Construction* | | | | | | | | | | | | | |
| FEI | 254 | 986 | 10,326 | 7 | 15 | 2 | 2 | 9 | 17 | 1.2 | 2.3 | 3.5 | 0.6 |
| FEVI | 85 | 162 | 1,298 | 2 | 5 | 0 | 1 | 2 | 6 | 1.3 | 3.3 | 3.9 | 0.5 |
| *Reftrofit* | | | | | | | | | | | | | |
| FEI | 3,805 | 2,702 | 28,292 | 99 | 56 | 9 | 14 | 108 | 70 | 1.0 | 3.0 | 2.3 | 0.6 |
| FEVI | 361 | 1,161 | 9,275 | 7 | 18 | 2 | 4 | 9 | 22 | 1.0 | 3.5 | 2.5 | 0.5 |
| Total | 4,505 | 5,011 | 49,191 | 115 | 94 | 13 | 20 | 128 | 114 | | | | |
| Commercial Energy Assessment Program | | | | | | | | | | | | | |
| FEI | 19,190 | 58,048 | 58,048 | 73 | 239 | 27 | 11 | 100 | 250 | 1.7 | 1.7 | N/A | 0.6 |
| FEVI | 4,536 | 20,301 | 20,301 | 17 | 82 | 2 | 6 | 19 | 88 | 1.7 | 1.7 | N/A | 0.4 |
| Total | 23,726 | 78,349 | 78,349 | 90 | 321 | 29 | 17 | 119 | 338 | | | | |
| Spray 'n' SaveProgram | | | | | | | | | | | | | |
| *New Construction* | | | | | | | | | | | | | |
| FEI | 32 | 8 | 32 | 0 | 0 | 0 | 0 | 0 | N/A | 2.8 | 4.2 | N/A | 0.9 |
| FEVI | 0 | N/A | N/A | 0 | 0 | 0 | 0 | 0 | N/A | N/A | N/A | N/A | N/A |
| *Reftrofit* | | | | | | | | | | | | | |
| FEI | 1,861 | N/A | N/A | 20 | 0 | 3 | 0 | 23 | 0 | 2.6 | 3.9 | N/A | 0.8 |
| FEVI | 434 | N/A | N/A | 5 | 0 | 1 | 0 | 6 | N/A | N/A | N/A | N/A | N/A |
| Total | 2,327 | 8 | 32 | 25 | 0 | 4 | 0 | 29 | 0 | | | | |
| Commercial Custom Design Program | | | | | | | | | | | | | |
| *Reftrofit* | | | | | | | | | | | | | |
| FEI | N/A | 10,998 | 71,975 | N/A | 324 | N/A | 20 | N/A | 344 | 1.7 | 2.2 | 10.5 | 0.6 |
| FEVI | N/A | 1,710 | 15,546 | N/A | 42 | N/A | 5 | N/A | 47 | 1.1 | 3.5 | 2.0 | 0.6 |
| Total | N/A | 12,708 | 87,521 | N/A | 366 | N/A | 29 | N/A | 395 | | | | |
| Fireplace Timers Pilot Program | | | | | | | | | | | | | |
| FEI | 1,200 | 990 | 4,043 | 20 | 17 | 0 | 0 | 20 | 17 | N/A | N/A | N/A | N/A |
| FEVI | 90 | N/A | N/A | 20 | 0 | 0 | 0 | 20 | 0 | N/A | N/A | N/A | N/A |
| Total | 1,290 | N/A | N/A | 40 | 17 | 193 | 0 | 233 | 17 | N/A | N/A | N/A | N/A |
| PSECA Program | | | | | | | | | | | | | |
| FEI | 30,830 | 3,309 | 38,046 | 800 | 117 | 24 | 24 | 824 | 141 | 1.0 | 3.2 | 1.5 | 0.8 |
| FEVI | 5,497 | 5,497 | 58,737 | 208 | 86 | 9 | 5 | 217 | 91 | 0.4 | 2.9 | 2.2 | 0.2 |
| Total | 36,327 | 8,806 | 96,783 | 1,008 | 203 | 33 | 29 | 1,041 | 232 | | | | |
| Radiant Tube Heaters Pilot Program | | | | | | | | | | | | | |
| FEI | 275 | 275 | 2,880 | 3 | 3 | 7 | 4 | 10 | 7 | N/A | N/A | N/A | N/A |
| FEVI | 0 | N/A | N/A | 0 | 0 | 0 | 0 | 0 | 0 | N/A | N/A | N/A | N/A |
| Total | 275 | N/A | N/A | 3 | 0 | 7 | 0 | 10 | 0 | N/A | N/A | N/A | N/A |
| **ALL PROGRAMS** | | | | | | | | | | | | | |
| **FEI** | **114,974** | **117,756** | **752,270** | **2,697** | **2,371** | **109** | **322** | **2,806** | **2,693** | **1.7** | **3.0** | **4.4** | **0.8** |
| **FEVI** | **16,034** | **39,091** | **233,064** | **407** | **644** | **24** | **107** | **431** | **752** | **1.2** | **2.8** | **8.3** | **0.4** |
| **Total** | **131,008** | **156,847** | **985,334** | **3,104** | **3,015** | **133** | **429** | **3,237** | **3,445** | **1.6** | **3.0** | **5.2** | **0.7** |

Note:

- Actual Annual Gas savings (GJ/year) for the Commercial Custom Design Program are for measures implemented in 2011 only, and will vary from year to year depending on measures implemented.

## 7.2 2011 Commercial Energy Efficiency Programs

The following tables outline the specific Commercial Programs undertaken in 2011, including program and measure descriptions as well as a breakdown of non-incentive spending.

**Table 7.2: Efficient Boiler Program**

| | | | | |
|---|---|---|---|---|
| Program Description | This Program provides rebates for the installation of high efficiency commercial boilers with more than 300 MBH input.<br>Note: 1 MBH = 1,000 British Thermal Units per hour | | | |
| Target Market | Commercial | | | |
| New vs Retrofit | Both | | | |
| Eligible Measures | Near condensing boilers 85% ≤ C.E. ≥ 90% and condensing boilers 85% ≤ C.E. ≥ 90% with input >300 MBH<br>Note: C.E = combustion efficiency | | | |
| | FEI | | FEVI | |
| | Retrofit | New Construction | Retrofit | New Construction |
| Incremental Measure Cost | $29,286 | $60,415 | $28,901 | $11,233 |
| Incentive Amount | $14,584 | $21,269 | $14,996 | $8,634 |
| Savings Per Participant | 584 GJ | 237 GJ | 540 GJ | 169 GJ |
| Measure Life & Source | 20 years - ASHRAE Handbook and Conservation Potential Review | | | |
| Free Rider Rate & Source | 18% - From Efficient Boiler Program Impact Evaluation, June 12, 2003 | | | |

| Participants | | | | |
|---|---|---|---|---|
| Service Region | 2011 Projected - New Construction | 2011 Projected - Retrofit | 2011 Actual - New Construction | 2011 Actual - Retrofit |
| FEI | 8 | 97 | 8 | 94 |
| FEVI | 2 | 9 | 2 | 26 |
| Total | 10 | 106 | 10 | 120 |

| Expenditures ($,000s) - New Construction | | | | | |
|---|---|---|---|---|---|
| 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| FEI | 170 | 1 | 1 | 2 | 174 |
| FEVI | 17 | 0 | 0 | 0 | 18 |
| Total | 187 | 1 | 1 | 2 | 192 |

| Expenditures ($,000s) - Retrofit | | | | | |
|---|---|---|---|---|---|
| 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| FEI | 1,371 | 12 | 9 | 18 | 1,411 |
| FEVI | 390 | 2 | 3 | 5 | 400 |
| Total | 1,761 | 15 | 13 | 23 | 1,811 |

## Table 7.3: Light Commercial Boiler Program

| | | | | |
|---|---|---|---|---|
| Program Description | This Program provides rebates for the installation of high efficiency commercial boilers with less than 300 MBH input. | | | |
| Target Market | Commercial | | | |
| New vs Retrofit | Both | | | |
| Eligible Measures | Near condensing boilers 85% ≤ C.E. ≥ 90% and condensing boilers 85% ≤ C.E. ≥ 90% with input < 300 MBH | | | |
| | FEI | | FEVI | |
| | Retrofit | New Construction | Retrofit | New Construction |
| Incremental Measure Cost | $7,136 | $11,186 | $5,408 | $0 |
| Incentive Amount | $1,782 | $2,850 | $1,123 | $0 |
| Savings Per Participant | 181 GJ | 253 GJ | 55 GJ | 0 GJ |
| Measure Life & Source | 20 years - ASHRAE Handbook and Conservation Potential Review | | | |
| Free Rider Rate & Source | 18% - Estimated from Efficient Boiler Program | | | |

Participants

| Service Region | 2011 Projected - New Construction | 2011 Projected - Retrofit | 2011 Actual - New Construction | 2011 Actual - Retrofit |
|---|---|---|---|---|
| FEI | 4 | 45 | 2 | 30 |
| FEVI | 0 | 10 | 0 | 4 |
| Total | 4 | 55 | 2 | 34 |

Expenditures ($,000s) - New Construction

| 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | 6 | 0 | 0 | 0 | 6 |
| FEVI | 0 | 0 | 0 | 0 | 0 |
| Total | 6 | 0 | 0 | 0 | 6 |

Expenditures ($,000s) - Retrofit

| 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | 53 | 0 | 6 | 0 | 60 |
| FEVI | 4 | 0 | 2 | 0 | 7 |
| Total | 58 | 0 | 9 | 0 | 67 |

## Table 7.4: Efficient Water Heater Program

| | | | | |
|---|---|---|---|---|
| Program Description | This Program provides rebates for the installation of high efficiency commercial water heaters with thermal efficiency greater than or equal to 84%. | | | |
| Target Market | Commercial | | | |
| New vs Retrofit | Both | | | |
| Eligible Measures | Near condensing storage and volume type water heaters 84% ≤ T.E. ≥ 90%; Condensing storage and volume type water heaters 90% ≤ T.E.; Condensing on demand water heaters 90% ≤ T.E.<br>Note: T.E.= Thermal Efficiency | | | |
| | FEI | | FEVI | |
| | Retrofit | New Construction | Retrofit | New Construction |
| Incremental Measure Cost | $4,026 | $3,920 | $5,619 | $4,171 |
| Incentive Amount | $1,555 | $2,557 | $1,417 | $1,827 |
| Savings Per Participant | 79 GJ | 173 GJ | 94 GJ | 57 GJ |
| Measure Life & Source | 12 years - Conservation Potential Review, Consortium for Energy Efficiency data, Other Utility programs | | | |
| Free Rider Rate & Source | 5% - Ontario Energy Board Approved DSM assumptions | | | |

Participants

| Service Region | 2011 Projected - New Construction | 2011 Projected - Retrofit | 2011 Actual - New Construction | 2011 Actual - Retrofit |
|---|---|---|---|---|
| FEI | 3 | 45 | 6 | 36 |
| FEVI | 1 | 5 | 3 | 13 |
| Total | 4 | 50 | 9 | 49 |

Expenditures ($,000s) - New Construction

| 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | 15 | 0 | 1 | 1 | 18 |
| FEVI | 5 | 0 | 1 | 0 | 6 |
| Total | 21 | 0 | 2 | 1 | 24 |

Expenditures ($,000s) - Retrofit

| 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | 56 | 0 | 7 | 6 | 70 |
| FEVI | 18 | 0 | 2 | 1 | 22 |
| Total | 74 | 0 | 10 | 7 | 92 |

## Table 7.5: Commercial Energy Assessment Program

| | |
|---|---|
| Program Description | This program identifies inefficiencies at the participant's facilities via an onsite walkthrough assessment by an energy efficiency consultant. The consultant then produces a report, describing the observed inefficiencies and outlining proposed energy savings measures that may be implemented to reduce gas consumption. The Companies then forward the report to the participant. The program services the following sectors: condominiums and apartments, food processors, greenhouses, hospitals, hotels, industry, offices, recreation centres, restaurants, schools, warehouses, and wood products |
| Target Market | Commercial |
| New vs Retrofit | Retrofit |
| Eligible Measures | Walkthrough energy assessment and written report |
| Incremental Measure Cost | $1,350<br>Note: Was $1,250 until July |
| Incentive Amount | $1,350<br>Note: Was $1,250 until July |
| Savings Per Participant | 488 GJ |
| Measure Life & Source | 1 year |
| Free Rider Rate & Source | 35% - 2008 and 2010 Energy Assessment Program Evaluations |

**Participants**

| Service Region | 2011 Projected | 2011 Actual |
|---|---|---|
| FEI | 61 | 183 |
| FEVI | 14 | 64 |
| Total | 75 | 247 |

**Expenditures ($,000s)**

2011

| Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | 239 | 7 | 3 | 0 | 250 |
| FEVI | 82 | 3 | 3 | 0 | 88 |
| Total | 322 | 10 | 7 | 0 | 339 |

**Table 7.6: Spray 'n' Save Program**

| | |
|---|---|
| Program Description | This Program offers provides the direct installation of low flow pre-rinse spray valves at no charge to the participant, to reduce natural gas consumption of commercial food service customers |
| Target Market | Commercial |
| New vs Retrofit | Both |
| Eligible Measures | Low flow pre rinse spray valves |
| Incremental Measure Cost | $130 |
| Incentive Amount | $130 |
| Savings Per Participant | 9 GJ |
| Measure Life & Source | 5 years - Food Service Technology Center and Ontario Energy Board approved DSM assumptions |
| Free Rider Rate & Source | 12 % - Food Service Technology Center and Ontario Energy Board approved DSM assumptions |

Participants

| Service Region | 2011 Projected - New Construction | 2011 Projected - Retrofit | 2011 Actual - New Construction | 2011 Actual - Retrofit |
|---|---|---|---|---|
| FEI | 4 | 235 | 0 | 1 |
| FEVI | 0 | 55 | 0 | 0 |
| Total | 4 | 290 | 0 | 1 |

Expenditures ($,000s) - New Construction

| 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | 0 | 0 | 0 | 0 | 0 |
| FEVI | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 0 | 0 |

Expenditures ($,000s) - Retrofit

| 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | 0 | 0 | 0 | 0 | 0 |
| FEVI | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 0 | 0 |

Note:

- The Companies entered into an agreement with the Green Table[14] Network on March 31, 2011, wherein Green Table would directly install low flow pre rinse spray valves in qualifying customers' premises on the Companies' behalf. Green Table was ultimately unable to follow through on the installation of the spray valves; as such only 1 valve was installed in 2011. The Companies believe that Green Table lacked sufficient access to human resources to ultimately carry out the scope of work as described in the agreement. To redress the situation, the Companies sought an alternate service provider in late 2011 and have now successfully concluded negotiations. Additionally the Companies are actively investigating the potential to have direct installation of low flow pre rinse spray valves included in the Live Smart BC Small Business partnership.[15]

[14] The Green Table Network is a Vancouver-based organization dedicated to assisting commercial food service establishments meet their sustainability objectives.

[15] The Live Smart BC Small Business partnership refers to an agreement between the Companies and the Ministry of Energy and Mines to pursue natural gas efficiency among qualifying small commercial customers. Refer to the Joint Initiatives Program Area Table 10.4 for more information.

**Table 7.7: Custom Design Program**

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | This Program provides eligible customers with funding towards the completion of a detailed Energy Study, aimed at identifying customized energy saving opportunities within their facilties, and subsequent capital incentive funding to encourage the implementation of any cost effective measures identified in the study. The program will capture energy savings associated with measures that are otherwise difficult to incent as part of a prescriptive program because they are complex, and one project may include multiple measures with interactive effects. The expected energy savings, measures, capital cost, incentives etc, will neccessarily vary depending on the customer, though each project is submitted to a TRC test and must be approved by the utility. | | | | | |
| Target Market | Commercial | | | | | |
| New vs Retrofit | Both | | | | | |
| Eligible Measures | Utility funded energy study, and utility incented Energy Saving Measures as identified in the energy study and approved by the utility. Energy Saving Measures are variable. | | | | | |
| Incremental Measure Cost | Variable. Dependent upon participant's proposed Energy Saving Measures. | | | | | |
| Incentive Amount | If TRC ≥ 1.0 then $5 / discounted GJ saved over 50% of the Energy Measure Life (EML), up to 10 yrs max. | | | | | |
| Savings Per Participant | Dependent upon participant's proposed Energy Saving Measures. | | | | | |
| Measure Life & Source | Variable. Dependent upon participant's proposed Energy Saving Measures. | | | | | |
| Free Rider Rate & Source | Variable. Dependent upon participant's proposed Energy Saving Measures. | | | | | |
| Participants | Service Region | 2011 Projected | 2011 Actual | | | |
| | FEI | N/A | 1 | | | |
| | FEVI | N/A | 1 | | | |
| | Total | N/A | 2 | | | |
| Expenditures ($,000s) | 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 347 | 3 | 15 | 2 | 366 |
| | FEVI | 59 | 1 | 2 | 6 | 68 |
| | Total | 406 | 4 | 16 | 8 | 435 |

Notes:

- Currently the New Construction version of the program is 'In-Market' as planned, via a partnership with BC Hydro. There were no expenditures for 2011 as no new construction energy studies were completed by end of year.
- The companies also began "Beta" testing the retrofit version of the program with a limited number of participants. Five projects, from customers who were willing to work through an incomplete program, were accepted into the Beta test.
- The participant and expenditure figures presented in the table above describe only those participants who have successfully completed the energy study and have secured a capital incentive commitment from the Companies. For 2011, these were two out of the five participants accepted into the Beta test of the retrofit version of the program.
- In addition to participant and expenditure figures presented in the table above, there were three other projects enrolled in the Beta test as well as one in the new construction version of the program that were in the process of developing their energy study. These are presented below:

| Service Region | New Construction | Retrofit (Beta Test) |
|---|---|---|
| FEI | 1 | 2 |
| FEVI | 0 | 1 |
| Total | 1 | 3 |

These projects will be recorded as participants once they have completed their energy study, at which point the Companies will be in a position to report on the capital incentive commitment, as well as the expected energy savings and cost benefit ratios.

**Table 7.8: Fireplace Timers Pilot Program**

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | The purpose of this pilot program is to study the effect on gas consumption of installing electronic programmable timers on decorative gas fireplaces in Multi Unit Residential Buildings. It is believed the timers will reduce instances of customers leaving gas fireplaces burning longer than is actually needed, thus leading to reduced natural gas consumption. | | | | | |
| Target Market | Commercial | | | | | |
| New vs Retrofit | Retrofit | | | | | |
| Eligible Measures | Electronic fireplace "time-of-operation" controller | | | | | |
| Incremental Measure Cost | $50 | | | | | |
| Incentive Amount | $50 | | | | | |
| Savings Per Participant | 3 GJ | | | | | |
| Measure Life & Source | 5 years - Pilot program assumption.<br>• No data regarding the measure life was available at the program outset, as no electronic fireplace timers were known to exist. The Companies had therefore to assume a reasonable value for the purpose of operating the pilot program.<br>• NOTE: Mechanical timers do exist, but are considered unsuitable and/or unsightly. The electronic timers used in the program were special ordered by the Companies. | | | | | |
| Free Rider Rate & Source | 0% - Pilot program assumption | | | | | |
| Participants | Service Region | 2011 Projected | 2011 Actual | | | |
| | FEI | 400 | 330 | | | |
| | FEVI | 30 | 0 | | | |
| | Total | 430 | 330 | | | |
| Expenditures ($,000s) | 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 17 | 0 | 0 | 0 | 17 |
| | FEVI | 0 | 0 | 0 | 0 | 0 |
| | Total | 17 | 0 | 0 | 0 | 17 |

**Table 7.9: Public Sector Energy Conservation Agreement ("PSECA") Initiative**

| | |
|---|---|
| Program Description | The Companies worked in partnership with the Climate Action Secretariat, BC Hydro, and Solar BC to encourage public sector organizations to reduce energy consumption and GHG emissions by offering incentives for the completion of qualifying projects. The 2011 program activity consists of projects designed to reduce natural gas consumption and greenhouse gas emissions of K through 12 schools. |
| Target Market | Commercial |
| New vs Retrofit | Retrofit |
| Eligible Measures | All cost effective (TRC > 1.0) Energy Saving Measures (ESMs) as identified in an energy study and approved by the utility. ESMs are variable and site dependant. |
| Incremental Measure Cost | Variable. Dependent upon participant's proposed Energy Saving Measures. |
| Incentive Amount | If TRC ≥ 1.0 then $5 / discounted GJ saved over 50% of the Energy Measure Life (EML), up to 10 yrs max. |
| Savings Per Participant | Variable. Dependent upon participant's proposed Energy Saving Measures. |
| Measure Life & Source | Variable. Dependent upon participant's proposed Energy Saving Measures. |
| Free Rider Rate & Source | 0% |

| Participants | Service Region | 2011 Projected | 2011 Actual |
|---|---|---|---|
| | FEI | 12 | 1 |
| | FEVI | 2 | 2 |
| | Total | 14 | 3 |

| Expenditures ($,000s) | 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|---|
| | FEI | 117 | 24 | 0 | 0 | 140 |
| | FEVI | 208 | 5 | 0 | 0 | 213 |
| | Total | 325 | 29 | 0 | 0 | 353 |

Note:

- The 2011 projected participation for FEI of 12 participants was based on an initial review of the Delta School District's submission to the PSECA program describing thermal upgrades at multiple school sites. Upon subsequent cost benefit analysis only 7 thermal upgrade projects, all of which are boiler upgrades, could be provided with an incentive. To maintain the reporting format used in other regulatory filing pertaining to the Delta School District, these are here presented as 1 participant receiving $116,790 of EEC incentives (upon measure completion) for boiler upgrades at 7 schools.

**Table 7.10: Radiant Tube Heaters Pilot Program**

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | This Pilot Program assesses the incremental costs and savings potential of radiant tube heaters when used for space heating in place of standard unit heaters. | | | | | |
| Target Market | Commercial | | | | | |
| New vs Retrofit | Retrofit | | | | | |
| Eligible Measures | Radiant tube heaters | | | | | |
| Incremental Measure Cost | Variable during pilot stage - Specific to actual participant | | | | | |
| Incentive Amount | Variable during pilot stage - Specific to actual participant | | | | | |
| Savings Per Participant | Variable during pilot stage - Specific to actual participant | | | | | |
| Measure Life & Source | 20 years - Ontario Energy Board approved DSM assumptions | | | | | |
| Free Rider Rate & Source | 0% - Pilot program assumption | | | | | |
| Participants | Service Region | 2011 Projected | 2011 Actual | | | |
| | FEI | 1 | 1 | | | |
| | FEVI | 0 | 0 | | | |
| | Total | 1 | 1 | | | |
| Expenditures ($,000s) | 2011 | | | | | |
| | Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 3 | 0 | 0 | 4 | 7 |
| | FEVI | 0 | 0 | 0 | 0 | 0 |
| | Total | 3 | 0 | 0 | 4 | 7 |

## 7.3 Commercial Programs Planned for 2011 But Not Launched

Four programs were described in the 2010 EEC Annual Report as planned programs, but were not launched during 2011. Estimated program costs were not included in the 2010 Annual Report for these proposed programs as they were in earlier stages of development. The program names, descriptions and reasons for not launching in 2011 are provided below.

### 7.3.1 CONTINUOUS OPTIMIZATION PROGRAM

This Program was intended to provide financial incentives to commercial customers to capture energy savings through building commissioning and real time energy monitoring. The Companies did not have sufficient human resources available to give the development and launch of the program the focus it required, and were therefore unable to bring the program to market in 2011. The Companies and BC Hydro are negotiating a joint program agreement which will allow the Companies to leverage BC Hydro's existing program to provide incentives for reduced natural gas consumption. The Companies expect that negotiations will conclude during the second quarter of 2012 and that incentives will be available to program participants very shortly thereafter.

### 7.3.2 COMMERCIAL COOKING PROGRAM

This Program would offer a suite of rebates for the installation of high efficiency commercial cooking equipment. Program research began in Q2 2011, and the research work (performed by the Food Service Technology Centre) took until January 2012. The Commercial team will begin work on program development shortly, with a program expected to be in market in 2012.

### 7.3.3 PROCESS HEAT PROGRAM

This Program would provide prescriptive rebates to encourage energy efficiency retrofits in manufacturing processes. The Companies did not have sufficient human resources available to give the development and launch of this program the focus it required, and were therefore unable to bring the program to market in 2011. The Companies anticipate launching this program in 2012.

### 7.3.4 MULTI-UNIT RESIDENTIAL BUILDING PROGRAM

This Program would offer an assortment of rebates targeted primarily at "In-Suite" gas saving measures for multi-unit residential buildings (“MURBs”). The Companies did not have sufficient human resources available to give the development and launch of this program the focus it required, and were therefore unable to bring the program to market in 2011, and anticipate launching this program in 2012.

## 7.4 Summary

Energy efficiency in the commercial sector represents a considerable opportunity to achieve natural gas savings and GHG emissions reductions. With more options for natural gas burning appliances, heating system design, and energy saving architectural features available for investment, and fewer minimum equipment efficiency standards than in the residential sector, sizeable cost effective investments can be made to help commercial sector customers reduce their energy consumption.

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

# 8 INNOVATIVE TECHNOLOGIES PROGRAM AREA

## 8.1 Overview

The Innovative Technologies Program Area evaluates market-ready technologies and undertakes pilot and demonstration projects, facilitates pre-feasibility studies and initiates Evaluation, Measurement, and Verification ("EM&V") protocols to validate manufacturers' claims related to equipment and system performance. This Program Area also assesses actual savings and customer acceptance of these newer technologies. Technologies that successfully emerge from the Innovative Technologies Program will be considered for inclusion in the various Program Areas within the larger EEC portfolio.

Table 8.1 summarizes the projected and actual expenditures for Innovative Technologies in 2011, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost test results.

## Table 8.1: 2011 Innovative Technologies Program Results Summary

| Program and Service Territory | Annual Gas Savings (GJ/yr.) | | Actual NPV Gas Savings (GJ) | Utility Expenditures ($000s) | | | | | | Benefit/Cost Ratios | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incentives | | Non-Incentives | | All Spending | | | | | |
| | 2011 Projected | 2011 Actual | | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | TRC | Utility | Participant | RIM |
| Non Program Specific Expenses | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | N/A | 8 | N/A | 8 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | N/A | 3 | N/A | 3 | | | | |
| Total | | | | N/A | N/A | N/A | 11 | N/A | 11 | | | | |
| PSECA Solar Thermal | | | | | | | | | | | | | |
| FEI | N/A | 2,213 | 25,439 | N/A | 210 | N/A | 0 | N/A | 210 | 0.2 | 1.3 | 0.4 | 0.6 |
| FEVI | N/A | 1,656 | 19,497 | N/A | 140 | N/A | 0 | N/A | 140 | 0.3 | 1.8 | 0.5 | 0.9 |
| Total | N/A | 3,869 | | N/A | 350 | N/A | 0 | N/A | 350 | | | | |
| PSECA Solar Air | | | | | | | | | | | | | |
| FEI | 1,458 | 1,458 | 17,817 | 73 | 73 | 5 | 4 | 78 | 77 | 0.4 | 2.5 | 0.5 | 0.7 |
| Total | 1,458 | 1,458 | 17,817 | 73 | 73 | 5 | 4 | 78 | 77 | | | | |
| SolarBC for Schools | | | | | | | | | | | | | |
| FEI | N/A | 177 | 2,035 | 22 | 20 | 0 | 1 | 22 | 21 | 0.1 | 1.0 | 1.8 | 0.5 |
| FEVI | N/A | 61 | 716 | 5 | 5 | 0 | 0 | 5 | 5 | 0.2 | 1.6 | 4.5 | 0.4 |
| Total | N/A | 238 | 2,751 | 27 | 25 | 0 | 1 | 27 | 26 | | | | |
| COV Solar Residential Water Heating Pilot | | | | | | | | | | | | | |
| FEI | 420 | 420 | 4,829 | 50 | 50 | 26 | 46 | 76 | 96 | 0.2 | 0.9 | 0.3 | 0.5 |
| Total | 420 | 420 | 4,829 | 50 | 50 | 26 | 46 | 76 | 96 | | | | |
| Condo Retrofit Pilot | | | | | | | | | | | | | |
| FEI | N/A | 6,492 | 72,251 | N/A | 386 | N/A | 15 | N/A | 401 | 1.7 | 2.3 | 3.5 | 0.8 |
| Total | N/A | 6,492 | 72,251 | N/A | 386 | N/A | 15 | N/A | 401 | | | | |
| Occupancy Sensor Pilot | | | | | | | | | | | | | |
| FEI | N/A | 527 | 3,676 | N/A | 30 | N/A | 10 | N/A | 40 | 0.6 | 0.9 | n/a | 0.5 |
| Total | N/A | 527 | 3,676 | N/A | 30 | N/A | 10 | N/A | 40 | | | | |
| City of Courtenay Solar Pool Demonstration Project | | | | | | | | | | | | | |
| FEVI | N/A | 499 | 5,332 | N/A | 30 | N/A | 15 | N/A | 45 | 1.2 | 1.3 | 33.0 | 0.4 |
| Total | N/A | 499 | 5,340 | N/A | 30 | N/A | 15 | N/A | 45 | | | | |
| Westhouse Project Demonstration Project | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | N/A | 11 | N/A | 11 | No Direct Savings | | | |
| Total | | | | N/A | N/A | N/A | 11 | N/A | 11 | | | | |
| SPF Drying Energy Management System | | | | | | | | | | | | | |
| FEI | N/A | 6,350 | 25,932 | N/A | 20 | N/A | 1 | N/A | 21 | 8.7 | 14.9 | 86.0 | 1.1 |
| Total | N/A | 6,350 | 25,932 | N/A | 20 | N/A | 1 | N/A | 21 | | | | |
| Studies and Memberships | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | N/A | 25 | N/A | 25 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | N/A | 1 | N/A | 1 | | | | |
| Total | | | | N/A | N/A | N/A | 26 | N/A | 26 | | | | |
| **ALL PROGRAMS** | | | | | | | | | | | | | |
| **FEI** | **1,878** | **17,637** | **151,979** | **145** | **789** | **31** | **121** | **176** | **910** | **0.7** | **2.0** | **1.3** | **0.7** |
| **FEVI** | **N/A** | **2,216** | **25,545** | **5** | **175** | **0** | **19** | **5** | **194** | **0.3** | **1.5** | **0.7** | **0.6** |
| **Total** | **1,878** | **19,853** | **177,524** | **150** | **964** | **31** | **140** | **181** | **1,104** | **0.7** | **1.9** | **1.2** | **0.7** |

Notes:

- The Innovative Technology portfolio in 2011 resulted in a TRC below 1.0 for both FEI and FEVI as much of the activity in the portfolio is pilot activity which has a small participant sample size realizing gas savings combined with a high fixed non-incentive expenditure, and the Companies' conservative estimates of the gas savings from the measures under review. The non-incentive expenditures include research costs such as studies and memberships as well as measurement and monitoring costs.

- As previously noted, expenditures for NGV have been removed from the Innovative Technologies portfolio. Since the NGV program was a very cost effective part of the Innovative Technology Portfolio, its removal has resulted in TRCs below 1.0.
- No new Innovative Technology programs with TRCs below 1.0 were launched in 2011 following Order G-128-11. Programs already under way in the Innovative Technologies portfolio, which were being undertaken with various partners, and to which the Companies had already committed, were continued.
- While it is common that pilots don't pass the cost benefit test, they do play an important role in encouraging innovation and the longevity of portfolio savings. The Provincial government recognized this important benefit in its recent amendments to the Demands Side Measures Regulation that designate innovative technology programs as a specified demand-side measure and removing the requirement for specified measures to pass cost-effectiveness tests going forward.

## 8.2 2011 Innovative Technologies Programs, Pilots, and Studies

Tables 8.2 through 8.6 outline the specific Innovative Technologies initiatives undertaken in 2011, including program and measure descriptions, as well as a breakdown of non-incentive spending.

**Table 8.2: PSECA Solar Water Heating**

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | The BC Government, through the PSECA, is working with SolarBC to fund solar thermal water and air heating systems in provincial public sector buildings including schools, universities, colleges, hospitals, and Crown corporations. | | | | | |
| Target Market | Provincial Government buildings (ie schools, universities,colleges, hospitals, and Crown Corporations). | | | | | |
| New vs Retrofit | Retrofit | | | | | |
| Eligible Measures | Solar water heating | | | | | |
| Incremental Measure Cost | Variable. Dependent upon participant's Energy Saving Measures | | | | | |
| Incentive Amount | The Companies will match the incentive offered by NRCan, which is calculated by Performance Factor x Incentive Rate x Area of Collector. | | | | | |
| Savings Per Participant | Variable. Dependent upon participant's Energy Saving Measures | | | | | |
| Measure Life & Source | 25 | | | | | |
| Free Rider Rate & Source | 0% | | | | | |
| Participants | Service Region | 2011 Projected | 2011 Actual | | | |
| | FEI | N/A | 14 | | | |
| | FEVI | N/A | 10 | | | |
| | Total | N/A | 24 | | | |
| Expenditures ($,000s) | 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 210 | 0 | 0 | 0 | 210 |
| | FEVI | 140 | 0 | 0 | 2 | 142 |
| | Total | 351 | 0 | 0 | 2 | 353 |

Notes:

- The program deadline for funding outstanding project commitments is contingent on them being commissioned prior to December 31, 2012. Projects commissioned after December 31, 2012 will no longer be eligible for the incentive.
- While the 2010 EEC Annual Report projected $375,000 in actual spending for this program in 2010, the majority of the projects were commissioned in 2011 and therefore incentive cheques were issued in the 2011 funding year rather than the 2010 funding year.

**Table 8.3: PSECA Solar Air**

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | The BC Government, through PSECA, developed a program to fund solar thermal water and air heating systems in provincial public sector buildings including schools, universities, colleges, hospitals, and Crown corporations. | | | | | |
| Target Market | Provincial Government buildings (ie schools, universities,colleges, hospitals, and Crown Corporations). | | | | | |
| New vs Retrofit | Retrofit | | | | | |
| Eligible Measures | Solar Air Heating | | | | | |
| Incremental Measure Cost | Variable. Dependent upon participant's Energy Saving Measures | | | | | |
| Incentive Amount | The Companies will match the incentive offered by NRCan, which is calculated by Performance Factor x Incentive Rate x Area of Collector. | | | | | |
| Savings Per Participant | Variable. Dependent upon participant's Energy Saving Measures | | | | | |
| Measure Life & Source | 25 years; RETSCREEN Inputs developed by Natural Resources Canada | | | | | |
| Free Rider Rate & Source | 0% | | | | | |
| Participants | Service Region | 2011 Projected | 2011 Actual | | | |
| | FEI | 6 | 6 | | | |
| | FEVI | 0 | 0 | | | |
| | Total | 6 | 6 | | | |
| Expenditures ($,000s) | 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 73 | 4 | 0 | 0 | 77 |
| | FEVI | 0 | 0 | 0 | 0 | 0 |
| | Total | 73 | 4 | 0 | 0 | 77 |

Note:

- The program deadline for funding outstanding project commitments is contingent on them being commissioned prior to December 31, 2012. Projects commissioned after December 31, 2012 will no longer be eligible for the incentive.

**Table 8.4: SolarBC for Schools**

| | |
|---|---|
| Program Description | Program initiated by SolarBC to encourage the adoption of solar water heating systems in schools to reduce natural gas consumption and increase awarenes. |
| Target Market | Schools |
| New vs Retrofit | Retrofit |
| Eligible Measures | Solar water heating |
| Incremental Measure Cost | Variable. Dependent upon participant's Energy Saving Measures |
| Incentive Amount | Variable. Dependent upon participant's Energy Saving Measures |
| Savings Per Participant | Variable. Dependent upon participant's Energy Saving Measures |
| Measure Life & Source | 25 years; RETSCREEN Inputs developed by Natural Resources Canada |
| Free Rider Rate & Source | 0% |
| Participants | Service Region: 2011 Projected: 2011 Actual<br>FEI: N/A: 5<br>FEVI: N/A: 2<br>Total: N/A: 7 |
| Expenditures ($,000s) | 2011<br>Service Region: Incentives: Admin: Communication: Research & Evaluation: Total<br>FEI: 20: 1: 0: 0: 21<br>FEVI: 5: 0: 0: 0: 5<br>Total: 25: 1: 0: 0: 26 |

Note:

- The program deadline for funding outstanding project commitments is contingent on them being commissioned prior to December 31, 2012. Projects commissioned after December 31, 2012 will no longer be eligible for the incentive.

## Table 8.5: Pilots

| | |
|---|---|
| Program Description | Evaluating market-ready technologies and conducting pilot studies and/or demonstration projects to validate manufacturers' claims about equipment and system performance, and energy efficiency. The data from pilots can also be used to help improve the quality and installation of future systems, and to understand and reduce market barriers. Technologies that successfully emerge from the Innovative Technologies Program will be considered for inclusion in the various program areas within the larger EEC portfolio |
| Target Market | Variable |
| New vs Retrofit | Both |
| *City of Vancouver Residential Solar Water Heating Pilot* | Pilot project initiated by the City of Vancouver, Offsetters, and SolarBC to promote the installation of 30 Solar Hot Water systems within Vancouver. The Companies have committed $50,000 to support this project and to gather real data and validate the energy savings claims. |
| *Condo Retrofit Pilot* | Pilot project initiated by the City of Vancouver to promote the installation of Variable Frequency Drive Ventilation Controls and Piping Insulation and Solar Thermal Hot Water for 15 Multi-Unit Residential Buildings (MURBs) within Vancouver. The Companies have committed $386,277 to support this pilot and to gather real data and validate the energy savings claims. |
| *Occupancy Sensor Pilot* | Partnership with the Burnaby School District #41 (SD#41) and Delta School District #37 (SD#37) to facilitate a "proof of concept" pilot study to validate energy saving claims of adding occupancy controls to unit ventilators to reduce energy costs associated with heating and lighting unoccupied classrooms. The Companies committed $29,750 to support this project and to gather real data and validate the energy savings claims. |
| *City of Courtenay Solar Pool Demonstration Project* | Collaboration with the City of Courtenay to demonstrate Solar thermal pool heating on a highly attended and highly visible recreation facility in the center of downtown Courtenay. The Companies provided $29,572 in incentives to support this project and to gather real data on the performance and energy savings for outdoor recreational pool heating using solar thermal unglazed collectors. |
| *Westhouse Demonstration Project* | Demonstration project initiated between the City of Vancouver and Simon Fraser University to demonstrate alternative energy in a high visibility collaboration and to gain information on the operation and energy performance of the solar thermal hot water system installed on a Laneway home in Vancouver. The Companies committed funds to support this project and to gather consumption data. |
| *SFP Drying Energy Management System* | Demonstration project initiated by BCHydro geared to validate energy savings claims by using improved process controls for lumber drying. BCHydro anticipates both electric and gas savings of 10% from a reduction in drying time and more precise drying control. The Companies have committed $25,000 to support this project and to gather real data and validate the energy savings claims with the following measure. |
| Incremental Measure Cost | N/A |
| Incentive Amount | N/A |
| Savings Per Participant | N/A |
| Measure Life & Source | N/A |
| Free Rider Rate & Source | N/A |

Participants

| Service Region | 2011 Projected | 2011 Actual |
|---|---|---|
| FEI | N/A | N/A |
| FEVI | N/A | N/A |
| Total | N/A | N/A |

Expenditures ($,000s)

| 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | 505 | 0 | 2 | 86 | 593 |
| FEVI | 30 | 0 | 0 | 15 | 45 |
| Total | 535 | 0 | 2 | 101 | 638 |

**Table 8.6: Studies and Memberships**

| | |
|---|---|
| Program Description | In order to evaluate market-ready technologies, it is important to participate in technology performance studies and industry memberships. The main objectives of these initiatives are to help validate energy savings claims and stay abreast of additional market available technologies, while collaborating and sharing costs amongst other gas and electric utilities. The Companies are a CEATI member (outlined below) and have commissioned prefeasibility studies to determine the energy-saving potential, market availability and barriers, adoption rate and claimed energy savings associated with a variety of technologies. |
| Target Market | Variable |
| New vs Retrofit | Both |
| *Condensing Rooftop Unit Prefeasibility Study* | Condensing Makeup Air Units ("MUA") have recently entered the marketplace in BC. Compared to the widely adopted standard efficiency MUA, Condensing MUA units have claimed natural gas savings of up to 20% per year. |
| *Thermal Curtains Prefeasibility Study* | Thermal curtains are used in greenhouses to reduce heat loss, mostly at night, thus reducing fuel consumption. As part of the BC Farms Phase 1 study conducted by Prism Engineering, the use of thermal curtains for greenhouse applications was recognized as a potential energy management opportunity. |
| *Catalytic Infrared ovens Prefeasibility Study* | Catalytic Infrared technology is a recent advancement in the heat treatment industry whereby radiant heat is produces through a catalytic process which is flameless and have claimed natural gas savings of approximately 30 – 50% over Convection Heating (base case). |
| *Microwave Assist Prefeasibility Study* | Microwave Assist Technology (MAT) is a dual fuel or hybrid process developed for the ceramic industry. MAT is applied during the heat treatment process which exposes the object simultaneously to microwave energy and radiant conventional heat. This technique significantly reduces the heating time as the object experiences volumetric heating through microwaves and convective heating at the same time. The main benefits have claimed energy consumption reductions in the range of 50% - 60% due to reduced heating time of approximately 50% and lowered heating temperature. |
| *Centre for Energy Advancement through Technological Innovation (CEATI) Membership* | The Companies participate in CEATI's Gas Utilization Working Group , which has identified possible areas for collaboration, including solar thermal, motion sensor thermostats, combined heat and power ("CHP"), gasification of biomass, and water heater technology. The group will collaborate with utilities and stakeholders on potential studies, pilots, and demonstration projects which will be used to confirm savings claims and guide the development of future programs |
| Incremental Measure Cost | N/A |
| Incentive Amount | N/A |
| Savings Per Participant | N/A |
| Measure Life & Source | N/A |
| Free Rider Rate & Source | N/A |
| Participants | Service Region: 2011 Projected: 2011 Actual<br>FEI: N/A: N/A<br>FEVI: N/A: N/A<br>Total: N/A: N/A |
| Expenditures ($,000s) | 2011<br>Service Region: Incentives: Admin: Communication: Research & Evaluation: Total<br>FEI: N/A: 0: 0: 25: 25<br>FEVI: N/A: 0: 0: 1: 1<br>Total: N/A: 0: 0: 26: 26 |

Note:

- Partial payments were made in 2011 for these studies so the Companies will report expenditures for these studies in 2012 as well.

## 8.3 Summary

Innovative technologies represent an important component of the Companies' overall commitment to EEC activities, and provide an opportunity for evaluation of potential future

programs in other Program Areas. Since being staffed with a manager for this Program Area at the end of Q2 2010, the Companies have enhanced the program's framework, established relationships with key industry stakeholders, and evaluated market-ready technologies.

# 9 INDUSTRIAL ENERGY EFFICIENCY PROGRAM AREA

## 9.1 Overview

The Companies' Industrial Sector Program Area, offered for FEI customers in 2011, offers opportunities for energy efficiency and conservation activities for Industrial customers, while managing the risk associated with the large financial investments necessary to improve energy efficiency in industrial facilities. Table 9.1 summarizes the projected and actual expenditures for Industrial Programs in 2011, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost test results.

**Table 9.1: 2011 Industrial Energy Efficiency Program Results Summary**

| Program and Service Territory | Annual Gas Savings (GJ/yr.) | | Actual NPV Gas Savings (GJ) | Utility Expenditures ($000s) | | | | | | Benefit/Cost Ratios | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incentives | | Non-Incentives | | All Spending | | | | | |
| | 2011 Projected | 2011 Actual | | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | TRC | Utility | Participant | RIM |
| Non Program Specific Expenses | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | 0 | N/A | 11 | N/A | 11 | No Direct Savings | | | |
| Industrial Energy Audit Funding Program | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | 20 | 20 | 3 | 0 | 23 | 20 | No Direct Savings | | | |
| Customer Energy Analysis Program | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | N/A | 117 | N/A | 117 | No Direct Savings | | | |
| Heat Exchanger Pilot | | | | | | | | | | | | | |
| FEI | 70,000 | Program development only | | 500 | 0 | 50 | 7 | 550 | 7 | Program Development only in 2011. | | | |
| Burner Management System | | | | | | | | | | | | | |
| FEI | N/A | Program development only | | N/A | 0 | N/A | 4 | N/A | 4 | Program Development only in 2011. | | | |
| **ALL PROGRAMS** | | | | | | | | | | Programs under development, | | | |
| **FEI** | **70,000** | **N/A** | **N/A** | **520** | **20** | **53** | **139** | **573** | **159** | therefore results not yet available | | | |

Notes:

- The Heat Exchanger Pilot program has no incentive expenditures in 2011. The Companies had anticipated incentives of $500,000 in the 2011 budget. However, the project development has taken longer than expected and therefore no incentives have been distributed in 2011. The actual non-incentive expenditures in 2011 were less than projected due to the program's extended development process.
- The Burner Management System program has no incentive expenditures in 2011. An incentive agreement is in place with the participating customer and the Companies expect to distribute incentives in 2012.

## 9.2 2011 Industrial Energy Efficiency Programs

The following tables outline the specific Industrial Programs undertaken in 2011, including program and measure descriptions, as well as a breakdown of non-incentive spending.

### Table 9.2: Industrial Energy Audit

| | |
|---|---|
| Program Description | The purpose of this program is to determine if there are any opportunities in customers' industrial manufacturing processes that could help reduce the amount of natural gas used at their facilities, as well as to look for opportunities for customer projects to be pilot projects for each industrial sector. The program purpose is achieved through the implementation of an energy audit at each customer's site. The customer has the opportunity to choose an engineering company to work with and complete an audit within six months from signing the agreement with FortisBC. After completion of the audit, a feasibility report must be prepared by a Professional Engineer or Certified Energy Manager and the report should include a detailed analysis of energy savings opportunities, a strategy for measurement and verification of the proposed savings and cost effectiveness results as well as other details provided in the customer's agreement. |
| Target Market | Industrial |
| New vs Retrofit | Retrofit |
| Eligible Measures | Energy Audit |
| Incremental Measure Cost | Variable |
| Incentive Amount | Up to 100% of the cost of the audits for eligible customers up to a maximum of $40,000 depending on the customer's annual gas consumption |
| Savings Per Participant | N/A |
| Measure Life & Source | N/A |
| Free Rider Rate & Source | N/A |
| Participants | Service Region 2011 Projected 2011 Actual<br>FEI 10 1 |
| Expenditures ($,000s) | 2011<br>Service Region Incentives Admin Communication Research & Evaluation Total<br>FEI 20 0 0 0 20 |

### Table 9.3: Customer Energy Analysis

| | |
|---|---|
| Program Description | This Pilot program includes the study/analysis of the energy-saving opportunities at 15 customer sites. The purpose of the program is achieved by identification of specific natural gas effiency projects and showing the cost effectiveness of these projects as well as by recognition of market barriers and the type of incentives which would remove these market barriers. |
| Target Market | Industrial |
| New vs Retrofit | N/A |
| Eligible Measures | Energy Analysis |
| Incremental Measure Cost | Retrofit |
| Incentive Amount | No direct incentive to customer. Please see note below. |
| Savings Per Participant | Variable |
| Measure Life & Source | Variable |
| Free Rider Rate & Source | 30%; estimate |
| Participants | Service Region 2011 Projected 2011 Actual<br>FEI N/A 15 |
| Expenditures ($,000s) | 2011<br>Service Region Incentives Admin Communication Research & Evaluation Total<br>FEI 0 50 0 66 117 |

Note:

- The Customer Energy Analysis Pilot program is now closed; it was intended to determine the energy savings opportunities for small to mid-sized manufacturers. No direct incentives were given out to customers but the program was implemented with the help of two different consultant companies for administration and for technical evaluation of the program. It was suggested that a Pilot program involving 15 customer sites should be the first step in the development of this type of program. Since those opportunities were discovered through this program in 2011, the Companies intention is to launch a full program with the engagement of 165 small to mid-sized manufacturers.

**Table 9.4: Heat Exchanger Pilot**

| | |
|---|---|
| Program Description | The key objective for this pilot is to replace a pulp and paper industry customer's outdated heat exchanger with a new energy efficient one. |
| Target Market | Industrial |
| New vs Retrofit | Retrofit |
| Eligible Measures | High efficiency heat exchangers |
| Incremental Measure Cost | $2 million (+/- 20%) |
| Incentive Amount | Up to $1,000,000 depending on the savings amount. |
| Savings Per Participant | 70,000 GJ |
| Measure Life & Source | 10 years; Manufacturers, ESource |
| Free Rider Rate & Source | N/A |
| Participants | Service Region 2011 Projected 2011 Actual<br>FEI 1 1 |
| Expenditures ($,000s) | 2011<br>Service Region Incentives Admin Communication Research & Evaluation Total<br>FEI 0 7 0 0 7 |

**Table 9.5: Burner Management System**

| | |
|---|---|
| Program Description | This program offers incentives to replace an existing burner management system with a new, efficient automative burner control system. |
| Target Market | Industrial |
| New vs Retrofit | Retrofit |
| Eligible Measures | Automatic burner control system |
| Incremental Measure Cost | $14,000 |
| Incentive Amount | Up to $10,000 depending on the savings amount. |
| Savings Per Participant | 1296 GJ |
| Measure Life & Source | 10 years; Manufacturer |
| Free Rider Rate & Source | 0% |
| Participants | Service Region 2011 Projected 2011 Actual<br>FEI N/A 1 |
| Expenditures ($,000s) | 2011<br>Service Region Incentives Admin Communication Research & Evaluation Total<br>FEI 0 4 0 0 4 |

## 9.3 2011 Industrial EEC Programs – Planned but not launched

### 9.3.1 HEAT EXCHANGER PULP AND PAPER MILLS PROGRAM

This prescriptive program was planned depending on the results of the Heat Exchanger Pilot program but has not been launched because the Heat Exchanger Pilot Program is not yet complete.

## 9.4 Summary

The Industrial Sector Program Area represents a crucial component of the Companies' overall commitment to EEC activities with large long-term potential energy savings. Since being staffed with a program manager at the end of Q2 2010, the industrial Program Area has initiated its own strategy and established relationships with key industry stakeholders and customers, offering substantial opportunities for energy efficiency and conservation. The evolution of industrial EEC programs is expected to yield substantial future efficiency and conservation benefits.

# 10 JOINT INITIATIVES PROGRAM AREA

## 10.1 Overview

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

Joint Initiatives were initially outlined and approved in the 2008 EEC Application as a separate and unique Program Area. Since, in practice, the Joint Initiatives involve a variety of Program Areas, moving forward the Companies have requested that joint programs be incorporated within each specific Program Area. The majority of the programs listed in Table 10.1 will be incorporated into the Residential Program Area, with the exception of LiveSmart BC – Small Business, which operates in conjunction with Commercial Energy Efficiency programs. Wherever possible, the Companies work with utility partners and government for collaborative program offerings.

Table 10.1 summarizes the projected and actual expenditures for Joint Initiatives in 2011, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost test results.

## Table 10.1: 2011 Joint Initiatives Program Area Results Summary

| Program and Service Territory | Annual Gas Savings (GJ/yr.) | | Actual NPV Gas Savings (GJ) | Utility Expenditures ($000s) | | | | | | Benefit/Cost Ratios | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incentives | | Non-Incentives | | All Spending | | | | | |
| | 2011 Projected | 2011 Actual | | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | TRC | Utility | Participant | RIM |
| Non Program Specific Expenses | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | 0 | 160 | 0 | 160 | 0 | No Direct Savings | | | |
| FEVI | | | | N/A | 0 | 40 | 0 | 40 | 0 | | | | |
| Total | | | | N/A | 0 | 200 | 0 | 200 | 0 | | | | |
| LiveSmart BC - April 1 2010 through March 31 2011 | | | | | | | | | | | | | |
| FEI | 21,463 | 37,220 | 409,704 | 531 | 771 | 85 | 226 | 616 | 997 | 1.4 | 4.4 | 2.7 | 0.8 |
| FEVI | 1,075 | 2,128 | 23,666 | 27 | 34 | 15 | 51 | 42 | 85 | 1.3 | 2.9 | 2.7 | 0.7 |
| Total | 22,538 | 39,348 | 433,370 | 558 | 805 | 100 | 277 | 658 | 1,082 | | | | |
| LiveSmart BC - April 1 2011 through March 31 2012 | | | | | | | | | | | | | |
| FEI | 40,503 | Results will be reported in 2012 | | 1596 | 0 | 162 | 0 | 1,758 | 0 | Results will be reported in 2012 | | | |
| FEVI | 4,070 | | | 160 | 0 | 18 | 0 | 178 | 0 | | | | |
| Total | 44,573 | | | 1756 | 0 | 180 | 0 | 1,936 | 0 | | | | |
| LiveSmart BC - For Small Business | | | | | | | | | | | | | |
| FEI | N/A | Program development only in 2011 | | N/A | N/A | N/A | | N/A | | Program development only in 2011 | | | |
| FEVI | N/A | | | N/A | N/A | N/A | | N/A | | | | | |
| Total | N/A | | | N/A | N/A | N/A | | N/A | | | | | |
| Home Energy Assessment Promotion of LiveSmartBC and EcoENERGY | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | 10 | N/A | 69 | N/A | 79 | No Direct Savings | | | |
| FEVI | | | | N/A | 1 | N/A | 17 | N/A | 17 | | | | |
| Total | | | | N/A | 11 | N/A | 86 | N/A | 96 | | | | |
| Home Efficiency Web Portal | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | 50 | 17 | 50 | 17 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | 10 | 4 | 10 | 4 | | | | |
| Total | | | | N/A | N/A | 60 | 21 | 60 | 21 | | | | |
| ENERGY STAR Washer Program | | | | | | | | | | | | | |
| FEI | 14,364 | 8,497 | 73,649 | 302 | 298 | 57 | 27 | 359 | 325 | 0.8 | 2.4 | 1.2 | 0.5 |
| FEVI | 3,591 | 675 | 5,946 | 63 | 24 | 8 | 4 | 71 | 28 | 0.8 | 2.3 | 1.2 | 0.5 |
| Total | 17,955 | 9,172 | 79,595 | 365 | 322 | 65 | 31 | 430 | 353 | | | | |
| **ALL PROGRAMS** | | | | | | | | | | | | | |
| **FEI** | **76,330** | **45,717** | **483,353** | **2,429** | **1,079** | **514** | **339** | **2,943** | **1,418** | **1.2** | **3.7** | **2.0** | **0.7** |
| **FEVI** | **8,736** | **2,803** | **29,612** | **250** | **59** | **91** | **76** | **341** | **134** | **1.0** | **2.4** | **1.9** | **0.7** |
| **Total** | **85,066** | **48,520** | **512,965** | **2,679** | **1,138** | **605** | **415** | **3,284** | **1,552** | **1.2** | **3.6** | **2.0** | **0.7** |

Notes:

- Please note that there are two line items for LiveSmart BC Efficiency Incentives for Home Renovations. These correspond to annual program iterations based on launch date.

    1. LiveSmart BC – Launched April 2010 includes retrofits completed through March 2011 for which utility partners provided incentives for insulation, air sealing and windows. Actual expenditures are greater than projected expenditures for several reasons:

        - Program participation was higher than forecasted
        - Energy savings are higher than forecasted due to increased program participation and the fact that participants engaged in deeper retrofits than forecasted
        - Non-incentive expenditures include all LiveSmart BC program expenditures for 2011. These include $100,000 for an extensive LiveSmart BC evaluation in collaboration with utility partners and program administration expenses such as contribution to IT reporting upgrades, call center support,

communications and other administrative functions that are cost-shared by the province and utility partners.

2. LiveSmart BC – Launched April 2011 includes retrofits completed through March 2012 for which utility partners provided increased incentives for insulation, air sealing and windows in order to promote greater participation in home retrofits. Because the Companies have not received invoices from the Ministry of Energy and Mines for this program iteration, energy savings results will be reported in 2012. However, expenses incurred in 2011 are included in the 2010 program iteration referred to above.

## 10.2 2011 Joint Initiatives by Program

Tables 10.2 through 10.7 outline the specific Joint Initiative programs undertaken in 2011 including program and measure descriptions as well as a breakdown of non-incentive spending.

**Table 10.2: LiveSmart BC April 2010 to March 2011**

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | The LiveSmart BC Home Efficiency Incentives Program promotes energy efficient home retrofits involving collaboration with utility partners, as well as provincial, federal, and municipal governments. This program iteration includes retrofits completed from April 2010 through March 2011. | | | | | |
| Target Market | Residential | | | | | |
| New vs Retrofit | Retrofit | | | | | |
| Eligible Measures | Several different types of Air Sealing, Insulation, and Window measures | | | | | |
| Incremental Measure Cost | $1619 -* weighted average based on actual retrofits performed | | | | | |
| Incentive Amount | $394 + $121 Ministry of Energy and Mines - * | | | | | |
| Savings Per Participant | 22.7 GJs - * | | | | | |
| Measure Life & Source | 20 year average<br>(10-15 years for Air Sealing, 20-25 years for Insulation, and 20-25 years for Windows); Consultations with BC Hydro, Habart & Hood, and 2010 Conservation Potential Review | | | | | |
| Free Rider Rate & Source | 18% average<br>(12% for Air Sealing, 12% for Insulation, and 25% for Windows); BC Hydro past program analysis | | | | | |
| Participants | | 2010/2011 | 2010/2011 | | | |
| | Service Region | Projected | Actual | | | |
| | FEI | 2,156 | 2,029 | | | |
| | FEVI | 108 | 105 | | | |
| | Total | 2,264 | 2,134 | | | |
| Expenditures ($,000s) | 2011 | | | | | |
| | Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 771 | 109 | 2 | 115 | 996 |
| | FEVI | 34 | 21 | 0 | 29 | 84 |
| | Total | 805 | 131 | 2 | 143 | 1,080 |

**Table 10.3: LiveSmart BC April 2011 to March 2012**

| | |
|---|---|
| Program Description | LiveSmart BC Home Efficiency Incentives promotes energy efficient home retrofits involving collaboration with utility partners, as well as provincial, federal, and municipal governments. This iteration includes retrofits completed from April 2011 through March 2012. As of April 2011, the utility contribution for incentive amounts for building envelope were increased over the 2010 iteration. In addition, the federal NRCan EcoENERGY program was relaunched such that homeowners completing retrofits completed from June 6, 2011 through March 31, 2012 had access to both provincial and federal incentives for energy effficient retrofits. |
| Target Market | Residential |
| New vs Retrofit | Retrofit |
| Eligible Measures | Several different types of Air Sealing, Insulation, and Window measures |
| Incremental Measure Cost | $682 - * Weighted averages based on multiple measures and projected participants. |
| Incentive Amount | $265 + $54 Ministry of Energy and Mines-* |
| Savings Per Participant | 10.4 GJ - * |
| Measure Life & Source | 20 year average assumed<br>(10-15 years for Air Sealing, 20-25 years for Insulation, and 20-25 years for Windows);<br>Consultations with BC Hydro, Habart & Hood, and 2010 Conservation Potential Review |
| Free Rider Rate & Source | 18% average assumed<br>(12% for Air Sealing, 12% for Insulation, and 25% for Windows); BC Hydro past program analysis |
| Participants | Service Region: 2011 Projected / 2011 Actual<br>FEI: 5,097 / N/A<br>FEVI: 510 / N/A<br>Total: 5,607 / N/A |
| Expenditures ($,000s) | 2011<br>Service Region: Incentives | Admin | Communication | Research & Evaluation | Total<br>FEI<br>FEVI: *Expenditures and program results to be reported in 2012*<br>Total |

Note:

- 2011 projected energy savings estimates of 10.4 GJ's per participant were based on Hot 2000 modeling (Innes Hood Consulting) and weighted averages for multiple measures. 2010 actual energy savings estimates of 22.7 GJ's per participant were achieved (please refer to Table 10.2). This increase in energy savings per participant is due to a higher incidence of deep retrofits (such as insulation measures) than forecasted. The LiveSmart BC program evaluation will validate these energy savings claims through consumption analysis. These validated energy savings will be reported in the 2012 EEC Report.

**Table 10.4: LiveSmart BC for Small Business**

| | |
|---|---|
| Program Description | This initiative involves collaboration with utility partners and the provincial government to help small businesses reduce their energy consumption and save money.<br>The Companies have developed and signed a joint program agreement with the Ministry of Energy and Mines. Under this agreement, participants in the Light Commercial Energy Star Boiler, Efficient Commercial Water Heater and Efficient Boiler Programs who meet the Ministry Small Business eligibility criteria can receive a government-provided matching rebate to a maximum of $1,495 in addition to the rebate provided by the Companies through the Commercial Energy Efficiency programs.<br>LiveSmart BC Small Business branded collateral began appearing in December 2011. The Minsitry of Energy and Mines officially announced the collaboration with the Companies in February 2012. |
| Target Market | Commercial |
| New vs Retrofit | Retrofit |
| Eligible Measures | Efficient Boiler Program; Light Commercial Energy Star Boiler Program; Efficient Commercial Water Heater |
| Incremental Measure Cost | See Tables 7.2, 7.3, and 7.3 for detailed information |
| Incentive Amount | See Tables 7.2, 7.3, and 7.3 for detailed information |
| Savings Per Participant | See Tables 7.2, 7.3, and 7.3 for detailed information |
| Measure Life & Source | See Tables 7.2, 7.3, and 7.3 for detailed information |
| Free Rider Rate & Source | See Tables 7.2, 7.3, and 7.3 for detailed information |
| Participants | Service Region 2011 Projected 2011 Actual<br>FEI N/A 0<br>FEVI N/A 0<br>Total N/A 0 |
| Expenditures ($,000s) | 2011<br>Service Region Incentives Admin Communication Research & Evaluation Total<br>FEI<br>FEVI *Expenditures and program results to be reported in 2012*<br>Total |

Notes:

- Distribution of the government-provided rebate top ups is administered by the Companies, however all top-ups are funded by the provincial government and these funds are not reported by the Companies in this Report.
- While no participants were registered in 2011, it should be understood that any participants recorded here or in subsequent reports do not represent participation over and above that identified in the Light Commercial Energy Star Boiler, Efficient Commercial Water Heater and Efficient Boiler Programs. Rather, these are customers who successfully obtained a rebate from one of the three above mentioned Commercial Energy Efficiency incentive programs, and who also successfully obtained a government funded rebate top up.

### Table 10.5: Home Energy Assessment Promotion

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | This Program encourages customers to undertake a Home Energy Assessment and ultimately home energy retrofits in order to take advantage of LiveSmart BC and EcoENERGY federal grants. | | | | | |
| Target Market | Residential | | | | | |
| New vs Retrofit | Retrofit | | | | | |
| Eligible Measures | N/A | | | | | |
| Incremental Measure Cost | $150 | | | | | |
| Incentive Amount | $25 Minimum incentive with a chance to win a free assessment | | | | | |
| Savings Per Participant | No direct savings but assessments will drive further savings from energy retrofits | | | | | |
| Measure Life & Source | N/A | | | | | |
| Free Rider Rate & Source | N/A | | | | | |
| Participants | Service Region | 2011 Projected | 2011 Actual | | | |
| | FEI | N/A | 353 | | | |
| | FEVI | N/A | 27 | | | |
| | Total | N/A | 380 | | | |
| Expenditures ($,000s) | 2011 | | | | | |
| | Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 10 | 1 | 68 | 0 | 79 |
| | FEVI | 1 | 1 | 16 | 0 | 17 |
| | Total | 10 | 2 | 84 | 0 | 96 |

Note:

- Communications expenses for this promotion were incurred in 2011; however participants are eligible until March 31, 2012 for their home energy assessment. Further incentive expenditures will be reported in the 2012 EEC Report.

### Table 10.6: Home Efficiency Web Portal

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | This objective of this initiative was to develop a home energy efficiency web portal with content, energy saving tips and a "one-stop rebate shop" for the province of BC. The requirements document and wire frames for the website were co-funded by Fortis BC Energy Inc., FortisBC and BCHydro. | | | | | |
| Target Market | Residential | | | | | |
| New vs Retrofit | Retrofit | | | | | |
| Eligible Measures | N/A | | | | | |
| Incremental Measure Cost | N/A | | | | | |
| Incentive Amount | N/A | | | | | |
| Savings Per Participant | N/A | | | | | |
| Measure Life & Source | N/A | | | | | |
| Free Rider Rate & Source | N/A | | | | | |
| Participants | Service Region | 2011 Projected | 2011 Actual | | | |
| | FEI | N/A | N/A | | | |
| | FEVI | N/A | N/A | | | |
| | Total | N/A | N/A | | | |
| Expenditures ($,000s) | 2011 | | | | | |
| | Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 0 | 0 | 0 | 17 | 17 |
| | FEVI | 0 | 0 | 0 | 4 | 4 |
| | Total | 0 | 0 | 0 | 21 | 21 |

Note:

- The utility partners developed an RFP for the shared vision of this website. The project is now on hold awaiting a funding decision by program partners.

**Table 10.7: ENERGY STAR® Washer Program**

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | This Program provides rebates on select ENERGY STAR® clothes washers in collaboration with electric utility partners. | | | | | |
| Target Market | Residential | | | | | |
| New vs Retrofit | Retrofit | | | | | |
| Eligible Measures | ENERGY STAR Washing Machines | | | | | |
| Incremental Measure Cost | $325 | | | | | |
| Incentive Amount | $50 + $25 BC Hydro or FortisBC Inc. (electric utility) for a total customer incentive of $75 | | | | | |
| Savings Per Participant | 1.5 GJ natural gas plus 0.25 GJ electric - Based on ICF Marbek 2010 Conservation Potential Review and assuming 8% penetration of gas dryers. | | | | | |
| Measure Life & Source | 14 years - 2010 Conservation Potential Review and Ontario Power Authority "2010 Prescriptive Measures and Assumptions: Release 1" | | | | | |
| Free Rider Rate & Source | 5% - BCHydro, based on market share of these select Tier 3 washers | | | | | |
| Participants | Service Region | 2011 Projected | 2011 Actual | | | |
| | FEI | 6,040 | 5,963 | | | |
| | FEVI | 1,260 | 474 | | | |
| | Total | 7,300 | 6,437 | | | |
| Expenditures ($,000s) | 2011 | | | | | |
| | Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 298 | 19 | 8 | 0 | 325 |
| | FEVI | 24 | 2 | 2 | 0 | 28 |
| | Total | 322 | 21 | 10 | 0 | 353 |

## 10.3 Summary

Joint Initiative programs provide numerous mutually beneficial advantages to all partners in the collaboration, and their customers. In working together, utilities and government partners can engage in more programs, extend the reach of incentives, provide cost-effective education and outreach, and generate even greater energy savings and GHG emissions reductions

# 11 CONSERVATION, EDUCATION, AND OUTREACH INITIATIVES

## 11.1 Overview

The goal of the Conservation Education and Outreach ("CEO") Program Area is to foster and develop a culture of conservation within the province by educating customers and supporting one of the EEC's portfolio goals supporting Government's GHG emissions reduction goals. The CEO Program Area was designed to include general conservation and non-program-specific communications, aimed at educating customers including residential, commercial, and students to encourage them to take small steps towards energy conservation so that they will also be receptive to incentive programs when they are proposed.

A variety of methods are employed in order to educate the various customer segments, such as print and online communications, bill inserts, home and trade shows, community outreach, school education, and behaviour change engagement programs, and are described briefly in this section. Since these are not incentive based programs and the Companies have not attributed direct savings to them in 2011, the following tables do not contain information about eligible measures, incentive amounts, savings levels, free ridership, spillover or participation levels. CEO costs are included at the portfolio level, and are incorporated into the overall EEC portfolio TRC.

Table 11.1 summarizes the projected and actual expenditures for CEO initiatives in 2011.

**Table 11.1: 2011 CEO Initiative Results Summary**

| Program and Service Territory | Annual Gas Savings (GJ/yr.) | | Actual NPV Gas Savings (GJ) | Utility Expenditures ($000s) | | | | | | Benefit/Cost Ratios | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incentives | | Non-Incentives | | All Spending | | | | | |
| | 2011 Projected | 2011 Actual | | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | TRC | Utility | Participant | RIM |
| Non Program Specific Expenses | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | 100 | 179 | 100 | 179 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | 38 | 40 | 38 | 40 | | | | |
| Total | | | | N/A | N/A | 138 | 219 | 138 | 219 | | | | |
| Residential and General Public | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | 1,500 | 1,275 | 1,500 | 1,275 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | 275 | 129 | 275 | 129 | | | | |
| Total | | | | N/A | N/A | 1,775 | 1,404 | 1,775 | 1,404 | | | | |
| Commercial Customers | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | 700 | 315 | 700 | 315 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | 200 | 16 | 200 | 16 | | | | |
| Total | | | | N/A | N/A | 900 | 331 | 900 | 331 | | | | |
| Conservation for Affordable Housing | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | 200 | 43 | 200 | 43 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | 55 | 4 | 55 | 4 | | | | |
| Total | | | | N/A | N/A | 255 | 47 | 255 | 47 | | | | |
| School Outreach | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | 390 | 193 | 390 | 193 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | 80 | 53 | 80 | 53 | | | | |
| Total | | | | N/A | N/A | 470 | 246 | 470 | 246 | | | | |
| **ALL PROGRAMS** | | | | | | | | | | | | | |
| **FEI** | **No Direct Savings** | | | **N/A** | **N/A** | **2,890** | **2,005** | **2,890** | **2,005** | **No Direct Savings** | | | |
| **FEVI** | | | | **N/A** | **N/A** | **648** | **242** | **648** | **242** | | | | |
| **Total** | | | | **N/A** | **N/A** | **3,538** | **2,247** | **3,538** | **2,247** | | | | |

## 11.2 2011 CEO Initiatives by Customer Group

Tables 11.2 through 11.5 outline the CEO initiatives undertaken in 2011, by customer group, including program descriptions as well as a breakdown of spending, all of which is classified as "non-incentive spending".

## Table 11.2: Residential and General Public

| | |
|---|---|
| Program Description | CEO initiatives for Residential customers and the general public promote natural gas conservation by providing consumers with the information they need to make smart energy choices. Through outreach events, it has become apparent that greater education is required to educate residential customers on understanding why energy efficiency is important. |
| Target Market | Residential & General Public |
| New vs Retrofit | Retrofit |
| *Print and Online Communications* | Ongoing communications about energy conservation initiatives through print and online channels, such as bill inserts, electronic newsletters, print advertisements and directories, and educational videos for the FortisBC website and development of two microsites in Chinese and Punjabi languages. |
| *Home Shows and Community Events* | By participating in home shows, local community events, and supporting industry events (eg. regional Canadian Home Builders' Association), the Companies educated over 26,000 residential customers on home renovation, equipment upgrades, and energy saving information. |
| *Energy Champion Program* | Partnerships with local sports organizations, such as the Vancouver Canucks, BC Lions, BC teams in the Western Hockey League, and BC Hockey League, to promote energy conservation to consumers. Primarily targeting families and children, the Companies have educated approximately 18,000 customers through a variety of methods, including online competitions, face-to-face interactions, pre and in-game activities, and booth activities. |
| *Home Efficiency Measures* | Promotion of efficient, low-cost measures that homeowners can easily apply to achieve energy savings. Two pilot programs launched in 2011: partnering with Sears Canada and BC Hydro in the Lower Mainland for single family dwellings, and partnering with the Capital Regional District and District of Saanich in Saanich to provide energy saving measures for single and multifamily dwellings. |
| Expenditures ($,000s) | 2011 |

| Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | N/A | 631 | 609 | 35 | 1,275 |
| FEVI | N/A | 92 | 30 | 7 | 129 |
| Total | N/A | 723 | 639 | 42 | 1,404 |

## Table 11.3: Commercial Customers

| | |
|---|---|
| Program Description | The CEO initiatives for Commercial customers provide ongoing communication about energy conservation initiatives, encouraging behavioural changes that help commercial customers reduce their organization's energy consumption. The commercial sector is made up of small and large businesses in a variety of industries, such as retail, offices, multi-family residences, schools, hospitals, hospitality services, and shopping malls. Much of the Administration expenses are attributed to the development of the online community site developed specifically for the Companies and the engagement strategy with the Health Authority Staff Engagement Pilot as the first users of the program; however, both the site and strategy are applicable to any large commercial/institutional customer. |
| Target Market | Commercial Customers |
| New vs Retrofit | Retrofit |
| *Print, Online, and Commercial Trade Shows* | Ongoing communication to commercial customers about the Companies' energy conservation initiatives through print and online channels, such as bill inserts, electronic newsletters, and updates on the FortisBC website to include energy conservation information in Chinese and Punjabi languages. Participation in industry trade shows, industry association meetings and events, and commercial building events to promote energy efficiency and conservation practices to commercial customers. |
| *Small Business Education* | Promoting energy efficient practices for small commercial customers through print and online communications, and event support. These initiatives will include bill inserts, ethnic communication materials, partnering with municipalities on Climate Smart training for small businesses, and support organizations such as Climate Smart and the Business Improvement Areas of British Columbia (BIABC) that also target small businesses. |
| *Health Authority Staff Engagement Pilot* | Piloting an online community site and development of an extensive employee engagement strategy that can eventually be implemented by other health authorities and/or large institutional customers. In 2011, the pilot was launched to employees at Vancouver Coastal Health, Fraser Health, Providence Health Care, and Provincial Health Services Authority. Both the site and engagement strategy developed for this pilot can be applied to any large commercial/institutional customer in the future. |
| *Energy Specialist Campaign Support* | Support behaviour education programs developed by Energy Specialists, as described in Table 12.3, who seek opportunities in their respective organizations to educate staff and further reduce energy consumption in facilities. Many of their education campaigns take the form of education fairs, education sessions, building "green" teams, competitions, and communications. |
| Expenditures ($,000s) | 2011 |

| Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | N/A | 302 | 13 | 0 | 315 |
| FEVI | N/A | 12 | 4 | 0 | 16 |
| Total | N/A | 314 | 17 | 0 | 331 |

**Table 11.4: Low Income Customers**

| | |
|---|---|
| Program Description | The CEO initiatives aimed at educating low income residents on energy conservation include supporting the BC Non Profit Housing Association annual conference, print and online communications, and partnering with BC Housing on a behaviour pilot program described below. |
| Target Market | Low income residential |
| New vs Retrofit | Retrofit |
| *BC Housing Tenant Engagement Pilot* | An education and outreach opportunity to engage with BC Housing tenants in two sites in the Metro Vancouver region. The pilot program design is based on the recognition that significant energy savings can be realised through behaviour-based energy education programs aimed at reducing heat and hot water usage. |

Expenditures ($,000s)

| 2011 Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | N/A | 37 | 6 | 0 | 43 |
| FEVI | N/A | 2 | 2 | 0 | 4 |
| Total | N/A | 39 | 8 | 0 | 47 |

**Table 11.5: School Outreach Programs**

| | |
|---|---|
| Program Description | This CEO initiatives for School Programs aligns with section 44.1 (8) (c) of the Utilities Commission Act, R.S.B.C. 1996, C.473, s125.1 (4) (e), a public utility's plan portfolio is adequate only if it includes an education program for students enrolled in schools and post-secondary institutions in the Companies' service area. The Companies provide support for a variety of in-school and student competitions on energy conservation through initiatives such as Destination Conservation, BC Green Games, Environmental Mind Grind, Beyond Recycling, and Energy Champion Assembly presentations. Information described below includes programs in both the 2010-2011 and 2011-2012 school years. |
| Target Market | Students (K-12 and Post secondary) and teachers |
| New vs Retrofit | Retrofit |
| *BC Green Games* | BC Green Games, in partnership with BC Hydro and hosted by Science World, is a province wide online competition for elementary and high school students to submit entries on their environmental projects. Approximately 140 teams from 40 school districts register their submissions each year. |
| *Energy Champion School Assembly Presentations* | In partnership with the local sports teams, BC Lions players delivered interactive and informative assembly-wide presentations on energy and water conservation to elementary 75 schools and approximately 23,000 students throughout BC. Additionally, local teams in the Western Hockey League also deliver energy conservation programs in the Lower Mainland, Prince George, and Kootenay regions. |
| *Beyond Recycling* | Provide students with an understanding of the connection between consumption patterns and environmental impacts, and offer conservation outreach to schools that may not have otherwise been able to participate in the program. Approximately 10 schools participate each year in the East/West Kootenays region. |
| *Destination Conservation* | A three year program, with the first year focused on energy, designed to educate schools on ways to reduce the consumption of energy, water, and waste reduction to motivate students on implementing a variety of environmental projects in their school and community. In the 2010-2011 year, 11 schools in the Central Okanagan school district began their first year, and in 2011-2012, 12 schools in the Saanich school district started the program. |
| *BC Sustainable Energy Association* | The Climate Change Showdown is designed to educate elementary school students about how to reduce carbon dioxide emissions and save energy in the home and at school. Free interactive workshops were offered to 29 schools across BC in 2011. |
| *Environmental Mind Grind* | A fun and competitive student trivia competition on energy and environmental conservation that allowed students to interact with their peers from neighbouring schools. In 2011, this was delivered in Nanaimo, and the Thompson-Okanagan regions. |
| *Post-Secondary Programs* | Supporting initiatives such as goBEYOND directed at students living on campuses in BC, and Project Change based out of Capilano University, encourages post secondary students to learn and apply their knowledge of natural gas energy conservation through interactive and fun competitions. Development on a province wide competition targeting post secondary students began in 2011 and will be launched in 2012. |
| Expenditures ($,000s) | 2011 |

| Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
|---|---|---|---|---|---|
| FEI | N/A | 175 | 18 | 0 | 193 |
| FEVI | N/A | 50 | 3 | 0 | 53 |
| Total | N/A | 225 | 21 | 0 | 246 |

## 11.3 Summary

All of the initiatives described throughout this section are vital in promoting and educating the public on energy conservation behaviours and keeping the Companies' conservation message "top of mind" among customers. Doing so fosters a culture of conservation, which will benefit communities, increase participation in EEC incentive programs, and ultimately support the shared goals of the Companies and the provincial government.

# 12 ENABLING ACTIVITIES

## 12.1 Overview

Enabling Activities are activities that support the Companies' EEC program development and delivery, including the Efficiency Partners program, the Energy Specialists program, and Codes and Standards. Although these activities do not have energy savings directly associated with them, they play a very important role in the Companies' portfolio of EEC activities because they provide resources common to the support for and ultimately, the delivery of, all Program Area activities. Expenditures in these areas are part of the overall overhead of EEC program delivery, and are included at the portfolio level in the overall EEC portfolio TRC score.

Table 12.1 summarizes the projected and actual expenditures for Enabling Activities in 2011, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost test results.

**Table 12.1: 2011 Enabling Activities Results**

| Program and Service Territory | Annual Gas Savings (GJ/yr.) | | Actual NPV Gas Savings (GJ) | Utility Expenditures ($000s) | | | | | | Benefit/Cost Ratios | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incentives | | Non-Incentives | | All Spending | | | | | |
| | 2011 Projected | 2011 Actual | | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | 2011 Projected | 2011 Actual | TRC | Utility | Participant | RIM |
| Efficiency Partners Program | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | 317 | N/A | 317 | 205 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | 105 | N/A | 105 | 62 | | | | |
| Total | | | | N/A | N/A | 422 | N/A | 422 | 267 | | | | |
| Energy Specialist Program | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | 1,166 | 815 | 1 | 4 | 1,167 | 819 | No Direct Savings | | | |
| FEVI | | | | 180 | 90 | 0 | 2 | 180 | 92 | | | | |
| Total | | | | 1,346 | 905 | 1 | 6 | 1,347 | 911 | | | | |
| Codes and Standards | | | | | | | | | | | | | |
| FEI | No Direct Savings | | | N/A | N/A | 60 | N/A | 60 | 20 | No Direct Savings | | | |
| FEVI | | | | N/A | N/A | 15 | N/A | 15 | 4 | | | | |
| Total | | | | N/A | N/A | 75 | N/A | 75 | 24 | | | | |
| **ALL PROGRAMS** | | | | | | | | | | | | | |
| **FEI** | **No Direct Savings** | | | **1,166** | **845** | **378** | **4** | **1,544** | **1,044** | **No Direct Savings** | | | |
| **FEVI** | | | | **180** | **60** | **120** | **2** | **300** | **158** | | | | |
| **Total** | | | | **1,346** | **905** | **498** | **6** | **1,844** | **1,202** | | | | |

## 12.2 2011 Enabling Activities by Program

The following tables outline the specific Enabling Activities undertaken in 2011, by program, including program and measure descriptions as well as a breakdown of non-incentive spending.

**Table 12.2: Efficiency Partners Program**

| | |
|---|---|
| Program Description | This Program develops and manages a contractor network to promote EEC programs and energy efficiency messaging. The Companies identify efficiency partners as equipment manufacturers, service contractors, distributors, and retailers, and recognize the influence these various industry groups have with the end use residential and commercial customers who make energy efficiency decisions |
| Target Market | N/A |
| New vs Retrofit | N/A |
| Eligible Measures | N/A |
| Incremental Measure Cost | N/A |
| Incentive Amount | N/A |
| Savings Per Participant | N/A |
| Measure Life & Source | N/A |
| Free Rider Rate & Source | N/A |
| Spillover Rate & Source | N/A |

| Participants | Service Region | 2011 Projected | 2011 Actual |
|---|---|---|---|
| | FEI | N/A | N/A |
| | FEVI | N/A | N/A |
| | Total | N/A | N/A |

| Expenditures ($,000s) | 2011 | | | | | |
|---|---|---|---|---|---|---|
| | Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | N/A | 146 | 51 | 8 | 205 |
| | FEVI | N/A | 23 | 37 | 2 | 62 |
| | Total | N/A | 169 | 88 | 10 | 267 |

**Table 12.3: Energy Specialists Program**

| | | | | | | |
|---|---|---|---|---|---|---|
| Program Description | This Program co-funds Energy Specialist positions, whose key priority is to identify opportunities for their organization to participate in the Companies' EEC programs. The Energy Specialist reports to and supports the Energy Manager on holistic energy reduction projects, while also focusing on identifying opportunities to use natural gas more efficiently. Energy Specialist positions are funded by the Companies up to $60,000 for a period of one year. | | | | | |
| Target Market | Large Commercial and Institutional customers | | | | | |
| New vs Retrofit | Retrofit | | | | | |
| Eligible Measures | Energy Specialist Position | | | | | |
| Incremental Measure Cost | $60,000 | | | | | |
| Incentive Amount | $60,000 | | | | | |
| Savings Per Participant | N/A | | | | | |
| Measure Life & Source | N/A | | | | | |
| Free Rider Rate & Source | 0% | | | | | |
| Spillover Rate & Source | N/A | | | | | |
| Participants | Service Region | 2011 Projected | 2011 Actual | | | |
| | FEI | 20 | 18 | | | |
| | FEVI | 3 | 3 | | | |
| | Total | 23 | 21 | | | |
| Expenditures ($,000s) | 2011 | | | | | |
| | Service Region | Incentives | Admin | Communication | Research & Evaluation | Total |
| | FEI | 815 | 4 | 0 | 0 | 819 |
| | FEVI | 90 | 2 | 0 | 0 | 92 |
| | Total | 905 | 6 | 0 | 0 | 911 |

Notes:

- Some organizations had Energy Specialists for part of the year only.
- For purposes of this Report, the Prince George Community Energy Manager funding has been included in the Energy Specialist Program for both projected and actual expenditures. Participant and expenditure totals include the Prince George Community Energy Manager, which is a joint funding partnership between the City of Prince George, FEI, BC Hydro and NRCan. FEI's funding contribution is $25,000 per year.
- The Energy Specialist Program has added significant value as an enabling activity to the EEC Portfolio. Organizations with Energy Specialists participate in EEC programs more than those without Energy Specialists. Energy Specialists have also made a significant contribution to the development and implementation of their respective organization's Strategic Energy Management Plans which have resulted in substantial overall electricity and natural gas energy savings.

**Table 12.4: Codes and Standards Program**

| | |
|---|---|
| Program Description | Utilities have a unique understanding of energy supply and customer demand cycles, which can be of assistance in the development of codes and standards. The content and timing of code implementation directly affects market transformation in all program areas. The Companies' level of regulatory involvement typically includes one of three involvement classifications: monitoring, stakeholder engagement, and developing regulations. The initiatives below outline current projects and levels of involvment with a variety of codes and standards activities. |
| *Public consultation process* | Evaluation and analysis of National, Provincial and City of Vancouver initiatives for energy efficiency. Development of appropriate responses to these initiatives within the specified timelines. |
| *Industry consultation process* | Discussions with entities like BC Hydro for guidelines on measuring efficiency of combined heat and power as described in the BC Clean Energy Act. Involvement with Natural Resources Canada R-2000 Standard and EnerGuide rating System for residential bulding efficiency and measurement. |
| *Involvement with supporting projects* | Involvment with supporting projects like: the RDH Group's Building Remediation Study which is supporting improvements to the building code for Multi-Unit Residential Buildings. |
| *Codes and Standards Strategy* | Active participation on the CSA Strategic Steering Committee on Fuel Burning Equipment. This committee is the highest committee in the fuels sector at CSA and oversees all committees and sub-comittees in the fuel burning sector. |
| *Codes and Standards Maintainance* | Active participation on the CSA Technical Committee on Energy efficiency and Related Performance of Fuel-Burning Appliances and Equipment. This committee oversees all of the eleven existing performance standards for gas-fired equipment and is looking to develop new needed standards for equipment that are wanted or needed by industry. |
| *Thermal Metering* | Development of a thermal metering stakeholder group, participation with the development of the CSA C-900 Heat Meter Standard, and development of market analysis, pilot study opportunities, best practises documents and evaluation of existing systems. |
| *Internal awareness of Code and Regulatory changes* | Development of internal documents and updates for relevant program areas and personnel. |
| *Standards library* | Purchase of up to date standards for reference |
| Participants | Service Region: 2011 Projected / 2011 Actual<br>FEI: N/A / N/A<br>FEVI: N/A / N/A<br>Total: N/A / N/A |
| Expenditures ($,000s) | 2011<br>Service Region: Incentives / Admin / Communication / Research & Evaluation / Total<br>FEI: N/A / 20 / 0 / 0 / 20<br>FEVI: N/A / 4 / 0 / 0 / 4<br>Total: N/A / 24 / 0 / 0 / 24 |

Note:

- In future reports, individual Codes and Standards reporting will be housed in each Program Area, as they directly impact specific programs or target markets.

## 12.3 Summary

Enabling Activities are important initiatives that support broader EEC activities and programs and provide resources to assist with the development and delivery of all Program Area activities.

# 13 EVALUATION

## 13.1 2011 Program Evaluation and Evaluation Research Activities

The Companies consider Evaluation, Measurement and Verification to be an extremely important aspect of overall program lifecycle.

Table 13.1 contains an inventory of all program evaluation and evaluation research related activities undertaken in 2011. Expenditures for these activities have been reported within the applicable Program Area administrative costs, but are also reported here in order to provide a concise, easy-to-view summary of evaluation activities. Included in the table are a list of all the 2011 evaluation activities, the Program Area each activity occurs in, the general type of evaluation activity undertaken, the Companies actual 2011 expenditures and a status update on each activity as of the preparation of this Report. The total expenditures for program evaluation and research activities in 2011 were $535,000. As more programs reach maturity and enough program data becomes available, the Companies will complete more program impact evaluations at appropriate times in the program life cycles and provide those evaluation results to stakeholders and the Commission.

## Table 13.1: Inventory of EEC Program Evaluation and Evaluation Research Activities Conducted in 2011

| Evaluation Name | Program Area | Type of Evaluation | Years the program has been running | Evaluation Partnership | Actual Expenditure (000's) | Evaluation Status |
|---|---|---|---|---|---|---|
| EnerChoice fireplace program awareness and dealer feedback | Residential | Process | 4 | None | $17 | FortisBC/EnerChoice Fireplace Evaluation - **Completed September 2011 by Participant Research** |
| 0.62EF Water Heater Program | Residential | Process | 1.3 | None | $13 | FortisBC/Domestic Hot Water Tank Program Process Evaluation - **Completed December 2011 by Participant Research** |
| Getting to EG 80 and Beyond - New Construction Energy Modeling Study | Residential | Process | New | BC Hydro | $20 | FortisBC New Home Modeling Final Report - **Completed April 2011** |
| EG80 New Construction Program - builder feedback | Residential | Process | 0 | BC Hydro | $9 | EnergGuide80 New Home Construction Program Study - **August 2011 start and completed November 2011** |
| Energy Efficient Water Heater Focus Groups - builder & contractor feedback | Residential | Process | 0 | None | $9 | FortisBC: Domestic Hot Water Heating Focus Groups - **Completed October 2011 by Participant Research** |
| New Construction Program - Non - Energy Benefit Analysis | Residential | Process | 0 | BC Hydro | $25 | Residential New Construction Non-Energy Benefits - **Completed February 2012 by Dunsky Energy Consulting in collaboration with Research Into Action.** |
| LiveSmart BC program evaluation | Joint Initiatives | Impact & Process | 3.5 | BC Hydro, FEI & FEVI, FortisBC Inc. and MEM | $100 | August 2011 start, expected completion of fall 2012 |
| Hot 2000 - Field Verification and Consumption Analysis | Joint Initiatives | Impact & Process | 3.5 | BC Hydro, FEI & FEVI, FortisBC Inc., NRCan and MEM | $25 | Evaluation of Energy Savings fromLiveSmart homes Final Report - **Completed November 2011 by Innes Hood Consulting Inc** |
| Energy Specialist Pilot Program | Enabling Activities | Process | 1 | None | None | Energy Specialist Pilot Program - Evaluation Report - **Completed August 2011 by FortisBC** |
| Efficient Commercial Water Heater Program - Metering project | Commercial | Impact | 1.5 | None | $7 | Metered pre and post implementation natural gas consumption to validate savings assumptions. **Preliminary results end of August 2012** |
| Radiant Tube Heater Pilot Program | Commercial | Impact | 1 | None | $4 | Metered pre and post implementation natural gas consumption to validate savings assumptions. **Preliminary results end of April 2012** |

**Table 13.1: Inventory of EEC Program Evaluation and Evaluation Research Activities Conducted in 2011(continued)**

| Evaluation Name | Program Area | Type of Evaluation | Years the program has been running | Evaluation Partnership | Actual Expenditure (000's) | Evaluation Status |
|---|---|---|---|---|---|---|
| Efficient Boiler Program (Retrofit) | Commercial | Impact | 8 | None | $26 | Analysis of Energy Savings from FortisBC Efficient Boiler Program (EBP) - **Completed August 2011 by Prism Engineering Ltd.** |
| Energy Savings Kits (ESK) | Low Income | Process | 1 | BC Hydro | $20 | Participant Survey Results - end of 2012 |
| Bill Insert and Bill Messaging | Residential & Conservation Education and Outreach | Communication | Ongoing | None | $0 | **February 2011** - completion. $45,000 paid in 2010 but results completed in 2011. |
| Event Tracking | Conservation Education and Outreach | Communication | 5 | None | $15 | **February 2012** - completion. Participant Awareness |
| EEC Conservation Programs Media Effectiveness and Ad-Tracking | EEC Portfolio | Communication | Ongoing | None | $34 | **December 2011** - completion. Tracking EEC and Advertising awareness |
| CPI Benchmarks | Conservation Education and Outreach | Communication | 1 | None | $8 | **September 2011** - completion. Study looked at how other utilities in North America evaluate sponsorship. |
| Customer Energy Analysis Program | Industrial | Impact | 1 | None | $117 | Pilot Conservation Program Results Medium-size Industrial Customers - **Completed February 2012 by Willis Energy Services Ltd. ** Data used was 2011 **** |
| COV Solar Residential Water Heating Pilot Project | Innovative Technologies | Impact | N/A | None | $46 | Monitoring equipment purchased but awaiting for participants and to develop the EM&V Plan |
| Condo Retrofit Pilot | Innovative Technologies | Impact | N/A | City of Vancouver | $15 | Awaiting for building participants and to develop the EM&V Plan |
| Occupancy Sensor Pilot | Innovative Technologies | Impact | N/A | None | $10 | Late 2012 |
| City of Courtenay Demonstration Project | Innovative Technologies | Impact | N/A | None | $15 | Evaluation studies to be determined after EM&V plan is developed. |

# 14 DATA GATHERING REPORTING AND INTERNAL CONTROLS PROCESSES

## 14.1 Overview

The transparency of spending on EEC activities and the internal controls used to ensure these costs and incentives are appropriately managed and delivered are critical to the Companies' success in delivering cost effective energy savings and in maintaining the trust of our customers and stakeholders. In its EEC Decision, the Commission directed the Companies to include a discussion in the EEC Annual Report of the Companies' internal data gathering, monitoring, and reporting control practices. This section addresses that directive by providing general information on data gathering and on the Companies' business practices related to program development and application processing. The following discussion demonstrates that the Companies have business practices in place to ensure EEC activities and associated spending are in compliance with the Commission Orders and internal control processes of the Companies in general.

## 14.2 Separation of Program Tracking, Evaluation and Reporting Functions

As energy efficiency and conservation program portfolios and spending grow, many utilities take steps to separate the tracking, reporting and evaluation functions from the program development, implementation and management functions within their organizational structure. This separation in reporting structure allows the utility to evaluate and report on spending activity and program success without a predisposition to program level outcomes that might come with involvement in the program design, launch and life cycle. In keeping with the evolution of its EEC activity in 2011, the Companies established a separate EEC tracking and reporting group responsible for managing EEC program tracking, evaluating and reporting activities as well as stakeholder engagement. This group has a different line of reporting within the Companies' Energy Solutions and External Relations department than does the EEC group responsible for program development and implementation.

Responsibility for cost-benefit modelling was transferred to this group and staff resources were put in place to manage the Companies' DSM tracking system and take lead responsibility for evaluation, measurement and verification activities. As with the EEC group itself, this new tracking and reporting group is in a period of ramping up its capacity to monitor, evaluate and report on the increasing EEC activities being undertaken, and will continue to evolve over the coming year. A further benefit of this structure is the removal of a substantial portion of the regulatory reporting burden for this group from the managers and specialists who are charged with implementing and managing programs, allowing them to focus on program success.

### 14.3 DSM Tracking System Project: Update

As was reported in the 2009 EEC Annual Report, the expansion of EEC programs resulting from the EEC Decision has created a need to develop a robust data capture and reporting system. With the increase in the number of programs and participants, the existing Excel-based DSM tracking and reporting methods are not capable of handling the future business needs and requirements of the EEC activities. As a result, the Companies determined that a new tracking system was needed to enable it to:

- Track EEC program participation, costs, and energy savings for incentive-based programs;
- Track information about non-incentive programs and activities;
- Track actual and forecasts vs. budgets;
- Provide reports for internal and external stakeholders including program partners and the Commission;
- Allow for scenario modelling for program planning and design; and
- Support DSM cost-benefit analysis on a program by program basis as well as at the portfolio level (or EEC plan level).

The Companies' new DSM Tracking System ("DSMS") is called TrakSmart. Development of TrakSmart continued through 2011 and was brought closer to full deployment with the hiring of a specialist responsible for the tool's implementation and effective operation. The costs incurred in 2011 for TrakSmart development are included in the Portfolio Level Activities reported in Table 2.2. TrakSmart is currently in an advanced testing phase, being operated in parallel with the Companies' existing tracking systems across four residential and commercial programs. A challenge encountered in the development of TrakSmart include its integration with both the Companies' old and new customer information systems (CIS) which were switched over on January 1, 2012. Final interface solutions for integrating with the new CIS are currently being developed.

Once the TrakSmart tool is in place and the transition period from the current system to the new system is completed, its features will help the Companies track and manage program activities more efficiently and effectively. For example, applications for program incentives will be authorized and managed directly in the Companies' customer management system by service representatives rather than through the current manual system of application processing and cheque requisitions. Full online automation of incentive application and processing remains an anticipated future evolution of the tool.

In addition to improving the customer service and program management aspects EEC activity, TrakSmart also contains checks and balances to ensure appropriate and transparent tracking, reporting and controls. These features will help to streamline regulatory reporting and planning activities, thus reducing the administrative burden relative to tracking program costs and

reporting energy savings. As part of full TrakSmart implementation, the tool will be subject to a complete internal audit in 2012 on its tracking, reporting and control features as described below.

### 14.4 Robust Business Case Process Applied to All Programs

Before a new EEC pilot or program can be implemented, a business case must first be developed. The Companies are committed to putting each pilot or program through the appropriate level of internal scrutiny before moving ahead with a pilot or program, and believe doing so ensures an increased chance of pilot or program effectiveness.

The business case developed includes information about program rationale and purpose, as well as a description of the target audience, assumptions, cost-benefit tests, and proposed evaluation methods. Cost-benefit analysis is performed using the California Standard Tests ("CST") as outlined in the California Standard Practice Manual. The Companies used an in-house cost-benefit modeling tool developed in partnership with expert industry consultants[16] to provide the following areas of analysis:

- Benefits incurred over measure life of the individual programs, including energy savings over the measure life of the program;
- Total costs incurred in implementing the program, including administrative, incentive, marketing, and evaluation; and
- The four CST tests (Rate Impact Measure ["RIM"], Utility, Participant, and TRC).

The results from this modelling are used as inputs for the business cases, which are approved in accordance with the Companies' policy on financial authorization levels. In the future, this cost-benefit modelling will be accomplished within the Companies' DSM tracking system (see Section 14.2).

### 14.5 Incentive Applications Vetted for Compliance with Program Requirements

Ensuring that all customer applications are compliant with program eligibility requirements as laid out in program terms and conditions is also part of the internal control process. The Companies have a number of mechanisms in place to ensure EEC incentive funding applications are in compliance with program requirements. The verification process is specific to each program and is dependent on the type of program, its complexity, the financial value of the incentive, and other parameters. The general principles applied are as follows:

- Each application is reviewed for completeness and accuracy;

[16] Willis Energy Services Ltd. and The Cadmus Group Inc. provided input into this in-house cost-benefit model.

- Applications must meet the criteria outlined in the terms and conditions of the program put forward through the approval process.
- Once approved, incentives are distributed to participants; and
- Copies of application and supporting documents are filed and stored for seven years in case of an audit.

### 14.6 Internal Audit Services

The EEC team engaged the Companies' own Internal Audit Services ("IAS") group to review the internal controls associated with the EEC initiative. In 2010, IAS found the internal controls established for the EEC initiative were functioning as intended. An IAS study and report has been launched to review 2011 EEC activities and will be completed in the coming months.

IAS is also conducting a review of the DSMS tracking tool to ensure that the necessary controls are in place. This audit will include a review of the tool's design once the testing phase has been completed and a post implementation review to ensure that such controls are working properly.

### 14.7 Summary

The Companies are committed to strong internal controls in all aspects of the EEC program. As demonstrated in this section, the Companies' business practices related to program development, application processing, and ongoing monitoring are all sound and subject to continuous improvement.