

March 28, 2013

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

Attention: Ms. Erica M. Hamilton, Commission Secretary

Dear Ms. Hamilton:

Re: FortisBC Energy Utilities¹
Energy Efficiency and Conservation Program - 2012 Annual Report

Attached please find the Energy Efficiency and Conservation Program – 2012 Annual Report (the “Report”) for the FortisBC Energy Utilities.

If you have any questions regarding the information contained in the Report, please contact Ken Ross, Integrated Resource Planning Manager at 604-576-7343. .

Yours very truly,

on behalf of the FORTISBC ENERGY UTILITIES

Original signed by: Ilva Bevacqua

For: Diane Roy

Attachment

cc: EEC Stakeholder Group

¹ comprised of FortisBC Energy Inc. (“FEI”), FortisBC Energy (Vancouver Island) Inc. (“FEVI”) and FortisBC Energy Whistler Inc. (“FEW”).



The FortisBC Energy Utilities

**(comprised of FortisBC Energy Inc., FortisBC Energy
(Vancouver Island) Inc. and FortisBC Energy (Whistler) Inc.)**

Energy Efficiency and Conservation Program - 2012 Annual Report

March 28, 2013

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1 REPORT OVERVIEW

The FortisBC Energy Utilities (“FEU” or the “Companies”),¹ are committed to delivering a broad portfolio of cost-effective Energy Efficiency and Conservation (“EEC”) measures that address the expectations of customers while meeting the requirements for public utilities to pursue cost-effective demand-side measures (“DSM”). Overall, this Report demonstrates that the FEU were successful in achieving their EEC goals for 2012, both in terms of cost-effectiveness and progress. While the FEU’s EEC programming continues to evolve, the evidence demonstrates that the FEU have come a long way in retaining qualified staff, developing cost-effective programs and delivering incentives to customers. With an overall portfolio TRC of 1.0 on expenditures of almost \$24 million, and numerous programs added, refined or under development, 2012 paved the way for continued success in 2013 and beyond.

1.1 Background

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 of \$41.5 million over the 2009-2010 time period (\$34.4 million for FEI and \$7.1 million for FEVI). A further \$32.4 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 Applications (“RRA”) for FEI and FEVI by Commission Order Nos. G-141-09 and G-140-09 respectively.

The Companies subsequently submitted requests for EEC funding for activity over the 2012-2013 time period as part of the 2012-2013 RRA. Commission Order No. G-44-12 approved expenditures of \$29.1 million in 2012 and \$35.6 in 2013 for existing and new programs.² With this Order, the Commission also approved the FEU’s request to expand EEC program eligibility to interruptible industrial, FEW and FEI Fort Nelson Service Area customers.

This EEC Annual Report (the “Report”) outlines the Companies’ actual results and expenditures for 2012 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 that is still guiding EEC activity. The format of this Report relies on detailed tables to demonstrate EEC Program results and expenditures.

¹ Comprised of FortisBC Energy Inc. (“FEI”), FortisBC Energy (Vancouver Island) Inc. (“FEVI”) and FortisBC Energy Whistler Inc. (“FEW”).

² Does not include High Carbon Fuel Switching costs for which the Commission directed FortisBC to treat as current period expenses rather than as EEC expenditures.

1.2 Purpose of Report: Transparency, Accountability and Update on Progress

This Report serves two purposes. First, this Report outlines the Companies' activities in each Program Area and on a portfolio level as requested by the Commission in the EEC Decision. Total Resource Cost ("TRC") calculations and the remaining California Standard Practice Test results (Ratepayer Impact Measure ("RIM"), Participant Cost Test ("PCT"), and Utility Cost Test ("UCT")) are provided for the overall portfolio and each Program Area in Section 2, and for each program or measure in the respective Program Area sections. In accordance with British Columbia's Demand-Side Measures Regulation, modified TRC ("MTRC") calculations are also provided where appropriate. An explanation of the Portfolio Level MTRC calculation is provided in Section 2.2.

Second, 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."

In its decision regarding the 2012-2013 RRA (Order No. G-44-12), the Commission further directed the Companies to continue filing an EEC Annual Report, and to include additional details regarding EEC Stakeholder Group activities. A discussion of the EEC Advisory Group activities is provided in Section 4.

1.3 Organization of the EEC Annual Report

The following describes how each section of the Report presents the results of 2012 EEC activities:

Section 1: Report Overview

- Provides a high-level background for the Report.

Section 2: Portfolio Overview

- Provides a summary and detail regarding the actual 2012 expenditures for EEC activities, along with an explanation of expenditures held in both the EEC deferral account and another deferral account set up for EEC incentive amounts provided to Alternative Energy Services ("AES") projects in which the FEU are a participant.

Section 3: Funding Transfers

- Provides a summary and detail regarding funding transfers that occurred in 2012.

Section 4: EEC Advisory Group Activities

- Provides information regarding EEC Advisory Group (“EECAG”) activities in 2012, including a summary of meetings and accountability considerations.

Sections 5 - 9 provide information on:

- Residential Energy Efficiency Program Area;
- Low Income Energy Efficiency Program Area;
- Commercial Energy Efficiency Program Area;
- Innovative Technologies Program Area; and
- Industrial Energy Efficiency Program Area.

Each of the above mentioned sections contain a table summarizing the planned and actual expenditures for the respective Program Area in 2012, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost-effectiveness test results. Additional tables outline the individual 2012 programs, including program and measure descriptions and a breakdown of non-incentive spending. Details on program closures or planned programs that were not launched in 2012 are also included in these program detail sections.

Section 10: Conservation, Education and Outreach Initiatives

- Provides both summary and detail regarding actual 2012 expenditures for the Conservation, Education and Outreach (“CEO”) Program Area.

Section 11: Enabling Activities

- Provides both summary and detail regarding actual 2012 expenditures for the Enabling Activities that support the work of the EEC portfolio as a whole.

Section 12: Evaluation

- Provides both summary and detail regarding pending and actual expenditures for 2012 program evaluation activities, as well as summary results from evaluations and studies completed in 2012.

Section 13: Data Gathering, Reporting and Internal Control Processes

- Provides a summary of the Companies’ data tracking, process control and reporting for 2012 EEC activities, and a high level description of the Companies’ internal approval process for programs.

Section 14: 2012 EEC Annual Report Summary

- Summarizes the Report and the Companies’ 2012 EEC activity.

2 PORTFOLIO OVERVIEW

2.1 Portfolio Level TRC Results

In this Section, the Companies provide their EEC energy savings, expenditures and cost-effectiveness test results on an overall portfolio level for 2012. A summary of the overall portfolio results is provided in Table 2-1, demonstrating that the Companies achieved a portfolio level MTRC result of 1.1 and TRC result of 1.0. EEC expenditures were almost \$24 million and recorded natural gas savings were over 450,000 GJ/yr. These are positive outcomes resulting from the Companies' EEC activity over 2012, and the FEU are pleased with the progress made to date.

Table 2-1: Overall EEC Portfolio Results for 2012

Indicator - 2012 Results	Service Territory		Total
	FEI	FEVI	
Annual Gas Savings (GJ/yr.)	404,921	47,642	452,563
NPV of Gas Savings (GJ)	3,026,608	358,465	3,385,073
Utility Expenditures, Incentives (\$000s)	12,659	1,765	14,424
Utility Expenditures, Non-Incentives (\$000s)	8,083	1,252	9,335
Utility Expenditures, Total (\$000s)	20,742	3,017	23,759
Benefit/Cost Ratios	TRC	1.0	1.0
	MTRC	1.1	1.1
	Utility	1.5	1.4
	Participant	2.1	2.2
	RIM	0.5	0.5

Table 2-2 provides the cost-effectiveness test results by Program Area for the overall EEC portfolio.

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		TRC	MTRC	Utility	Participant	RIM
	2012-2013 EEC Plan	2012 Actual		2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual					
Portfolio Level Activities														
FEI	No Direct Savings			0	0	0	3,464	0	3,464	No Direct Savings				
FEVI				0	0	0	581	0	581					
Total				0	0	0	4,045	0	4,045					
Residential Sector (includes Enabling Activities)														
FEI	123,987	185,307	1,832,035	5,871	8,733	2,032	1,467	7,902	10,199	1.0	1.2	1.8	1.9	0.6
FEVI	17,232	16,997	168,438	792	832	270	264	1,061	1,096	1.0	1.1	1.5	2.3	0.5
Total	141,218	202,304	2,000,473	6,662	9,564	2,301	1,731	8,963	11,295	1.0	1.2	1.8	1.9	0.6
Low Income														
FEI	27,169	12,432	72,937	2,753	195	1,698	330	4,450	525	1.6	n/a	1.6	n/a	0.5
FEVI	3,019	4,680	27,802	306	45	204	33	519	78	4.6	n/a	4.0	n/a	0.5
Total	30,188	17,112	100,739	3,058	240	1,911	363	4,969	603	2.1	n/a	1.9	n/a	0.5
Commercial Sector														
FEI	272,726	136,815	643,841	6,444	3,346	702	599	7,326	3,945	1.3	n/a	1.5	3.3	0.4
FEVI	49,138	25,926	161,815	995	869	98	51	1,197	920	1.5	n/a	1.7	3.3	0.5
Total	321,863	162,741	805,656	7,439	4,215	800	650	8,523	4,865	1.3	n/a	1.5	3.3	0.4
Innovative Technologies														
FEI	0	367	3,608	0	92	0	261	0	353	0.1	n/a	0.1	1.3	0.1
FEVI	0	39	410	0	9	0	31	0	40	0.1	n/a	0.1	4.0	0.1
Total	0	406	4,018	0	102	0	292	0	394	0.1	n/a	0.1	1.4	0.1
Industrial Sector														
FEI	72,587	70,000	474,187	1,155	293	129	54	1,284	347	2.3	n/a	4.7	2.1	1.4
FEVI	0	0	0	23	10	0	0	24	10	n/a	n/a	n/a	n/a	n/a
Total	72,587	70,000	474,187	1,179	303	129	54	1,308	358	2.3	n/a	4.7	2.1	1.4
Conservation, Education, and Outreach														
FEI	No Direct Savings			0	0	2,998	1,909	2,998	1,909	No Direct Savings				
FEVI				0	0	337	291	337	291					
Total				0	0	3,335	2,200	3,335	2,200					
TOTAL PORTFOLIOS														
FEI	496,468	404,921	3,026,608	16,223	12,659	7,559	8,083	23,960	20,742	1.0	1.1	1.5	2.1	0.5
FEVI	69,389	47,642	358,465	2,116	1,765	909	1,252	3,138	3,017	1.0	1.1	1.2	2.4	0.4
Total	565,857	452,563	3,385,073	18,338	14,425	8,476	9,335	27,098	23,760	1.0	1.1	1.4	2.2	0.5

Notes:

- Throughout this Report, cost-effectiveness test results are reported to one decimal point.
- In the above tables, and throughout this Report, any difference in totals between the Portfolio Overview, Program Areas and individual program tables is due to rounding.
- Portfolio Level Activities are those activities for which the costs cannot be assigned to an individual Program Area such as the program tracking tool, Energy Efficiency and Conservation Advisory Group (“EECAG”) activities and EEC Energy Solutions Managers.
- In the above tables, and in the Program Area Results Summary tables, FEW is included in the FEI service territory. This is consistent with the 2012-2013 EEC Plan.
- In the above tables, and throughout this Report, planned annual gas savings and program expenditures may differ from those in the 2012-2013 EEC Plan. This is due to several factors:
 - Programs listed in the 2012-2013 EEC Plan that were not implemented in 2012 were removed from the planned Program Area totals, resulting in revised planned annual gas savings and program expenditures where applicable.
 - In its 2012-2013 RRA Decision, the Commission approved 40 percent of the requested expenditures for new programs in existing Program Areas in 2012. The planned annual gas savings and program expenditures were adjusted accordingly to 40 percent of what was listed in the 2012-2013 EEC Plan. New programs are indicated as “new” above the applicable program tables.
 - The Furnace Replacement Pilot Program in the Residential Energy Efficiency Program Area was not included in the 2012-2013 EEC Plan, and has no planned value for annual gas savings. The Commission approved expenditures of \$2 million for this pilot program in the 2012-2013 RRA Decision.
 - A number of Innovative Technologies Program Area activities implemented in 2012 were not listed in the 2012-2013 EEC Plan and therefore have no planned annual gas savings or program expenditures for 2012 (see Section 8).

It is the view of the Companies that the savings reported herein are conservative and lower than the savings experienced in the marketplace as a result of the Companies’ EEC activities, causing the cost-effectiveness test results reported to be lower than they would be otherwise, for the following reasons:

- 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 the free ridership impact, which serves to reduce reported energy savings, but does not include the energy savings benefits of spillover³ effect. In the future, the Companies intend to

³ Free ridership refers to individuals who participate in a program who would have participated in the absence of an incentive. Spillover refers to individuals that adopt efficiency measures because they are influenced by program-related information and marketing efforts, though they do not actually participate in the program. These can be included in the Net-to-Gross ratio employed in the cost-effectiveness analysis to capture the additive effects of spillover to balance the reductive effects of free ridership.

begin incorporating spillover effects on a program-by-program basis, where spillover can be supported, into reporting of energy savings impacts from EEC activity.

- Attribution from Government Regulation – the introduction of many municipal, provincial and federal minimum equipment and system performance standards is supported by the Companies' EEC activity, yet the Companies have not historically claimed any energy savings from the implementation of these standards. It is the intent of the Companies to begin to account for these standards-related savings on a program-by-program basis in the future, where such accounting can be supported, in accordance Section 4(1.4) of the BC Demand-Side Measures Regulation.
- Ramp Up – The Companies have made great strides in expanding their EEC portfolio, and in 2012 achieved a new level of EEC programming. While the bulk of this ramp up period is now past, a number of new programs introduced in 2012 were launched later in the year as a result of the timing of the Commission's 2012-2013 RRA Decision in April 2012. Although program development and design work was underway prior to the release of the Decision, the Companies were not able to actively promote these programs to customers until certainty was provided on which would be approved. This impacted the Companies' ability to attract participants.
- Conservation, Education and Outreach – CEO activities had costs of \$2.7 million in 2012. These activities do result in energy savings; however, since these savings remain difficult to quantify, the Companies do not currently attribute energy savings to them. Thus, these benefits are not reflected in the TRC.
- Enabling Activities – Enabling Activities similarly had costs of \$0.6 million in 2012 for the Efficiency Partners Program and Codes and Standards work that contribute to energy savings that cannot currently be quantified. Since these savings cannot currently be included in the TRC calculation, the Companies believe the energy savings benefits are higher than reported.

The Companies' EEC activities include a number of specified demand side measures. The Demand-Side Measures Regulation defines "specified demand-side measure" as:

- a) *a demand-side measure referred to in section 3 (c) or (d),*
- b) *the funding of energy efficiency training,*
- c) *a community engagement program,*
- d) *a technology innovation program, or*
- e) *financial or other resources provided*
 - i. *to a standards-making body to support the development of standards respecting energy conservation or the efficient use of energy, or*

- ii. *to a government or regulatory body to support the development of or compliance with a specified standard or a measure respecting energy conservation or the efficient use of energy in the Province;*

These measures cannot be determined by the Commission to be not cost-effective under the Utility Cost Test. Further, by Section 4(4) of the Regulation, the cost-effectiveness of specified demand-side measures must be determined by the cost-effectiveness of the portfolio as a whole. Specified demand-side measures are therefore not subject to the 33 percent MTRC cap. Section 8 describes the FEU's technology innovation programs, Section 10 describes the FEU's education and community engagement programs and Section 11 describes the FEU's Codes and Standards related EEC activity, all of which are considered specified demand-side measures according to the definition above. In summary, the Companies' 2012 EEC expenditures, including specified DSM, were cost-effective under the BC Demand-Side Measures Regulation.

2.2 Portfolio Level MTRC Calculation and Results

In 2012, the FEU successfully met the conditions of the Province's Demand-Side Measures Regulation, achieving a portfolio MTRC value of 1.1 with 13 percent of the portfolio enabled by the MTRC cost-effectiveness test. While the FEU strive for TRC test results that approach or exceed 1.0 within each program and across all programs, there are benefits to implementing programs that do not meet this threshold. Some of these benefits include making programs available to those customers that would otherwise be underserved (such as low income and residential customers), water savings, increased human health and comfort and economic benefits such as job creation. These benefits were recognized in 2011 amendments to the Demand-Side Measures Regulation, which enable the use of an MTRC. The MTRC uses a zero-emission energy alternative ("ZEEA") as the avoided cost of natural gas and allows for the inclusion of non-energy benefits ("NEBs").

Utilities can implement DSM with TRC values less than 1.0 but that meet an MTRC threshold of 1.0 as long as expenditures on these activities do not exceed 33 percent of the total portfolio expenditure. The FEU refer to this 33 percent as the MTRC Cap. Table 2-3 shows both the TRC and MTRC of those programs that do not meet the TRC, with the MTRC-enabled activity making up 13% of total portfolio spending. Table 2-2 shows that the portfolio MTRC is 1.1, in accordance with the Demand-Side Measures Regulation and the Commission's approval to assess cost-effectiveness on an overall portfolio basis⁴.

⁴ The Commission approved the assessment of the cost effectiveness using an MTRC of 1 or greater on an overall portfolio basis as part its decision on the 2012-2013 RRA, page 174.

Table 2-3: Programs Subject to MTRC and the Relative Proportion of Portfolio Spending

Measure	TRC	MTRC	Expenditure (\$000s) subject to cap	% of Portfolio Spending
ENERGY STAR® Washers and Other Measures for DHW Conservation (FEI)	0.4	1.0	\$98	0.4%
ENERGY STAR® Washers and Other Measures for DHW Conservation (FEVI)	0.4	1.0	\$35	0.1%
New Construction – EnerGuide 80 and Energy Efficient Appliances (FEI)	0.2	0.4	\$205	0.9%
New Construction – EnerGuide 80 and Energy Efficient Appliances (FEVI)	0.2	0.5	\$8	0%
Furnace Replacement Pilot Program (FEI)	0.8	1.6	\$2,652	11%
Furnace Replacement Pilot Program (FEVI)	0.7	1.3	\$127	0.5%
Total	n/a	n/a	\$3,125	13%

2.3 Meeting Approved Spending Levels

The Companies were successful in cost-effectively spending within approved levels for EEC expenditures. In its 2012-2013 RRA Decision, the Commission approved an EEC spending limit of just over \$29 million for 2012 with \$15 million of that included in rate base additions for 2012. Any remaining expenditures above this \$15 million up to the \$29 million spending cap would be recorded in a non-rate base deferral account and the FEU would propose the method of recovery as part of the next RRA. This mechanism functioned well with 2012 EEC expenditures over the approved \$15 million immediate addition to rate base by approximately \$8.8 million. This amount will remain in the deferral account through 2013 and the method of recovery will be proposed as part of the next RRA.

The Companies also managed their 2012 EEC activity within the funding limits set out by the Commission⁵ for each Program Area, with the exception of the funding transfer discussed in Section 4 to assist the delivery of a number of successful Residential programs. Actual spending in each Program Area is shown in Table 2.2 and each of the Program Area Summary Tables (Sections 5 through 10).

2.4 EEC Deferral Account for Alternative Energy Projects

Commission Order No. G-44-12 directed the FEU to hold all EEC incentives that are provided for AES or related technologies for projects in which the FEU are a participant in a separate

⁵ Approved funding amounts for each Program Area can be found on page 169 of the Commission's decision.

deferral account. At the end of 2012, the cumulative gross additions to this deferral account were \$119 thousand as a result of spending commitments made and reported in previous years that were actually paid out in 2012. No new incentives related to thermal energy projects in which the FEU are participants were committed during 2012, thus there were no further additions to this deferral account.

2.5 Meeting Adequacy Requirements of the Demand-Side Measures Regulation

The Demand-Side Measures 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 7). A number of the Commercial Energy Efficiency programs are intended for use by owners of rental buildings (see Section 8). Similarly, all Residential Energy Efficiency programs are available to rental properties (see Section 5).

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 and Beyond Recycling. The Companies also fund post-secondary student engagement delivered by Go Beyond and Northwest Wildlife Preservation Society, encouraging students to learn and apply their knowledge of natural gas energy conservation through fun and interactive competitions (see Section 10).

2.6 Collaboration & Integration

The Companies are taking ever-greater steps toward collaboration and integration with both FortisBC Inc., (the electric utility) and BC Hydro, as well as with other entities such as governments and industry associations. The Companies recognize that doing so will maximize program efficiency and effectiveness. Collaborative activity is captured in the individual Program Area sections and program descriptions found in Sections 5 through 11.

As well as program-level collaborative activity, the FEU and BC Hydro entered into a voluntary Memorandum of Understanding (“MOU”) to develop enhanced utility integration in support of government legislation, policy and direction. The 3 year MOU, which was executed in July 2009, and extended for another 3 years in July 2012, provided shared objectives, areas of focus, guiding principles and administrative guidance. A summary report, attached as Appendix A, summarizes key accomplishments achieved during the timeframe of the 2009-2012 MOU.

Another area of collaboration is for the attribution of energy savings from programs that are integrated with other utilities. In its decision on the 2012-2013 RRA, the Commission directed FEU to develop attribution rules for all integrated programs which prevent the double counting of savings⁶. These discussions have been initiated and the Companies intend complete this work in 2013. In 2012, there were no issues with double counting as the Companies only claimed gas savings while to the best of the Companies’ knowledge the electric utilities only claimed electricity savings within the respective utility service territories.

2.7 Summary

The Companies are proud that they have achieved the overall portfolio TRC value of 1.0 and MTRC value of 1.1. The Companies are of the view that both energy savings accounted for in the portfolio and the resulting TRC are conservative. Benefits from additional activities, such as CEO, play a very important role in supporting the development and delivery of programs, while creating a culture of conservation in British Columbia. The Companies expect that with a more complete approach to the Net-to-Gross ratio, the incorporation of attribution from the introduction of government-mandated minimum performance standards, and with the recent changes to the Demand-Side Measures Regulation, the EEC portfolio will be continue to be cost effective.

⁶ Section 8.7.2, page 180 of the Commission Decision

3 FUNDING TRANSFERS

The Companies incurred only one funding transfer between Program Areas in 2012. A funding transfer of \$2.0 Million was made in 2012 from the Commercial Energy Efficiency Program Area to the Residential Energy Efficiency Program Area. The required transfer was due to greater than forecasted participation in a number of Residential programs, including the Furnace Replacement Pilot Program, LiveSmart BC and the ENERGY STAR Washers Program. Additional detail on these programs is provided in Section 5.3.

The 2012-2013 RRA Decision approved the movement of funding to a maximum of 25 percent from one Program Area to another Program Area for approved programs without prior Commission approval.⁷ The funding transfer represents approximately 23 percent of the approved expenditure of \$8.8 million for the Commercial Energy Efficiency Program Area, and approximately 22 percent of the approved expenditure of \$9.3 million for the Residential Energy Efficiency Program Area. The Companies presented details on the funding transfer to the EECAG for comment and input at the November EECAG workshop, and no concerns were raised by the group (see Section 4 for a summary of EECAG activities in 2012).

⁷ Proposed transfers greater than 25 percent of an approved Program Area require prior Commission approval. The transfer of funds to new programs, programs not approved in the 2012-2013 RRA Application or to the Innovative Technologies Program Area continue to require prior Commission approval.

4 EEC ADVISORY GROUP ACTIVITIES

4.1 Overview

As part of the accountability mechanisms established during the 2008 EEC Application regulatory review process, the Companies continue to hold bi-annual workshops with the EECAG, named the EEC Stakeholder Group in EEC reports for previous years. The objective of this advisory body is to provide insight and feedback on the Companies' EEC activities and related issues. This includes EEC program and portfolio performance, development and design; funding transfers; policy and regulations that may impact EEC activities; and other issues and activities as they may arise.

Members may be appointed based on their personal capacity, representation of a common interest shared by stakeholders or representation of a particular organization/group. This representation includes, but is not limited to, governments, geographical regions, First Nations, customers, suppliers, industry associations, non-governmental organizations, research institutes and other groups that have historically intervened in the Companies' regulatory proceedings.

Since the formation of the EECAG in 2009, the Companies have had the opportunity to gain valuable insight on EEC and develop stronger relationships with stakeholders. This input continues to be instrumental as the Companies move forward with EEC activities, helping to ensure that efforts are aligned with the interests of stakeholders.

4.2 Summary of 2012 Workshops

EECAG workshops provide a forum for stakeholders to engage in constructive dialogue with the Companies. Two EECAG workshops were held in 2012, on June 27 ("spring workshop") and November 27 ("fall workshop"). Both took place in Vancouver and were well attended by EECAG members as well as occasional alternates and guests. Copies of all materials and minutes for these meetings were distributed to EECAG members and other workshop attendees.

4.2.1 SPRING WORKSHOP

During the spring workshop, updates were presented on regulatory, program-specific and other issues. The Companies provided updates on Commission Directives on the 2012-2013 RRA regarding EEC, carbon offsets, the Energy Efficiency Financing ("EEF") Pilot Program and EEC Program evaluation. A representative from the BC Ministry of Energy, Mines and Natural Gas also presented an overview of the Demand-Side Measures Regulation and its requirements. Discussion sessions followed each of these presentations, allowing attendees to both ask clarifying questions and to voice their opinions.

Distinct from the updates was a more participatory breakout session seeking feedback on the EECAG Terms of Reference (“ToR”). This provided attendees with the opportunity to provide general feedback and priority recommendations for the ToR. Both written and verbal feedback was recorded for consideration.

4.2.2 FALL WORKSHOP

The fall workshop centered around gathering feedback on two draft documents: the Evaluation, Measurement & Verification (“EM&V”) Framework and the ToR. Feedback from these discussions was gathered for consideration during the revision of these documents.

Additional updates were presented on the new Home Energy Calculator, Furnace Replacement Pilot Program, Long Term Resource Plan (“LTRP”), gas and electric program integration and On-Bill Financing Pilot Program. As always, these presentations were followed by discussion sessions where feedback was recorded for future consideration.

Following the Furnace Replacement Pilot Program presentation, attendees had the opportunity to express their views on the funding transfer that took place in 2012 between the Commercial and Residential Energy Efficiency Program Areas (see Section 3). No concerns were raised about this funding transfer and the group generally agreed that this practice is acceptable, allowing for greater process efficiency and flexibility. Certain members expressed a desire for more information regarding the issue of potential cross-subsidization of EEC funding between Program Areas/customer groups. This request was noted and will be discussed in greater depth at future meetings.

4.3 Accomplishments

In addition to enabling general constructive dialogue with stakeholders, the 2012 EECAG workshops resulted in several accomplishments. These are summarized below:

4.3.1 TERMS OF REFERENCE

ToR were developed for the EECAG in order to clarify the role, purpose and responsibilities of both members and the Companies. Feedback on the draft ToR was first sought in 2011, and finalization of the document became a priority for 2012. Following extensive consultation with the EECAG during the bi-annual workshops and a final written consultation period, the ToR was finalized in Q1, 2013. Membership in the EECAG will also be formalized through the signing of these ToR in 2013.

Notable outcomes of the EECAG ToR review included the following:

- Decision Making: the EECAG functions as an advisory group, not a decision making body. The goal of discussions is not primarily to reach consensus, but to facilitate open dialogue and obtain feedback on EEC activities.

- **Confidentiality:** The Companies and EECAG members alike highly value the open and frank discussions that are encouraged during workshops. Confidentiality and the attribution of comments to individual members created some concern; however, in the end the group agreed that confidentiality agreements would restrict the open discussions and therefore confidentiality agreements should not be implemented at this time. Rather, EECAG participation should continue to be based on trust and mutual respect among members.
- **Independent Facilitator:** Through the ToR discussions, EECAG members raised the idea of having an independent, third-party chairperson or facilitator for EECAG activities. This discussion resulted in the creation of the Independent Facilitator role discussed in more detail in Section 4.3.3 below.
- **Membership:** the EECAG is intended to be a consortium representing the broad constituency of FEU stakeholders. Members may be appointed based on their personal capacity, representation of a common interest shared by stakeholders or representation of a particular organization/group. There was general consensus that a review of EECAG membership should be conducted on a periodic basis.

4.3.2 EVALUATION, MEASUREMENT & VERIFICATION FRAMEWORK

The Evaluation, Measurement and Verification (“EM&V”) Framework documents the background, objectives, principles and general practices that guide the Companies’ approach, resources and timeframes for EM&V activities.

The need for such a framework was recognized by the BCUC, which in its decision with respect to the Companies’ 2012-2013 RRA provided the following directive:

“The Commission Panel directs the FEU to develop an evaluation plan and to determine an appropriate measurement and verification protocol to be used by the FEU and third party contractors in the EM&V Framework. The Commission Panel further directs the FEU to present the EM&V Framework to the EEC Stakeholder Group and solicit member feedback prior to implementing the Framework.”

The EM&V Framework, also a priority for 2012, was introduced conceptually to the EECAG during the spring workshop. The draft Framework was then presented at the fall workshop, where attendees had the opportunity to provide feedback. This feedback was recorded and considered by the Companies. The Framework will be released in a draft format for a final written consultation period in 2013.

4.3.3 INDEPENDENT FACILITATOR

During the spring workshop, EECAG members expressed interest in seeing an independent third party play a role in facilitating group activities. This feedback was recorded and considered by the Companies, which concluded that an Independent Facilitator would be a valuable addition to the EECAG.

At the fall 2012 workshop, the Companies announced their intent to appoint an Independent Facilitator to help ensure that all stakeholders have a fair and balanced opportunity to understand issues and provide input. The responsibilities of the Independent Facilitator include acting as a facilitator at EECAG meetings and advising the Companies on EECAG activity plans, memberships, reporting and other activities as needed.

A representative of the Fraser Basin Council was selected to fill this role based on the nature of the organization's principles of stakeholder engagement as well as the individual experience of the selected representative with both stakeholder engagement and the EECAG. Implementation of the Independent Facilitator role will follow in 2013.

4.4 Feedback & Lessons Learned

In addition to feedback on specific topics presented, EECAG members are encouraged to provide general feedback on the workshops, membership or any other issues. This feedback is typically submitted to the Companies via evaluation forms distributed at each workshop. The results from these evaluation forms are compiled and all comments considered.

Feedback on the 2012 EECAG workshops was largely positive. At both the spring and fall events, 100 percent of evaluation form respondents indicated that they found the workshop interactive and engaging and that they had sufficient opportunity to ask questions and provide input. At the spring workshop, 82 percent indicated that they feel their participation in the EECAG is valued and their input is being considered. This rose to 86 percent at the fall workshop.

Feedback from participants has also been very constructive. Lessons learned from prior meetings have led the Companies to increase their efforts to maximize group participation and feedback through breakout groups and discussion.

Other feedback indicated a strong interest in increased collaboration with First Nations, open dialogue and improved clarity on how feedback is being utilized. The Companies take this feedback seriously and are working hard to make improvements for 2013.

5 RESIDENTIAL ENERGY EFFICIENCY PROGRAM AREA

5.1 Overview

The Residential Energy Efficiency Program Area was successful in reducing annual natural gas consumption by over 200,000 GJ and achieving an overall TRC of 1.0 in 2012. Over \$11.3 million was invested in Residential Energy Efficiency upgrades in 2012, 85 percent of which was incentive spending.

Table 5-1 summarizes the projected and actual expenditures for the Residential Energy Efficiency Program Area in 2012, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost-effectiveness test results. Enabling Activities' expenditures were included in the Residential Program Area in 2012. However, due to the importance of these activities in supporting Residential and all other Program Areas, the Companies have discussed Enabling Activities in a separate section (see Section 11).

Residential programs serve over 860,000 homes in the FEU service territories. For EEC purposes, these customers include end-use customers living in residential single-family homes, row houses, townhomes or mobile homes.⁸ These programs serve retrofit and new home applications. Residential programs, in combination with the Companies' education and outreach activities, play an important role in driving the culture of conservation in British Columbia.

⁸ Programs for Multifamily Dwellings served under Rate Schedule 2 or 3 are included in the Commercial Energy Efficiency Program Area (please refer to Section 8).

Table 5-1: 2012 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				
	2012-2013 EEC Plan	2012 Actual		Incentives		Non-Incentives		All Spending		TRC	MTRC	Utility	Participant	RIM
				2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual					
Non Program Specific Expenses														
FEI				0	0	0	224	0	224					
FEVI	No Direct Savings			0	0	0	59	0	59			No Direct Savings		
Total				0	0	0	283	0	283					
ENERGY STAR® Domestic Hot Water "DHW" Technologies														
FEI	8,100	874	8,716	486	59	157	39	643	98	0.4	1.0	0.9	0.9	0.4
FEVI	900	436	4,440	54	30	18	5	72	35	0.4	1.0	1.3	1.1	0.4
Total	9,000	1,310	13,156	540	89	175	44	715	133					
Enerchoice Fireplace Program														
FEI	22,599	14,059	121,900	875	714	347	202	1,221	917	2.5	n/a	1.3	n/a	0.4
FEVI	5,301	4,347	39,095	205	234	82	58	287	291	2.7	n/a	1.3	11.9	0.3
Total	27,900	18,406	160,995	1,080	948	428	260	1,508	1,208					
"Give your Furnace/Fireplace Some TLC" – Service Campaign														
FEI				394	428	169	174	563	602					
FEVI	No Direct Savings			44	81	19	23	63	105			No Direct Savings		
Total				438	510	188	197	626	706					
LiveSmart BC - April 1, 2011 through March 31, 2012														
FEI	63,180	106,275	1,080,555	1,610	3,506	432	115	2,042	3,621	1.1	n/a	3.2	n/a	0.7
FEVI	7,020	7,470	77,434	179	243	48	14	227	256	1.1	n/a	3.0	n/a	0.7
Total	70,200	113,745	1,157,989	1,790	3,749	480	128	2,270	3,877					
LiveSmart BC - April 1, 2012 through March 31, 2013														
FEI	21,060	30,245	308,408	537	976	144	0	681	976	1.2	n/a	3.2	7.4	0.7
FEVI	2,340	2,833	29,415	60	88	16	0	76	88	1.1	n/a	3.4	5.1	0.7
Total	23,400	33,078	337,823	597	1,064	160	0	757	1,064					
ENERGY STAR® Washers and Other Measures for DHW Conservation														
FEI	4,590	8,899	74,271	153	561	36	48	189	609	1.4	n/a	1.2	2.4	0.4
FEVI	510	779	6,733	17	48	4	3	21	51	1.6	n/a	1.4	2.9	0.4
Total	5,100	9,678	81,004	170	610	40	50	210	660					
Furnace Replacement Pilot Program														
FEI	0	24,473	232,741	1,575	2,322	225	330	1,800	2,651	0.8	1.6	0.9	1.5	0.4
FEVI	0	1,088	10,791	175	103	25	24	200	127	0.7	1.3	0.8	1.6	0.3
Total	0	25,561	243,532	1,750	2,425	250	353	2,000	2,778					
New Construction - EnerGuide 80 and Energy Efficient Appliances														
FEI	4,458	482	5,445	240	167	72	38	312	205	0.2	0.4	0.3	0.9	0.2
FEVI	1,161	44	530	58	5	8	3	66	8	0.2	0.5	0.8	0.6	0.3
Total	5,618	526	5,975	298	171	80	41	378	212					
Enabling Activities														
FEI				0	0	450	274	450	274					
FEVI	No Direct Savings			0	0	50	75	50	75			No Direct Savings		
Total				0	0	500	349	500	349					
On-Bill Financing														
FEI				0	0	0	24	0	24					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	24	0	24					
ALL PROGRAMS														
FEI	123,987	185,307	1,832,035	5,871	8,733	2,032	1,467	7,902	10,199	1.0	1.2	1.8	1.9	0.6
FEVI	17,232	16,997	168,438	792	832	270	264	1,061	1,096	1.0	1.1	1.5	2.3	0.5
Total	141,218	202,304	2,000,473	6,662	9,564	2,301	1,731	8,963	11,295	1.0	1.2	1.8	1.9	0.6

Notes:

- The Residential Program Area exceeded the approved expenditure level by 22 percent or \$2.0 million in 2012 due to three major factors:
 - LiveSmart BC invoicing for the LiveSmart BC program iteration launched April 1, 2011 was delayed due to technical issues experienced by the Ministry of Energy, Mines and Natural Gas. Therefore, incentives for retrofits that were completed between April 1, 2011 and December 31, 2011 were not received until the fall of 2012 and were not reported in 2011. The 2011 portion of this expenditure is estimated to be about \$1 million.
 - The Furnace Replacement Pilot Program was oversubscribed within eight weeks of the September 1, 2012 launch date resulting in about \$780,000 expended over the projected budget. Eighty-seven percent of pilot program expenditures are attributed to customer incentives.

- In Table 8.4 of the 2012-2013 RRA Decision, the ENERGY STAR® Washers and Other Measures for DHW Conservation Program was listed as a new program, and was approved for only 40 percent of the requested expenditure of \$0.5 million. In fact, the program had been in market since April 1, 2011. As a result of the program's success and momentum from 2011 activity, spending on incentives exceeded the approved amount by \$440,000.
- The transfer of funds related to these expenditures is outlined in Section 3.
- LiveSmart BC and the ENERGY STAR® Washers and Other Measures for DHW Conservation Program were formerly included in the Joint Initiatives Program Area, but were moved into the Residential Energy Efficiency Program Area as approved in the 2012-2013 RRA Decision. The Furnace Replacement Pilot Program was also approved for inclusion in the Residential Energy Efficiency Program Area.
- See Section 11 for a discussion of the Enabling Activities.

5.2 Residential TRC and MTRC Results

EEC Program Principles state that programs should be universal, offering access to EEC for all customers. Although many Residential EEC programs are challenged in meeting a conventional TRC test in today's low market gas cost environment, these programs, with their broad reach, are cost-effective from a greenhouse gas ("GHG") emissions reduction perspective. This was recognized in the 2011 amendments to the Demand-Side Measures Regulation that enabled the inclusion of lower TRC programs through the application of the MTRC.

Even without the MTRC, the overall 2012 Residential Program Area TRC was 1.0 while the programs evaluated using the MTRC had a combined MTRC result of 1.2. The use of the MTRC enabled three new Residential Energy Efficiency programs to be launched in 2012; the ENERGY STAR® Domestic Hot Water ("DHW") Technologies Program; the New Construction – EnerGuide 80 and Energy Efficient Appliances Program; and the Furnace Replacement Pilot Program.

5.3 2012 Residential Energy Efficiency Programs

Tables 5-2 through 5-10 outline the specific Residential Energy Efficiency programs undertaken in 2012, including program and measure descriptions and a breakdown of non-incentive spending.

Table 5-2: ENERGY STAR® Domestic Hot Water "DHW" Technologies Program Summary (new)

Program Description	This program promotes the replacement of standard efficiency water heaters with efficient ENERGY STAR® models. As part of a longer term market transformation strategy, the program will introduce 0.67 EF storage tank water heaters and new technologies with energy factors (EF) greater than 0.80. The new technologies include condensing and non-condensing tankless water heaters, hybrids and condensing storage tanks. The program is available to both retrofit and new construction markets. The program supports upcoming federal and provincial Efficiency Act Standards for gas and propane-fired water heaters.									
Target Market	Residential customers									
New vs Retrofit	Both									
Eligible Measures	ESTAR 0.67 EF Storage Tank	Non-Condensing Tankless		Condensing Tankless		Hybrids		Condensing Storage Tank		
Incremental Measure Cost										
Retrofit	\$250	\$1,519		\$2,337		\$2,219		\$3,771		
New Construction	\$100	\$425		\$825		\$1,478		\$2,771		
Incentive Amount	\$200	\$400		\$500		\$500		\$1,000		
Savings Per Participant	3 GJ	6.5 GJ		8.3 GJ		7.3 GJ		5 GJ		
Measure Life	13 years for tanks on FEI and 10 years on FEVI, 20 years for tankless - Manufacturers, CANETA and OPA studies									
Sources of Assumptions	Manufacturers and other utilities ACEEE Emerging Hot Water Technologies and Practices for Energy Efficiency as of 2011. October 2011. Report Number A112. Canadian Residential Water Heater Market Assessment. 2009. Caneta Research Inc Residential High Efficiency Water Heater Pilots - preliminary results									
Free Rider Rate & Source	10% Weighted average based on estimates of market penetration of total water heater market from manufacturers and CANETA									
Participants	2012		2012 Actual							
	Service Region	Total	ESTAR 0.67 EF Storage Tank		Non-Condensing Tankless		Condensing Tankless & Hybrids		Condensing Storage Tank	
		Projected	Retrofit	New Construction	Retrofit	New Construction	Retrofit	New Construction	Retrofit	New Construction
	FEI	1,816	0	1	6	0	79	31	0	0
	FEVI	204	0	1	14	12	34	3	1	0
	FEW	20	0	0	0	0	2	0	0	0
	Total	2,040	0	2	20	12	115	34	1	0
	Expenditures (\$,000s)	Incentives		Non-Incentives				Total		
Service Region		Dealer Incentives	Admin	Communication	Research & Evaluation					
FEI	58	5	8	22	4	97				
FEVI	30	2	1	1	1	35				
FEW	1	0	0	0	0	1				
Total	89	8	9	23	4	133				

Notes:

- Incentives for tankless, hybrid and condensing storage tank water heater technologies were launched in July, 2012. The 0.67 EF storage tank water heater measure was launched September 1, 2012 as manufacturers first introduced these products into the BC market.
- The water heater program uptake was lower than forecasted. Water heater programs tend to take longer to gain awareness in the market (in comparison to furnace programs, for example). The new technologies represent only 7-10 percent of the total water heater market and are more expensive than standard water heaters. The original estimations in the 2012-2013 EEC Plan were based on 58 percent of the units represented by 0.67 EF tanks which were only recently introduced into the BC market (September 2012).
- Dealer Sales Promotion Incentive Fund ("SPIF") is broken out as non-incentive expenditures.

Table 5-3: EnerChoice Fireplace Program

Program Description	This program provides rebates to customers that install an energy efficient 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 that provides zone heating rather than just decorative features.					
Target Market	Residential customers					
New vs Retrofit	Both					
Eligible Measures	EnerChoice Fireplace					
Incremental Measure Cost	\$150 Hearth Manufacturers – based on the manufacturer’s cost of installing energy efficient technology.					
Incentive Amount	\$300 + \$50 SPIF*					
Savings Per Participant	7.75 GJ Impact of Terasen Gas Pilot Fireplace Program (2004) by Habart and Associates					
Measure Life	15 years					
Sources of Assumptions	Impact of Terasen Gas Pilot Fireplace Program (2004) by Habart and Associates Hearth Manufacturers and Hearth Patio and BarBQue Association 2010 Conservation Potential Review Data from prior program participants					
Free Rider Rate & Source	24% - Findings of previous programs. In this competitive industry it is challenging to access market share data. Starting to be higher market saturation of EnerChoice models across North America however there is anecdotal evidence from industry that low cost lower efficiency base models are taking on a higher market share in the retrofit market. Free Ridership in New Construction is very low (less than 10%) based on anecdotal evidence from industry. Note: Participant feedback of 12% ensures that 24% is a conservative estimate.					
Participants	2012 Projected		2012 Actual		Retrofit	New Construction
	Service Region		\$150 Program	\$300 Program	Total	Total
	FEI	2,880	15	2,364	2,379	2
	FEVI	684	1	738	739	40
	FEW	36	0	8	8	0
	Total	3,600	16	3,110	3,126	42
Expenditures (\$,000s)	Incentives		Non-Incentives			Total
	Service Region		Dealer Incentives	Admin Communication	Research & Evaluation	
	FEI	712	118	26	59	914
	FEVI	234	37	6	15	291
	FEW	2	0	0	0	3
	Total	948	155	32	74	1,209

Notes:

- SPIF is broken out as non-incentive expenditures.

Table 5-4: “Give your Furnace/Fireplace Some TLC” – Service Campaign

Program Description	This program educates customers about the benefits of ensuring that their natural gas appliances are operating as efficiently as possible through regular appliance maintenance. In addition, this program creates opportunities for contractors to engage in dialogue with customers about upgrading appliances to more efficient models. The 2010 Program evaluation determined that 4% of participants' heating systems had gas leaks and 15% were advised to either upgrade or replace their appliance. The 2011 Program evaluation identified 16% of participants' heating systems had gas leaks or safety issues and 11% 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 furnace service cost based on participant data					
Incentive Amount	\$25 value to participant					
Savings Per Participant	Unknown					
Measure Life & Source	N/A					
Free Rider Rate & Source	N/A					
Participants			Service Type			
	Service Region	2012 Projected	2012 Actual	Furnace	Fireplace	
	FEI	15,575	19,027	14,356	4,671	
	FEVI	1,750	3,617	1,782	1,835	
	FEW	175	1	1	0	
	Total	17,500	22,645	16,139	6,506	
Expenditures (\$,000s)	Non-Incentives					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	428	126	35	13	602
	FEVI	81	18	4	1	105
	FEW	0	0	0	0	0
	Total	510	144	39	14	706

Table 5-5: Energy Efficient Home Retrofit Programs – Joint Initiatives with Governments and Utilities (LiveSmartBC and other opportunities) – Government F12

Program Description	April 1, 2011 through March 31, 2012 This program promotes energy efficiency home retrofits involving collaboration with utility partners, as well as provincial, federal and municipal governments. The major initiative is LiveSmartBC, for which economic modeling data is presented below. Other initiatives include capacity building for weatherization and initiatives with individual municipalities. Program partners share investments in administration, evaluation and communications to engage the province in energy efficient home retrofits in a cost-effective program. Due to technical issues with customer payment processing, the Ministry of Energy, Mines and Natural Gas could not provide invoices for 2011 payments. Therefore, this 2012 EEC Annual Report includes all expenditures and savings for April 2011 to March 31, 2012. Note: The NRCan EcoAction program was back in market from June 2011 through March 31, 2012. The increased federal incentives and advertising resulted in participation rates higher than forecasted.						
Target Market	Residential customers						
New vs Retrofit	Retrofit						
Eligible Measures	Air Sealing and Draft-Proofing	Attic Insulation	Basement Insulation	Wall Insulation	Crawl Space and Misc	Windows	Certified Installation
Incremental Measure Cost	\$989	\$1,357	\$1,186	\$1,398	\$684	\$35/ window	N/A
Incentive Amount - FBC	\$279	\$276	\$364	\$402	\$176	\$27	\$50
Incentive Amount- LiveSmart	\$22	\$186	\$281	\$651	\$305	\$31	\$50
Incentive Amount -NRCan	\$200	\$462	\$645	\$1,053	\$481	\$40	N/A
Savings Per Participant	6.4 GJ	11.7 GJ	9.4 GJ	20.8	5.9 GJ	1.2 GJ	N/A
Measure Life & Source	20 year average assumed (10-15 years for Air Sealing, 20-25 years for Insulation, and 20-25 years for Windows); Consultations with BC Hydro, Habart & Hood, 2010 Conservation Potential Review and Dunsky Energy Consulting.						
Sources of Assumptions	Habart and Hood, Hot 2000 Energy Modeling Reports 2010, 2011 2010 Conservation Potential Review Dunsky Energy Consulting, Hot 2000 Modelling 2012, 2013 Note: At time of writing BC Hydro LiveSmart BC evaluation was not complete. Results will be included in the 2014 RRA.						
Free Rider Rate & Source	20% average assumed based on past program analysis and NRCan evaluation. <i>Final Report: Analysis of Net-to-gross Survey Results for the ecoENERGY Retrofit for Homes Program.</i> Bronson Consulting Group. August, 2010						
Participants	Service Region	2011 - 2012 Projected	2011 - 2012 Customers				
	FEI	6,008	8,000				
	FEVI	675	473				
	FEW	68	0				
	Total	6,750	8,473				
Expenditures (\$,000s)	Service Region	Building Envelope	Certified Installation	Non-Incentive Expenditures			Total
				Admin	Communication	Research & Evaluation	
	FEI	3,374	132	38	27	50	3,621
	FEVI	239	4	4	6	3	256
	Total	3,613	136	42	33	53	3,877

Notes:

- In 2011, LiveSmart BC was reported separately in the Joint Initiatives Program Area, but is now combined with the Residential Energy Efficiency Program Area as approved in the 2012-2013 RRA Decision.
- The results in this table represent invoices received in 2012 for retrofits that occurred between April 1, 2011 and March 31, 2012. Retrofits that occurred between April 1, 2012 and December 31, 2012 are included in Table 5-6.

- Each of the measures (air sealing, insulation and windows) is comprised of a number of sub-categories. For reporting purposes, weighted averages based on the number of participants in each sub-category for each measure type are used.
- The FEU incentive was supplemented by a Ministry of Energy, Mines and Natural Gas incentive and NRCAN's EcoEnergy Program, which was in market from June 2011 through March 2012. In most cases, NRCAN incentives matched the total LiveSmart BC payment.
- Measure costs and energy savings were based on Hot 2000 modelling provided by Dunskey Energy Consulting. A full program evaluation has been initiated in collaboration with BC Hydro with the purpose of validating energy savings claims with billing consumption data. At the time of writing the full report was not available, but results will be incorporated into the 2014-2018 EEC Plan if available.

Table 5-6: Energy Efficient Home Retrofit Programs – Joint Initiatives with Governments and Utilities (LiveSmartBC and other opportunities) – Government F13

Program Description	April 1, 2012 through March 31, 2013						
	This program promotes energy efficiency home retrofits involving collaboration with utility partners, as well as provincial, federal and municipal governments. The major initiative is LiveSmartBC, for which economic modeling data is presented below. Other initiatives include capacity building for weatherization and initiatives with individual municipalities. Program partners share investments in administration, evaluation and communications to engage the province in energy efficient home retrofits in a cost-effective program.						
Target Market	Residential customers						
New vs Retrofit	Retrofit						
Eligible Measures	Air Sealing and Draft-Proofing	Attic Insulation	Basement Insulation	Wall Insulation	Crawl Space and Miscellaneous	Windows	Certified Installation
Incremental Measure Cost	\$989	\$1,357	\$1,186	\$1,398	\$684	\$35/ window	N/A
Incentive Amount - FBC	\$297	\$268	\$346	\$400	\$150	\$27	\$50
Incentive Amount - LiveSmart	\$22	\$172	\$231	\$612	\$171	\$28	\$50
Savings Per Participant	6.4 GJ	11.7 GJ	9.4 GJ	20.8	5.9 GJ	1.2 GJ	N/A
Measure Life & Source	20 year average assumed (10-15 years for Air Sealing, 20-25 years for Insulation, and 20-25 years for Windows); Consultations with BC Hydro, Habart & Hood, 2010 Conservation Potential Review and Dunskey Energy Consulting.						
Free Rider Rate & Source	20% average assumed based on past program analysis and NRCAN evaluation. <i>Final Report: Analysis of Net-to-gross Survey Results for the ecoENERGY Retrofit for Homes Program.</i> Bronson Consulting Group. August, 2010						
Sources of Assumptions	Habart and Hood, Hot 2000 Energy Modeling Reports 2010, 2011 2010 Conservation Potential Review Dunskey Energy Consulting, Hot 2000 Modeling 2012,2013 Note: At time of writing BC Hydro LiveSmart BC evaluation was not complete. Results will be included in the 2014 RRA.						
Participants	Service Region	2012 - Projected	2012 Customers				
	FEI	2,003	2390				
	FEVI	225	195				
	FEW	23	0				
	Total	2,250	2,585				
Expenditures (\$,000s)	Non-Incentive Expenditures						Total
	Service Region	Building Envelope Incentives	Certified Installation	Admin	Communication	Research & Evaluation	
	FEI	936	39	0	0	0	976
	FEVI	86	2	0	0	0	88
	FEW	0	0	0	0	0	0
	Total	1,022	42	0	0	0	1,064

Notes:

- In 2011, LiveSmartBC was reported separately in the Joint Initiatives Program Area, but is now combined with the Residential Energy Efficiency Program Area as approved in the 2012- 2013 RRA Decision.
- The results in this table represent invoices received in 2012 for retrofits that occurred between April 1, 2012 and December 31, 2012. Retrofits that occurred between April 1, 2011 and March 31, 2012 are included in Table 5-5.
- The FEU incentive is supplemented by a Ministry of Energy, Mines and Natural Gas incentive.
- Measure costs and energy savings were based on Hot 2000 modelling provided by Dunsky Energy Consulting. A full program evaluation has been initiated in collaboration with BC Hydro with the purpose of validating energy savings claims with billing consumption data. At the time of submission, the full report was not available, but results will be incorporated into the 2014-2018 EEC Plan if available.
- Non-incentive expenditures were captured in the April 1, 2011 to Mar 31, 2012 iteration as presented in Table 5.5. Additional administrative expenses will be reported in 2013.

Table 5-7: ENERGY STAR® Washers and Other Measures for DHW Conservation

Program Description	This program provides rebates on qualifying high efficiency ENERGY STAR® clothes washers in collaboration with electric utility partners.				
Target Market	Residential customers				
New vs Retrofit	Retrofit				
Eligible Measures	Select ENERGY STAR® Washing Machines				
Incremental Measure Cost	\$102				
Incentive Amount	\$50 + \$25 BC Hydro or FortisBC Inc. (electric utility) for a total customer incentive of \$75				
Savings Per Participant	1.0 GJ natural gas plus 0.25 GJ electric - Based on 2010 Conservation Potential Review				
Measure Life & Source	14 years - 2010 Conservation Potential Review and Ontario Power Authority "2010 Prescriptive Measures and Assumptions: Release 1"				
Free Rider Rate & Source	20% - BCHydro, based on market share of eligible washers				
Participants	Service Region	2012 Projected	2012 BCH	2012 FBC - Electric	2012 FBC - Dishwasher Pilot
	FEI	3,026	10,489	635	206
	FEVI	340	974	0	0
	FEW	34	1	0	0
	Total	3,400	11,464	635	206
Expenditures (\$,000s)	Non-Incentive Expenditures				
	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	561	45	2	0
	FEVI	48	3	0	0
	FEW	0	0	0	0
	Total	610	48	2	0
					Total
					609
					51
					0
					660

Notes:

- The ENERGY STAR Washers Program, formerly included in the Joint Initiatives Program Area was moved to the Residential Program Area as approved in the 2012-2013 RRA Decision.
- FEI conducted a small ENERGY STAR Dishwashers Pilot with FortisBC Inc. PowerSense. Because the market is transformed and incremental natural gas savings are limited, the program will not be continued in 2013. The percentage of participants is small relative to the total number

of participants in the washer program, therefore the costs were included in the washer program but no energy savings were claimed.

Table 5-8: New Construction – EnerGuide 80 and Energy Efficient Appliances (new)

Program Description	This program provides education and financial incentives to new home builders that attain EnerGuide for Homes (EG) 80 through building envelope measures. This program supports the pending efficiency updates to the BC Building Code (2013) and also educates consumers about the benefits of purchasing energy efficient new homes. The Companies are collaborating with the BC Hydro Power Smart New Homes and FortisBC PowerSense programs. Although promoted within the New Home program, water heaters and fireplaces are recorded in their respective individual programs.					
Target Market	Builders of residential properties – single family homes and townhomes					
New vs Retrofit	New Construction					
Eligible Measures	EG80 Single Family Dwellings	EG80 Townhome/Rowhome	Boilers			
Incremental Measure Cost	\$8,294	\$200	\$1,350			
Incentive Amount	\$1500 + \$500 from BCHydro	\$100 + \$100 from BCHydro	\$1,000			
Savings Per Participant	16.3 GJs	2.6 GJs	8.4 GJs			
Measure Life	25+ years	25+ years	18 years			
Sources of Assumptions	New Construction Costs and Savings and Life Cycle Costs, 2011, Cooper and Habart, and Dunskey Energy Consulting, Consultations with BCHydro and FortisBC PowerSense					
Free Rider Rate & Source	10% - In 2013, builder focus groups will help determine current EG 80 market share.					
Participants	Service Region	2012 Projected	2012 Actual			
			EG80 SFD EG80 Rowhome Boiler			
	FEI	1,359	11 245 8			
	FEVI	279	3 0 0			
	FEW	0	0 0 0			
	Total	1,638	14 245 8			
Expenditures (\$,000s)	Service Region	Incentives	Program Communication	Research & Evaluation	Total	
			Administration			
	FEI	167	5	20	12	205
	FEVI	5	0	2	1	8
	FEW	0	0	0	0	0
	Total	171	6	22	13	210

Notes:

- Energy savings and participant costs were derived from the study, *New Construction Costs and Savings and Life Cycle Costs*, 2011, Cooper and Habart. Further analysis of energy savings and participant costs will be conducted in 2013.
- Row home totals include 128 units from the EG80 Quadra Pilot that was initiated in 2010. In addition to EG80, the units include tankless condensing water heaters. The additional costs and savings for these appliances were factored into the cost-effectiveness tests.

Table 5-9: Furnace Replacement Pilot Program (new)

Program Description	The Furnace Replacement Pilot Program targets customers with functioning furnaces (standard or mid-efficiency) or boilers and encourages them, through a combination of marketing and incentives, to replace the furnace now rather than waiting for the furnace to fail at some point in the future. Evidence suggests that British Columbia has the lowest installation of high efficiency furnaces out of any province in Canada, likely representing over 500,000 standard and mid-efficiency furnaces in operation. In the 2012-2013 RRA Decision, the BCUC approved expenditures of \$2 Million for each of 2012 and 2013 for the Furnace Replacement Pilot Program. This pilot will help determine if an incentive program can influence homeowners to advance their furnace replacement decision.					
	Within eight weeks of the pilot launching September 1, 2012, over 3000 participants replaced standard and mid-efficiency furnaces, indicating that there is a strong market demand for a furnace replacement incentive. At the time of writing, more in-depth evaluation is under way and the 2013 pilot program is being developed with improvements based on experience gained in the 2012 pilot. A detailed program design and funding request for 2014 and subsequent years will be submitted with the 2014-2018 RRA.					
Target Market	Residential customers					
New vs Retrofit	Retrofit					
Eligible Measures / % of participants	Standard efficiency (80%)	Mid - Efficiency (18%)	Boilers (2%)			
Incremental Measure Cost*	\$1,483	\$1,483	\$4,413			
Incentive Amount	\$800					
Savings Per Participant **	10 GJs	5.5 GJs	8.8 GJs			
Measure Life & Source	Furnace - 18 years and Boiler - 18 years -Navigant Consulting report, BC Hydro Power Smart QA Standard,					
Free Rider Rate & Source	A precise estimate of free ridership is under development. A preliminary estimate is 8% based on 8% of participants with repair costs greater than \$1000 .					
Sources of Assumptions	2012 Furnace Replacement Pilot Program Evaluation - Preliminary Report, by Habart and Associates.					
Participants	Service Region	2012 Projected	2012 Actual	Dealer Incentive		
	FEI	0	2,899	2,233		
	FEVI	0	129	83		
	FEW	0	3	3		
	Total	2,000	3,031	2,319		
Expenditures (\$,000s)	Service Region	Incentives	Dealer Incentive	Non-Incentives		Total
				Admin	Communication	Research & Evaluation
	FEI	2,319	223	22	32	53
	FEVI	103	8	2	7	6
	FEW	2	0	0	0	0
	Total	2,425	232	24	40	58

Notes:

- Two significant factors contributed to the success of the Pilot. The first was a Program Design Workshop on May 30, 2012 where experienced furnace industry representatives provided their feedback into successful program design elements. The second factor was engagement by the FEU contractor program network, which was instrumental in driving program participation.
- At the time this Report was submitted, the 2012 pilot evaluation was in progress. Inputs for savings analysis are based on the preliminary evaluation of program participants as of December 15, 2012. Further evaluation results and a comprehensive program design for 2014-2018 will be submitted with the next RRA.

Table 5-10: On-Bill Financing Pilot Program

Program Description	A loan of up to \$10,000 to implement energy efficient measures. This pilot program is available to FortisBC electric-only customers or customers who receive both natural gas and electric services in the South Okanagan and who undertake energy upgrades for their homes under the guidance of a certified Energy Advisor. Loans carry a 4.5% interest rate and are amortized over 10 years. This program is operated by FortisBC electric. Any natural gas customers participating in the program are cross charged to FortisBC natural gas accordingly.				
Target Market	South Okanagan residential customers				
New vs Retrofit	Retrofit				
Eligible Measures	Primary space heating, air sealing and insulation, hot water heating, window and door replacement				
Incremental Measure Cost	To be determined by pilot				
Incentive Amount	Loan administration and reduced interest rate (4.5% vs. FEI weighted average cost of capital).				
Savings Per Participant	To be determined by pilot				
Measure Life & Source	To be determined by pilot				
Free Rider Rate & Source	To be determined by pilot				
Participants	Service Region	2012 Projected	2012 Actual		
	FEI	4	0		
	FEVI	n/a	n/a		
	FEW	n/a	n/a		
	Total	4	0		
2012 Expenditures (\$,000s)	2012 Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	0	24	0	0
	FEVI	0	0	0	0
	FEW	0	0	0	0
	Total	0	24	0	0

Notes:

- The Companies began implementation of the On-Bill Financing Pilot Program following the enactment of the Improvement Financing Regulation under section 17.1 of British Columbia's *Clean Energy Act*. Learning outcomes from this pilot program will be provided to the British Columbia Ministry of Energy, Mines and Natural Gas to assist it with developing any future financing programs.

5.4 2012 Residential Energy Efficiency Programs Planned But Not Launched

5.4.1 HOME ENERGY EFFICIENCY WEB PORTAL

The intention of this program is to develop a home energy efficiency web portal with content, energy saving tips and a "one-stop rebate shop" for the Province of British Columbia. Web requirements were developed in 2011, and the Companies are now determining the best time to launch this activity within the collaborative utility partner and government framework.

5.4.2 CUSTOMER ENGAGEMENT TOOL FOR CONSERVATION BEHAVIOURS

The intention of this program is to develop a communications tool that engages customers in behaviour change utilizing Home Energy Reports that track energy consumption trends. However, in 2012 the Companies made the decision to focus primarily on core programs that

generate significant energy savings. The FEU are currently researching options that will provide the most benefit to customers at the least cost. In addition, the Companies will be investigating solutions that may be valuable for both electric and natural gas customers and the potential for a province-wide collaborative approach.

5.5 2012 Residential Energy Efficiency Program Closures

5.5.1 0.62 EF EFFICIENT WATER HEATER PROGRAM

Due to the provincial *Energy Efficiency Act* minimum standards for water heaters, the 0.62 EF Water Heater Program has met its objectives and was officially closed on December 31, 2011. Some costs were incurred in 2012 to close off the program. These expenditures were included in non-program admin expenses in the ENERGY STAR® DHW Technologies Program Summary (Table 5-2).

5.6 Summary

Residential Energy Efficiency Program Area activity in 2012 resulted in over 200,000 GJ/year of natural gas savings. Residential Energy Efficiency programs enabled customers to upgrade appliances and capture energy savings, supporting the introduction of new provincial regulations and establishing relationships with the trades for education and program awareness. The combination of financial incentives, policy support, contractor outreach and effective marketing is instrumental to the ongoing success of these programs in generating natural gas savings and fostering market transformation in the residential sector.

Universality is a key guiding principle for the Companies' EEC initiatives. Amendments to the Demand-Side Measures Regulations have enabled more programs to be developed, resulting in significant energy savings benefits for residential customers. The Province, in turn, benefits from the resulting GHG emissions reductions in the residential building sector.

6 LOW INCOME ENERGY EFFICIENCY PROGRAM AREA

6.1 Overview

The Low Income Program Area made significant progress in 2012. The Companies saw continued success with the Energy Savings Kit (“ESK”) Program, implemented two inspiring Residential Energy Efficiency Works (“REnEW”) sessions and in June launched the long anticipated Energy Conservation Assistance Program (“ECAP”). All three of these programs are partnerships with BC Hydro. The FortisBC Inc. electric utility is already a partner in the REnEW program and will be fully integrated in to the ESK and ECAP partnerships in 2013 as well.

In addition to the Companies’ own Low Income programs, progress continues to be made on investing the \$5.2 million in funds granted to the Companies by the Ministry of Energy, Mines and Natural Gas. In 2012, the Companies invested \$320,408, primarily in retrofits in low income buildings.

Table 6-1 summarizes the projected and actual expenditures for the Low Income Program Area in 2012, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost-effectiveness test results. The cost-effectiveness test for low income EEC programs uses a value of 130% of the benefits in accordance with Section 4(2)(b) of the Demand-Side Measures Regulation.

Table 6-1: 2012 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							
	2012-2013 EEC Plan	2012 Actual		Incentives		Non-Incentives		All Spending		TRC	MTRC	Utility	Participant	RIM			
				2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual								
Non Program Specific Expenses																	
FEI				0	0	0	11	0	11	No Direct Savings							
FEVI				0	0	0	0	0	0								
Total				0	0	0	11	0	11								
Residential Energy Efficiency Works (REnEW)																	
FEI				0	0	145	91	145	91	No Direct Savings							
FEVI				0	0	40	0	40	0								
Total				0	0	185	91	185	91								
Energy Saving Kit (ESK)																	
FEI				14,164	11,971	69,628	165	120	135	86	300	207	4.6	n/a	3.8	n/a	0.6
FEVI				1,574	4,627	27,415	18	36	6	17	34	53	7.1	n/a	5.8	n/a	0.5
Total				15,738	16,598	97,043	183	156	151	103	334	260					
Energy Conservation Assistance Program (ECAP)																	
FEI				13,005	461	3,309	2,588	75	1,418	142	4,005	217	0.2	n/a	0.2	n/a	0.2
FEVI				1,445	53	387	288	9	158	15	445	24	0.2	n/a	0.2	n/a	0.2
Total				14,450	514	3,696	2,875	84	1,575	157	4,450	241					
ALL PROGRAMS																	
FEI				27,169	12,432	72,937	2,753	195	1,698	330	4,450	525	1.7	n/a	1.6	n/a	0.5
FEVI				3,019	4,680	27,802	306	45	204	33	519	78	4.6	n/a	4.0	n/a	0.5
Total				30,188	17,112	100,739	3,058	240	1,911	363	4,969	603	2.1	n/a	1.9	n/a	0.5

6.2 2012 Low Income Programs

Tables 6-2 through 6-4 outline the specific Low Income programs undertaken in 2012, including program and measure descriptions and a breakdown of non-incentive spending.

Table 6-2: Residential Energy Efficiency Works (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 targeted to marginalized populations 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"), Construction Safety Training Systems ("CSTS"), Fall Protection, 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	2012 Projected	2012 Actual			
	FEI	43	22			
	FEVI	12	0			
	FEW	0	0			
	Total	55	22			
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	85	4	2	91
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	85	4	2	91
Expenditures (\$)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	84,710	4,320	1,650	90,680
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	84,710	4,320	1,650	90,680

Table 6-3: Energy Saving Kit (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. FortisBC Inc. (electric utility) currently services their customers through an ESK program of their own and in 2013 FEU will begin a partnership in the shared services territory.					
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	\$13.51 - Average 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.					
Incentive Amount	\$13.51 - Since the program is free to participants, the incentive equals the incremental cost					
Savings Per Participant	2 GJ - Updated savings to align with 2011 CPR results.					
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	2012 Projected	2012 Actual			
	FEI	16,287	8,413			
	FEVI	1,830	3,169			
	FEW	183	0			
	Total	18,300	11,582			
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	120	51	35	0	207
	FEVI	36	13	5	0	53
	FEW	0	0	0	0	0
	Total	156	64	39	0	260

Table 6-4: Energy Conservation Assistance Program (ECAP)

Program Description	This is a full-service direct-install program that provides opportunities for deep energy savings in low-income households. Offered in partnership with BC Hydro, the program targets low-income homes with moderate to high gas consumption and installs a customized assortment of energy saving measures. The program also installs measures that improve the health and safety of participants, such as improving ventilation and installing carbon monoxide detectors.					
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. Advanced Stream of measures includes all the above and, in some cases: Ceiling/Wall/Crawl Insulation, Advanced Draftproofing, Carbon Monoxide Detectors and Ventilation.					
Incremental Measure Cost	\$438 - Average based on the full cost of the gas measures installed in gas heated homes					
Incentive Amount	\$438 - Since the program is free to participants, the incentive equals the incremental cost					
Savings Per Participant	3 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	2012 Projected	2012 Actual			
	FEI	2,225	172			
	FEVI	250	19			
	FEW	25	0			
	Total	2,500	191			
Expenditures (\$,000s)	2012	Incentives	Admin	Communication	Research & Evaluation	Total
	Service Region					
	FEI	75	81	52	9	217
	FEVI	9	9	5	1	24
	FEW	0	0	0	0	0
	Total	84	90	57	10	241
Expenditures (\$)	2012	Incentives	Admin	Communication	Research & Evaluation	Total
	Service Region					
	FEI	74,649	80,666	52,039	9,322	216,676
	FEVI	8,962	9,140	5,201	1,036	24,338
	FEW	0	0	0	0	0
	Total	83,611	89,806	57,239	10,358	241,014

Notes:

- The TRC for the ECAP is lower for 2012 than the Companies expect it to be in future years. In 2012 the program was under development for the first five months of the year and, once launched, it took several months of outreach to engage this hard-to-reach customer segment. Further, the engagement period with the program is sometimes several months (i.e. participants apply for the program, and then sometimes receive multiple visits by contractors to install various energy savings measures). The Companies do not count the participants until all measures have been installed. Because of these reasons, there were only 191 participants included in the 2012 program results. The Companies expect growth in participation in the program in 2013, and have already attracted over 100 participants in the first two months of 2013. This will improve the TRC moving forward.

6.3 Summary

The Low Income Program Area has been an important priority for the Companies since the initial creation of the EEC Program Principles. The goal of creating programs that are accessible to all has already been achieved through the launch of the ESK Program, the REnEW Program and the new ECAP launched in June of 2012. Continued increase in investment and a deeper level of savings for our low income customers is expected for 2013.

7 COMMERCIAL ENERGY EFFICIENCY PROGRAM AREA

7.1 Overview

In 2012, Commercial Energy Efficiency programs continued to successfully encourage commercial customers to reduce their overall consumption of natural gas and their associated energy costs. The Commercial Energy Efficiency Program Area was successful in reducing annual natural gas consumption by over 160,000 GJS and achieving an overall TRC of 1.2, despite incurring some significant program development costs required to launch new programs. Nearly \$5 Million was invested in Commercial Energy Efficiency, approximately 87% of which was incentive spending.

Table 7-1 summarizes the projected and actual expenditures for the Commercial Energy Efficiency Program Area in 2012, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost-effectiveness test results.

Table 7-1: 2012 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				
	2012-2013 EEC Plan	2012 Actual		Incentives		Non-Incentives		All Spending		TRC	MTRC	Utility	Participant	RIM
				2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual					
Non Program Specific Expenses														
FEI	No Direct Savings			0	0	0	157	0	157					
FEVI				0	0	0	4	0	4					
Total				0	0	0	161	0	161					
Efficient Boiler Program														
New Construction														
FEI	26,725	2,683	26,759	620	67	19	4	638	71	2.3	n/a	3.7	4.3	0.6
FEVI	3,207	317	3,310	69	28	2	1	71	29	1.0	n/a	1.1	2.5	0.4
Retrofit														
FEI	72,420	43,001	428,868	1,924	1,176	105	101	2,030	1,277	2.9	n/a	3.3	5.6	0.5
FEVI	8,160	12,475	130,127	214	402	12	11	226	413	2.7	n/a	3.1	4.9	0.6
Total	110,512	58,476	589,064	2,827	1,673	138	117	2,965	1,790					
Light Commercial Boiler Program														
New Construction														
FEI	888	180	1,799	9	3	3	0	14	3	2.2	n/a	6.1	3.7	0.6
FEVI	0	0	0	1	0	0	0	3	0	n/a	n/a	n/a	n/a	n/a
Retrofit														
FEI	7,400	433	4,318	86	6	28	1	115	7	1.1	n/a	6.0	1.9	0.6
FEVI	1,184	19	197	10	1	3	0	14	1	0.4	n/a	2.5	0.8	0.5
Total	9,472	632	6,314	106	10	34	1	146	11					
Efficient Commercial Water Heater Program														
New Construction														
FEI	800	2,265	22,588	17	56	2	8	20	64	1.1	n/a	2.5	2.5	0.4
FEVI	89	308	3,211	3	2	0	1	4	3	4.9	n/a	6.8	12.2	0.5
Retrofit														
FEI	6,230	6,092	60,762	156	93	23	28	178	121	0.9	n/a	3.6	2.1	0.5
FEVI	1,068	585	6,104	27	13	4	3	31	15	1.1	n/a	2.8	2.5	0.5
Total	8,188	9,250	92,665	203	163	29	40	233	204					
Commercial Energy Assessment Program														
FEI	55,632	77,080	77,080	143	412	45	21	188	432	1.7	n/a	1.1	n/a	0.3
FEVI	18,544	10,785	10,785	48	59	15	5	63	64	1.6	n/a	1.1	n/a	0.3
Total	74,176	87,865	87,865	191	471	60	26	250	497					
Spray Valve Program														
New Construction														
FEI	28	0	0	0	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
FEVI	0	0	0	0	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
Retrofit														
FEI	2,933	1,259	5,056	42	9	2	11	44	20	2.2	n/a	2.1	n/a	0.5
FEVI	333	230	937	5	2	0	2	5	4	2.2	n/a	2.1	n/a	0.5
Total	3,294	1,489	5,993	47	11	2	13	51	23					
Commercial Custom Design Program														
New Construction														
FEI	5,058	0	0	400	13	17	5	492	19	n/a	n/a	n/a	n/a	n/a
FEVI	1,264	0	0	100	0	2	1	152	1	n/a	n/a	n/a	n/a	n/a
Retrofit														
FEI	43,928	0	0	1,318	34	86	8	1,507	41	n/a	n/a	n/a	n/a	n/a
FEVI	11,560	0	0	330	11	21	3	401	14	n/a	n/a	n/a	n/a	n/a
Total	61,810	0	0	2,148	58	126	17	2,553	74					
Continuous Optimization Program														
FEI	41,454	2,462	9,886	704	739	86	1	790	740	0.1	n/a	0.1	1.1	0.1
FEVI	1,692	620	2,529	29	159	6	0	34	159	0.1	n/a	0.1	1.1	0.1
Total	43,146	3,082	12,415	733	898	92	1	825	899					
Efficiency à la Carte (Commercial Kitchen Program)														
New Construction														
FEI	56	149	1,134	2	5	0	48	2	53	0.2	n/a	0.2	2.9	0.1
FEVI	0	139	1,094	0	5	0	7	0	12	0.7	n/a	0.8	3.1	0.4
Retrofit														
FEI	506	0	0	22	0	3	0	24	0	n/a	n/a	n/a	n/a	n/a
FEVI	56	448	3,521	2	10	0	4	2	13	2.2	n/a	2.5	5.5	0.5
Total	618	736	5,749	26	19	4	60	28	79					
MURB Program														
New Construction														
FEI	1,620	0	0	30	0	2	0	32	0	n/a	n/a	n/a	n/a	n/a
FEVI	360	0	0	8	0	0	0	8	0	n/a	n/a	n/a	n/a	n/a
Retrofit														
FEI	6,300	130	878	119	4	9	0	128	4	2.2	n/a	2.0	n/a	0.5
FEVI	1,620	0	0	30	0	2	0	32	0	n/a	n/a	n/a	n/a	n/a
Total	9,900	130	878	186	4	14	0	200	4					

Table 7-1: 2012 Commercial Energy Efficiency Program Results Summary (Continued)

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		TRC	MTRC	Utility	Participant	RIM
	2012-2013 EEC Plan	2012 Actual		2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual					
Fireplace Timers Pilot Program														
FEI				0	0	68	9	68	9					
FEVI	No Direct Savings			0	0	8	1	8	1			No Direct Savings		
Total				0	0	76	10	75	10					
Radiant Tube Heaters Pilot Program														
FEI	748	0	0	12	0	8	1	20	1	n/a	n/a	n/a	n/a	n/a
FEVI	0	0	0	0	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
Total	748	0	0	12	0	8	1	20	1					
EnerTracker Program														
FEI				0	0	0	122	0	122					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	122	0	122					
Energy Specialist Program														
FEI	0	1,081	4,713	840	729	195	71	1,035	800					
FEVI	0	0	0	120	180	22	8	142	188			n/a		
Total	0	1,081	4,713	960	909	217	79	1,177	989					
PSECA Program														
FEI				0	0	0	2	0	2					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	2	0	2					
ALL PROGRAMS														
FEI	272,726	136,815	643,841	6,444	3,346	702	599	7,326	3,945	1.3	n/a	1.5	3.3	0.4
FEVI	49,138	25,926	161,815	995	869	98	51	1,197	920	1.5	n/a	1.7	3.3	0.5
Total	321,863	162,741	805,656	7,439	4,215	800	650	8,523	4,865	1.3	n/a	1.5	3.3	0.4

Notes:

- In 2012 the Commercial Energy Efficiency Program Area incurred expenditures of \$1,793.87 under the Public Sector Energy Conservation Agreement ("PSECA") Program. These expenditures were related to performing post-completion site audits of the participants' projects as per the program's terms and conditions.

7.2 2012 Commercial Energy Efficiency Programs

The following tables outline the specific Commercial Energy Efficiency programs undertaken in 2012, including program and measure descriptions and a breakdown of non-incentive spending.

Table 7-2: Efficient Boiler Program

Program Description	This program provides rebates for the installation of high efficiency boilers in commercial applications. Note that the program was relaunched in May of 2012 and now provides incentives for boilers previously incented under the Light Commercial Boiler Program.						
Target Market	Commercial						
New vs Retrofit	Both						
Eligible Measures	Boilers sized 300 MBH and higher: Mid-efficiency boilers 85% ≤ T.E. ≤ 90% and condensing boilers 90% ≤ T.E.						
	Boilers sized up to 299 MBH: Must be ENERGY STAR rated (mid-efficiency boilers 85% ≤ AFUE ≤ 90% and condensing boilers 90% ≤ AFUE).						
	Note: T.E = Thermal Efficiency, AFUE = Annual Fuel Utilitization Efficiency.						
	FEI		FEVI				
	Retrofit	New Construction	Retrofit	New Construction			
Incremental Measure Cost	\$18,107	\$33,452	\$17,164	\$12,317			
Incentive Amount	\$12,786	\$16,694	\$12,175	\$9,218			
Savings Per Participant	570 GJ	818 GJ	461 GJ	129 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		2012 Projected - New Construction	2012 Projected - Retrofit	2012 Actual - New Construction	2012 Actual - Retrofit	
	FEI		25	141	4	92	
	FEVI		3	16	3	33	
	FEW		0	1	0	0	
	Total		28	158	7	125	
Expenditures (\$,000s)	2012						
New Construction	Service Region		Incentives	Admin	Communication	Research & Evaluation	Total
	FEI		67	1	1	2	71
	FEVI		28	0	0	1	29
	FEW		0	0	0	0	0
	Total		94	1	1	3	100
Expenditures (\$,000s)	Service Region		Incentives	Admin	Communication	Research & Evaluation	Total
	FEI		1,176	21	24	55	1,277
	FEVI		402	0	3	8	413
	FEW		0	0	0	0	0
	Total		1,578	22	27	63	1,690

Notes:

- The Efficient Boiler Program re-launch was designed to simplify the program, reducing the burden on both program participants and the Companies, while also bringing transparency to the rebate amounts. The following improvements were made to the program with the re-launch:
 - eliminated the pre-approval process and made right sizing an optional bonus incentive;
 - reduced the number of required supporting documents by eliminating unnecessary data collection;
 - posted the rebate amounts per boiler on FortisBC.com; and
 - harmonized the boiler incentives across all boiler sizes, including between larger boiler and smaller boilers previously incented under the Light Commercial Boiler Program

Table 7-3: Light Commercial Boiler Program

Program Description	This program provided, until May of 2012, rebates for the installation of high efficiency (AFUE > 85%) commercial boilers with less than 300 MBH input. After May of 2012, rebates for boilers less than 300 MBH input were provided via the revised Efficient Boiler Program.					
	NOTE: AFUE = Annual Fuel Utilization Efficiency, 1 MBH = 1,000 British Thermal Units per hour					
Target Market	Commercial customers					
New vs Retrofit	Both					
Eligible Measures	Near condensing boilers 85% ≤ AFUE ≤ 90% and condensing boilers AFUE ≥ 90% with input < 300 MBH.					
	FEI		FEVI			
	Retrofit	New Construction	Retrofit	New Construction		
Incremental Measure Cost	\$6,101	\$6,225	\$5,133	\$0		
Incentive Amount	\$1,067	\$1,338	\$630	\$0		
Savings Per Participant	88 GJ	110 GJ	23 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	2012 Projected - New Construction	2012 Projected - Retrofit	2012 Actual - New Construction	2012 Actual - Retrofit	
	FEI	3	25	2	6	
	FEVI	0	3	0	1	
	FEW	0	0	0	0	
	Total	3	28	2	7	
Expenditures (\$,000s)	2012					
New Construction	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	3	0	0	0	3
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	3	0	0	0	3
Expenditures (\$,000s)	2012					
Retrofit	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	6	0	1	0	7
	FEVI	1	0	0	0	1
	FEW	0	0	0	0	0
	Total	7	0	1	0	8

Notes:

- This program was closed in May of 2012. Refer to Section 7.2 for additional information.

Table 7-4: Efficient Commercial 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 customers				
New vs Retrofit	Both				
Eligible Measures	Near condensing storage and volume type water heaters $84\% \leq T.E. \leq 90\%$; Condensing storage and volume type water heaters $90\% \leq T.E.$; Condensing on demand water heaters $90\% \leq T.E.$ Note: T.E.= Thermal Efficiency				
	FEI		FEVI		
	Retrofit	New Construction	Retrofit	New Construction	
Incremental Measure Cost	\$8,460	\$9,232	\$5,319	\$1,216	
Incentive Amount	\$1,748	\$3,496	\$1,788	\$710	
Savings Per Participant	121 GJ	149 GJ	88 GJ	38 GJ	
Measure Life & Source	12 years - Conservation Potential Review, Consortium for Energy Efficiency data, Other Utility program				
Free Rider Rate & Source	5% - Ontario Energy Board Approved DSM assumptions				
Participants	Service Region	2012 Projected - New Construction	2012 Projected - Retrofit	2012 Actual - New Construction	2012 Actual - Retrofit
	FEI	8	70	16	53
	FEVI	1	12	3	7
	FEW	0	1	0	0
	Total	9	83	19	60
Expenditures (\$,000s)	2012				
New Construction	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	56	0	7	2
	FEVI	2	0	1	0
	FEW	0	0	0	0
	Total	58	0	8	2
Expenditures (\$,000s)	2012				
Retrofit	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	93	1	22	6
	FEVI	13	0	2	0
	FEW	0	0	0	0
	Total	105	1	24	6

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, outlining proposed solutions and identifying any applicable incentive programs. The Companies then forward the report to the participant.					
Target Market	Commercial customers with an average annual consumption of 2,000 GJ or greater.					
New vs Retrofit	Retrofit					
Eligible Measures	Walkthrough energy assessment and written report					
	FEI	FEVI				
Incremental Measure Cost	\$1,694	\$1,747				
Incentive Amount	\$1,694	\$1,747				
Savings Per Participant	488 GJ					
Measure Life & Source	1 year – Conservative estimate					
Free Rider Rate & Source	35% - 2010 Friuch Energy Assessment Evaluation					
Participants	Service Region	2012 Projected	2012 Actual			
	FEI	112	234			
	FEVI	38	34			
	FEW	2	9			
	Total	152	277			
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin Communication Research & Evaluation Total			
	FEI	396	17	3	0	417
	FEVI	59	5	0	0	64
	FEW	15	0	0	0	15
	Total	471	22	4	0	497

Table 7-6: Spray Valve Program

Program Description	This program offers the direct installation of low flow pre-rinse spray valves at no charge to the participant in order to reduce the natural gas consumption of commercial food service customers.					
Target Market	Commercial customers					
New vs Retrofit	Both					
Eligible Measures	Low flow pre-rinse spray valves					
Incremental Measure Cost	FEI: \$55.95 FEVI: \$55.95					
Incentive Amount	FEI: \$55.95 FEVI: \$55.95					
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	2012 Projected - New		2012 Projected - Retrofit		2012 Actual - New	
	Construction		Construction		Retrofit	
	Service Region					
	FEI	3	322	0	159	
	FEVI	0	36	0	29	
	FEW	0	4	0	0	
	Total	3	362	0	188	
Expenditures (\$,000s)	2012					
New Construction	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	0	0	0	0
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	0	0	0	0
Expenditures (\$,000s)	2012					
Retrofit	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	9	11	0	0	20
	FEVI	2	2	0	0	4
	FEW	0	0	0	0	0
	Total	11	13	0	0	23

Table 7-7: Commercial Custom Design Program (new)

Program Description	This program provides eligible customers with funding towards the completion of a detailed Energy Study, to identify energy saving opportunities specific and customized to their facilities, and subsequent capital incentive funding to encourage the implementation of any cost effective measures identified therein. The program seeks to 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 necessarily vary depending on the customer, though each project is submitted to a TRC test and must be approved by the utility.					
Target Market	Commercial customers					
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.					
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	2012 Projected -		2012 Projected -		2012 Actual -	
	New		Retrofit		New	
	Retrofit		New		Retrofit	
	Service Region	Construction		Construction		
	FEI	4	19	1	2	
	FEVI	1	5	0	1	
	FEW	0	0	0	0	
Total	5	24	1	3		
Expenditures (\$,000s)	2012					
New Construction	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	13	1	5	0	19
	FEVI	0	0	1	0	1
	FEW	0	0	0	0	0
	Total	13	1	5	0	19
	Expenditures (\$,000s)	2012				
Retrofit	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	34	7	1	0	41
	FEVI	11	3	0	0	14
	FEW	0	0	0	0	0
	Total	44	10	1	0	55

Notes:

- The Commercial Custom Design Program is complex in nature and has variable measure savings, costs, incentives and/or cash flows which, unlike in prescriptive programs, occur over a period of years. Consequently, providing results for this program within an annual report format has some limitations. In general, the savings in these types of programs occur in later years while some program costs are incurred at the outset. As a result, despite having paid out incentives and incurred some costs, there are no savings attributable to the program in 2012, as may be seen in the table above.
- New Construction Program:*
 - Participation in this program can last for approximately five years. This is broken down into approximately 12 months to prepare the required whole building energy simulation, followed by up to 48 months to build the proposed building. The program incurs incentive expenditures upon the successful completion of the energy simulation, as well as upon

completion of the building, while natural gas savings are only obtained upon completion of the proposed building.

- This program is operated in partnership with BC Hydro Power Smart, with Power Smart acting as the lead utility guiding participants and their chosen consultants through the requisite Energy Study. By year end, one completed and reviewed Energy Study was received from BC Hydro. Note, however, that there are 10 additional energy studies which are currently in development, and another three seeking approval of their project proposals. These will be recorded as program participants when the Energy Studies are completed, approved and received from BC Hydro, at which point a portion of the incentive funding becomes payable.
- *Retrofit Program:*
 - This program remains in 'Beta' testing designed to identify and correct any significant faults before the program goes live to the market. The three participants noted in the table above represent three out of the original five Beta test applicants who successfully completed their energy studies in 2012. All three intend to proceed with the implementation of Energy Saving Measures. This program is expected to be completed and launched in 2013.

Table 7-8: Continuous Optimization Program (new)

Program Description	The Continuous Optimization Program (C.Op.), in partnership with BC Hydro Power Smart, is designed to help commercial building owners identify and correct energy wasting operational faults and continuously monitor building performance to help maintain and improve energy efficiency, resulting in reduced operating costs.					
	The program funds re-commissioning services to study the participant's building and recommend energy efficiency improvements, as well as access to an energy management information system (EMIS) to assist in tracking the building’s performance after the re-commissioning work is complete. In return, participants must implement, at their cost, measures identified by the re-commissioning study that when combined have a payback period of two years or less.					
Target Market	Commercial customers with buildings >50,000 sqft who consume an average of 7,500 GJ of natural gas per year or natural gas is 40% of their building's total energy consumption.					
New vs Retrofit	Retrofit					
Eligible Measures	Re/Retro commissioning study, employee training, and "near time" energy consumption monitoring.					
Incremental Measure Cost	Average nominal program duration incremental cost (7 years): \$41,485 2012 observed average incremental cost: \$5,809.93					
Incentive Amount	Average nominal program duration incentive amount (7 years): \$18,913 2012 observed average incentive amount: \$5,477.59					
Savings Per Participant	Average expected annual natural gas savings: 1,074 GJ/year 2012 observed natural gas savings: 20.74 GJ/year					
Measure Life & Source	5 years - the duration of utility support for the energy management information system, plus one year.					
Free Rider Rate & Source	0% - BC Hydro					
Participants	Service Region	2012 Projected	2012 Actual			
	FEI	145	131			
	FEVI	6	29			
	FEW	2	4			
	Total	153	164			
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	718	1	0	0	718
	FEVI	159	0	0	0	159
	FEW	22	0	0	0	22
	Total	898	1	0	0	899

Notes:

- The Continuous Optimization program is complex in nature and has variable measure savings, costs, incentives and/or cash flows which, unlike in prescriptive programs, occur over a period of years. Consequently, providing results for this program within an annual report format has some limitations. In general, the savings in these types of programs occur in later years while some program costs are incurred at the outset. As a result, the cost-effectiveness results shown in table 7-1 are necessarily low in these initial program years.

Table 7-9: Efficiency à la Carte (Commercial Kitchen Program (new))

Program Description	This program, launched in September of 2012, offers a suite of rebates for the installation of high efficiency commercial cooking appliances.				
Target Market	Commercial customers				
New vs Retrofit	Both				
Eligible Measures	High efficiency deep fryers, griddles, ovens (rack, combination, convection and conveyor), and steam cookers whose performance in terms of energy consumption meets or exceeds the standards outlined in the applicable ASTM Standard (per appliance).				
	FEI		FEVI		
	Retrofit	New Construction	Retrofit	New Construction	
Incremental Measure Cost	\$0	\$9,460	\$13,745	\$4,160	
Incentive Amount	\$0	\$5,000	\$9,500	\$2,250	
Savings Per Participant	0 GJ	186 GJ	560 GJ	87 GJ	
Measure Life & Source	12 years - The Food Service Technology Center and OEB DSM Assumptions				
Free Rider Rate & Source	20% - OEB DSM Assumptions				
Participants	Service Region	2012 Projected - New Construction	2012 Projected - Retrofit	2012 Actual - New Construction	2012 Actual - Retrofit
	FEI	4	36	1	0
	FEVI	0	4	2	1
	FEW	0	0	0	0
	Total	4	40	3	1
Expenditures (\$,000s)	2012				
New Construction	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	5	0	48	0
	FEVI	5	0	7	0
	FEW	0	0	0	0
	Total	10	0	55	0
Expenditures (\$,000s)	2012				
Retrofit	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	0	0	0	0
	FEVI	10	0	4	0
	FEW	0	0	0	0
	Total	10	0	4	0

Table 7-10: MURB Program (new)

Program Description	This program focuses primarily on "In-Suite" gas saving measures for multi-unit residential buildings (MURBs). In 2012, energy saving measures were limited to the direct installation of low flow shower heads on a limited scale via a partnership with the City of Vancouver.					
Target Market	Commercial customers					
New vs Retrofit	Both					
Eligible Measures	Low flow showerheads					
Incremental Measure Cost	\$33.19 per showerhead					
Incentive Amount	\$33.19 per showerhead					
Savings Per Participant	1.2 GJ/yr per showerhead					
Measure Life & Source	5 years - OEB approved DSM assumptions and Conservation Potential Review					
Free Rider Rate & Source	10% - OEB approved DSM assumptions					
Participants	Service Region	2012 Projected - New Construction	2012 Projected - Retrofit	2012 Actual - New Construction	2012 Actual - Retrofit	
	FEI	9	35	0	120	
	FEVI	2	9	0	0	
	FEW	0	0	0	0	
	Total	11	44	0	120	
Expenditures (\$,000s)	2012					
New Construction	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	0	0	0	0
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	0	0	0	0
Expenditures (\$,000s)	2012					
Retrofit	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	4	0	0	0	4
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	4	0	0	0	4

Notes:

- The forecasted participants in the 2012-2013 EEC Plan represented estimated participating buildings. Conversely, the number presented here represents the number of showerheads installed.
- Program activities in 2012 consisted of a pilot direct install program in partnership with the City of Vancouver. In this initial foray, 120 low flow showerheads were installed in 12 buildings.

Table 7-11: Fireplace Timers Pilot Program

Program Description	This pilot program assesses the natural gas savings potential of fireplace "time-of-operation" controllers in multi-unit residential buildings.				
Target Market	Commercial customers				
New vs Retrofit	Both				
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 - Assumed value. No similar equipment is known to exist.				
Free Rider Rate & Source	0% - Pilot Program assumption.				
Participants	Service Region	2012 Projected	2012 Actual		
	FEI	0	0		
	FEVI	0	0		
	FEW	0	0		
	Total	0	0		
Expenditures (\$,000s)	2012				
		Incentives	Admin	Communication	Research & Total
	Service Region				Evaluation
	FEI	0	0	0	9 9
	FEVI	0	0	0	1 1
	FEW	0	0	0	0 0
	Total	0	0	0	10 10

Notes:

- There were no participants in 2012, as the pilot was closed to new participants. Expenditures are entirely associated with impact evaluation efforts. Refer to the Evaluation section of this Report (Section 13) for additional details.

Table 7-12: 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 customers				
New vs Retrofit	Both				
Eligible Measures	Radiant tube heaters				
Incremental Measure Cost	Variable. Dependent upon individual participant's facility / building.				
Incentive Amount	If TRC ≥ 1.0 then up to 75% of incremental cost between radiant tube heaters and standard unit heaters.				
Savings Per Participant	Variable. Dependent upon individual participant's facility / building.				
Measure Life & Source	20 years - OEB approved DSM assumptions				
Free Rider Rate & Source	0% - Pilot Program assumption				
Participants	Service Region	2012 Projected	2012 Actual		
	FEI	13	0		
	FEVI	0	0		
	FEW	0	0		
	Total	13	0		
Expenditures (\$,000s)	2012				
	Service Region	Incentives	Admin	Communication	Research & Total
					Evaluation
	FEI	0	0	0	1 1
	FEVI	0	0	0	0 0
	FEW	0	0	0	0 0
	Total	0	0	0	1 1

Notes:

- Expenditures are for the removal of sub-metering equipment. Refer to the Evaluation section of the report (Section 13) for additional details.
- Henceforth, the Innovative Technologies group will be continuing investigation on radiant tube heater technology as part of the Condensing Unit Heater Pilot. Refer to the Innovative Technologies section (Section 9) for additional details.

Table 7-13: EnerTracker Program

Program Description	This three year pilot program provides customers with access to an energy management information system (EMIS). EMIS software provides customers with a detailed picture of their natural gas consumption in "near time." Timely access to this information is expected to speed up fault detection, thereby enabling more rapid corrective action to avoid wasted gas consumption, as well as assisting in the identification of additional potential natural gas conservation measures.				
Target Market	Commercial customers with existing AMR device.				
New vs Retrofit	Retrofit				
Eligible Measures	Energy management information system				
Incremental Measure Cost	\$720.50 / yr (Average)				
Incentive Amount	\$720.50 / yr (Average)				
Savings Per Participant	2% of annual natural gas consumption				
Measure Life & Source	1 year – Measure life is based on annual EMIS software subscription				
Free Rider Rate & Source	6.4% - Proof of concept study				
Participants	Service Region	2012 Projected	2012 Actual		
		0	0		
		0	0		
		0	0		
		0	0		
Expenditures (\$,000s)	2012				
	Service Region	Incentives	Admin	Communication	Research & Evaluation
					Total
	FEI	0	122	1	0
	FEVI	0	0	0	0
	FEW	0	0	0	0
	Total	0	122	1	0

Notes:

- This program was formally rolled out to customers on January 7, 2013. 2012 expenditures represent development costs incurred prior to program launch.
- As there is currently insufficient Automated Meter Reader ("AMR") infrastructure in the FEVI service territory to support the roll out of this pilot, program availability is limited to the FEI service territory.

Table 7-14: Energy Specialist Program

Program Description	This program funds Energy Specialist positions, whose key priority is to identify opportunities for their organization to participate in FortisBC’s EEC programs. The Energy Specialist reports to the Customer’s BC Hydro funded 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 FortisBC up to \$60,000 for a period of one year. This Program has been funded as an enabling program.					
Target Market	Service Region					
New vs Retrofit	Retrofit					
Eligible Measures	Energy Specialist position					
Incremental Measure Cost	\$60,000					
Incentive Amount	\$60,000					
Savings Per Participant	Total 2012 verified (non-EEC program) annual natural gas savings = 1,081 GJs/year					
Measure Life & Source	N/A					
Free Rider Rate & Source	0% - Learnings from 2012/2011 Energy Specialist Pilot Program					
Participants	Service Region	2012 Projected	2012 Actual			
	FEI	14	16			
	FEVI	2	3			
	FEW	0	0			
	Total	16	19			
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	729	3	0	68	800
	FEVI	180	1	0	8	188
	FEW	0	0	0	0	0
	Total	909	3	0	76	989

Notes:

- Some organizations had Energy Specialists for part of the year only.
- The Prince George Community Energy Manager funding has been included in the Energy Specialist Program for both projected and actual expenditures. The Prince George Community Energy Manager was a joint funding partnership between the City of Prince George, FEI, BC Hydro and NRCan. FEI's funding contribution was \$25,000 per year. FEI discontinued funding of this position in May 2012 after the City of Prince George decided it would no longer support the position.
- The energy savings listed apply only to third party verified natural gas projects completed by Energy Specialists in 2012 which did not directly receive incentive funding from another EEC program. These energy savings are only reported and have not been included in the calculations for the benefit/cost tests as the required inputs are not available.

7.3 Other Commercial Energy Efficiency Program Area Initiatives

In addition to the formal programs detailed in the tables above, the Commercial Energy Efficiency group also invested funding and a considerable amount of time in collaborative initiatives with the FortisBC Inc. electric utility in the shared services territory. More specifically, 2012 saw the launch of both the Product Rebate Program and the On-Line Energy Advisor, described immediately below.

- The Product Rebate Program (to be rebranded as the Energy Rebate Centre in March of 2013) represents the EEC group's initial attempt at allowing rebate applications to be filled out online. It allows customers in the shared services territory to apply for both electric and natural gas rebates via a single, online portal. This reduces the administrative burden that program participants would have otherwise faced when having to apply to multiple programs independently. It is expected that this will also decrease the administrative burden on program administrators.
- The Online Energy Advisor provides small and mid-sized business customers in the shared services territory with an online interactive energy assessment to identify their energy management issues and provides customers with an initial, high level conservation action plan. The Online Energy Advisor also highlights any applicable FortisBC rebates (from either the natural gas or electric utility) and directs participants to the Product Rebate Program in order to apply.

As these are not programs in the traditional sense (with attributable GJ savings, incremental measure costs, measure lives, free ridership etc.) they are not presented in tabular format below. EEC funds invested in the development and launch of both the Product Rebate Program and the Online Energy Advisor have been captured under the Commercial Energy Efficiency Program Area's general administration and communications expenditures.

7.4 2012 Commercial Energy Efficiency Programs Planned but not Launched

7.4.1 PROCESS HEAT PROGRAM

The Process Heat Program could not be launched in 2012 as Commercial Energy Efficiency Program Area resources were fully committed to other initiatives. Development of this program has been assigned to the Industrial Energy Efficiency Program Area. See Section 9 for additional details.

7.5 2012 Commercial Energy Efficiency Program Closures

7.5.1 LIGHT COMMERCIAL BOILER PROGRAM

The Light Commercial Boiler Program was folded into the Efficient Boiler Program upon its re-launch in May of 2012. This was done for several reasons, listed below:

- There appeared to be little need to have a boiler incentive program specifically dedicated to smaller boilers.
- To harmonize the boiler incentives across all boiler sizes.

- To reduce confusion and administrative burden among potential program participants, as well as to reduce the administrative burden on the Companies.

7.6 Summary

Commercial Energy Efficiency Program Area activity in 2012 successfully achieved over 150,000 GJ/year of natural gas savings and a positive TRC of 1.2. The Efficient Boiler Program was considerably simplified, reducing the burden on both program participants and the Companies, while clarifying the rebate amounts. Additional programs, such as the Commercial Kitchen Program, the Continuous Optimization Program and the EnerTracker Program, were either rolled out or are set to be rolled out early in 2013. In addition, new collaborative efforts with the FortisBC Inc. electric utility were rolled out over the course of the year, providing customers with online tools including a self-assessment tool (Online Energy Advisor) and an application portal (Product Rebate Program).

8 INNOVATIVE TECHNOLOGIES PROGRAM AREA

8.1 Overview

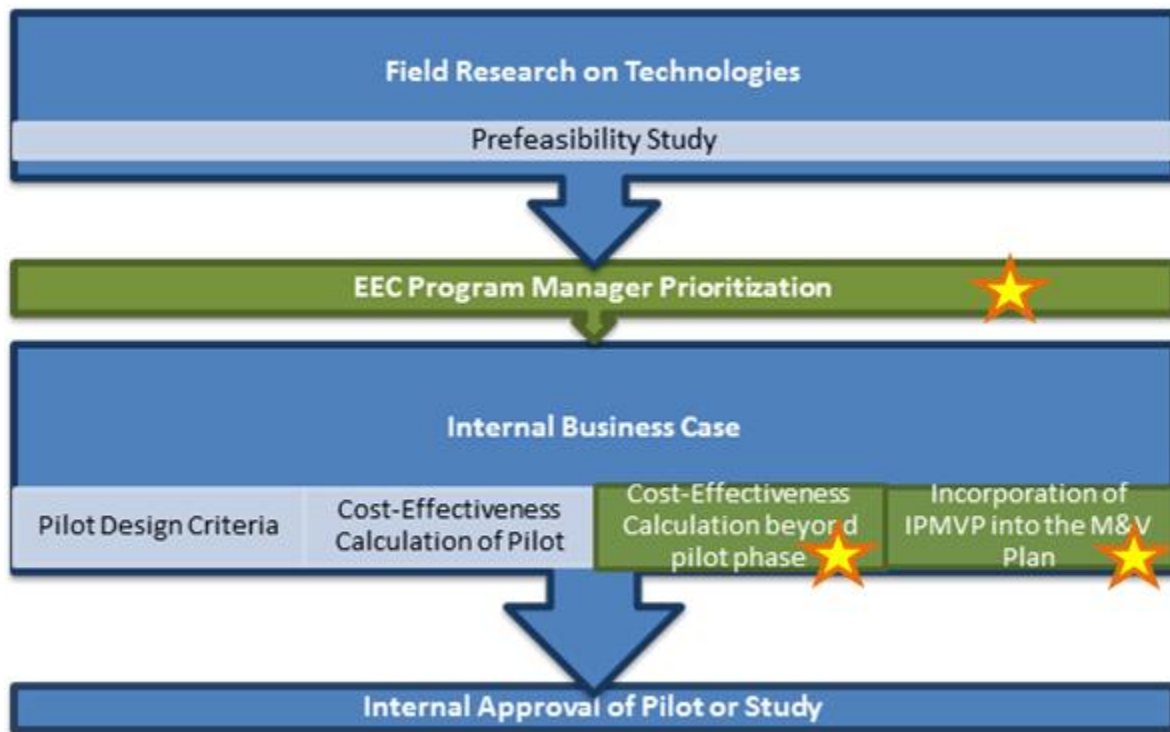
A primary objective of the Innovative Technologies Program Area is to identify market-ready technologies that are not yet widely adopted in British Columbia, and which are suitable for the development of or inclusion in the portfolio of ongoing EEC programs in other Program Areas. This is accomplished through prefeasibility studies to evaluate technology details and its market conditions, pilots to conduct technology field trials limited to a small subset of customers and the use of EM&V protocols to validate manufacturers' claims related to equipment and system performance. In 2012, interim results from two of the Innovative Technology investigations were incorporated into the design and development of Residential EEC programming. A number of other projects initiated in 2012 also appear to be uncovering important results that should similarly be incorporated into future EEC programming.

Just as important as identifying new technologies that should be incorporated into the EEC portfolio are findings that indicate which technologies should not. Section 8.3 discusses how the activities and processes for the Innovative Technologies Program Area were successful in identifying proposed projects that should not proceed to full pilot phase or further. Part of this success can be attributed to the continued refining of technology screening and selection process protocols. In 2012, the following enhancements to the screening process were made:

- EEC Program Manager Prioritization – a deliberate process step that engages non-Innovative Technologies EEC Program Managers in the screening process to ensure that technologies being investigated line up with their highest programming priorities.
- Cost-Effectiveness Calculations (beyond pilot phase) – this step takes a conservative look forward at the technology and operational costs that might be incorporated into a full future EEC program to ensure that preliminary data are indicating an acceptable cost effectiveness.
- Measurement and Verification (“M&V”) Plans for pilots and studies with incorporation of the International Performance Measurement & Verification Protocol (“IPMVP”) – the Companies have incorporated the IPMVP into the measurement and verification plans and studies to provide assurance that best industry practices are used to determine the cost-effectiveness of innovative technologies considered for future EEC programming.

Figure 8.1 shows how these new steps have been formalized into the screening process. The intent of these improvements is to increase the likelihood that completed pilots will result in new or improved EEC programs in other Program Areas.

Figure 8.1 – 2012 Enhancements to the Innovative Technologies Screening Process



Note:

- Stars indicate new process steps for 2012 forward.

All 2012 activities undertaken in this Program Area meet the definition of technology innovation programs as set out in the Demand-Side Measures Regulation. It should be noted that Innovative Technologies are considered a specified demand-side measure,⁹ meaning that the Program Area or the measures therein are not subject to a cost-effectiveness test. Instead the cost-effectiveness of these expenditures will be evaluated as part of the DSM portfolio as a whole.¹⁰ Innovative Technologies expenditures are also not subject to the 33 percent cap on programs for which the MTRC is utilized as a cost-effectiveness measure according to Section 4 (4) of the Demand-Side Measures Regulation.¹¹

Table 8.1 summarizes the projected and actual expenditures for the Innovative Technologies Program Area in 2012, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost-effectiveness test results where applicable

⁹ BCUC Log No. 36730, Request for Clarification of Order G-44-12 and Decision on the 2012 – 2013 Revenue Requirements Application and Natural Gas Rates Application

¹⁰ Subsection 4(4) of the Demand-Side Measures Regulation, and the Decision on the 2012 – 2013 Revenue Requirements Application and Natural Gas Rates Application, page 175.

¹¹ BCUC Log No. 36730, Request for Further Clarification of Order G-44-12 and Decision on the 2012 – 2013 Revenue Requirements Application and Natural Gas Rates Application and the Commission's May 11, 2012 letter.

Table 8-1: 2012 Innovative Technologies 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		TRC	MTRC	Utility	Participant	RIM
	2012-2013	2012		2012-2013	2012	2012-2013	2012	2012-2013	2012					
	EEC Plan	Actual		EEC Plan	Actual	EEC Plan	Actual	EEC Plan	Actual					
Pilot/Demonstration Projects														
Residential High Efficiency Water Heater Pilot														
FEI	0	367	3,608	0	92	0	87	0	179	0.1	n/a	0.1	1.3	0.1
FEVI	0	39	410	0	9	0	9	0	18	0.2	n/a	0.2	4.0	0.2
Total	0	406	4,018	0	102	0	96	0	198					
ENERGY STAR® 0.67 Storage Tank Water														
FEI				0	0	0	49	0	49					
FEVI	No Direct Savings			0	0	0	1	0	1			No Direct Savings		
Total				0	0	0	50	0	50					
AHU Coil Cleaning Pilot														
FEI				0	0	0	0	0	0					
FEVI	No Direct Savings			0	0	0	5	0	5			No Direct Savings		
Total				0	0	0	5	0	5					
City of Courtenay Pool Heating Project														
FEI				0	0	0	0	0	0					
FEVI	No Direct Savings			0	0	0	16	0	16			No Direct Savings		
Total				0	0	0	16	0	16					
City of Vancouver Residential Solar Water Heating Pilot														
FEI				0	0	0	-6	0	-6					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	-6	0	-6					
Studies and Memberships														
Thermal Performances of Building Envelope Assemblies for Mid- and High-Rise Buildings in B.C.														
FEI				0	0	0	25	0	25					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	25	0	25					
Review of Packaged Rooftop Equipment (RTU) Upgrades for DSM Utility programs														
FEI				0	0	0	33	0	33					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	33	0	33					
Energy Savings Potential Using Occupancy Sensors														
FEI				0	0	0	16	0	16					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	16	0	16					
Geoechange BC – Phase 1 Energy Performance Evaluation Project														
FEI				0	0	0	10	0	10					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	10	0	10					
Transpired Solar Collector Market Study														
FEI				0	0	0	29	0	29					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	29	0	29					
Pre-Feasibility Study Microwave Assist Technology														
FEI				0	0	0	5	0	5					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	5	0	5					
Pre-Feasibility Study Catalytic Radiant Burner Technology														
FEI				0	0	0	4	0	4					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	4	0	4					
CEATI Membership														
FEI				0	0	0	9	0	9					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	9	0	9					
ALL PROGRAMS														
FEI	0	367	3,608	0	92	0	261	0	353	0.1	n/a	0.1	1.3	0.1
FEVI	0	39	410	0	9	0	31	0	40	0.1	n/a	0.1	4.0	0.1
Total	0	406	4,018	0	102	0	292	0	394	0.1	n/a	0.1	1.4	0.1

Notes:

- The Residential High Efficiency Water Heater Pilot was listed in the Residential Program Area in 2011. It is now being reported in the Innovative Technologies Program Area for 2012 due to the innovative nature of the technologies being tested.

- In 2012, the Companies received a \$20,000 contribution from the City of Vancouver towards the M&V of the City of Vancouver Residential Solar Water Heating Pilot. The actual M&V costs incurred for this activity 2012 were approximately \$14,000, which resulted in a negative expenditure amount of \$6,000.

8.2 2012 Innovative Technologies Activities

Tables 8-2, 8-3 and 8-4 summarize the pilots, studies and membership activities, respectively undertaken in 2012, including pilot and measure descriptions and a breakdown of non-incentive spending¹².

¹² As Innovative Technologies activities are not considered formal EEC programs, they were not presented in individual program tables as in other Program Area sections in this report.

Table 8-2: Pilots

Program Description	Evaluating market-ready technologies and conducting small scale pilots to gather data to validate manufacturers' claims about measure system performance and energy savings. 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	Retrofit						
<i>Residential High Efficiency Water Heater Pilot</i>	<p>The Companies are conducting a pilot program as part of their domestic hot water heater market transformation strategy. The 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.</p> <p>Service Region Participants</p> <table> <tr> <td>FEI</td><td>43</td></tr> <tr> <td>FEVI</td><td>5</td></tr> <tr> <td>Total</td><td>48</td></tr> </table>	FEI	43	FEVI	5	Total	48
FEI	43						
FEVI	5						
Total	48						
<i>ENERGY STAR® 0.67 Storage Tank Water Heater Pilot</i>	<p>Pilot to determine the efficiency and savings of 0.67 EF and 0.70 EF water heaters by assessing their performance under various household profiles as well as understanding the installation concerns such as electrical wiring, space considerations and venting. The data will be used to support proposed regulation of increased minimal efficiency standards of water heaters to .67 by 2016 as well as supporting the Residential Energy Star Domestic Hot Water program.</p> <p>Service Region Participants</p> <table> <tr> <td>FEI</td><td>9</td></tr> <tr> <td>FEVI</td><td>1</td></tr> <tr> <td>Total</td><td>10</td></tr> </table>	FEI	9	FEVI	1	Total	10
FEI	9						
FEVI	1						
Total	10						
<i>AHU Coil Cleaning Pilot</i>	<p>Pilot to evaluate savings projections, understand potential technical barriers and explore both barriers and opportunities for market promotion with regards to Air Handling Unit (AHU) coil cleaning practices in hospitals. Gas savings are achieved through cleaner coils in the AHU, reducing the workload on the gas boiler that heats the hot water for the system. This pilot commenced in 2012 and is projected to deliver validated measurement data by 2013. This may provide input for a potential prescriptive commercial program to launch in 2014.</p> <p>Service Region Participants</p> <table> <tr> <td>FEI</td><td>0</td></tr> <tr> <td>FEVI</td><td>1</td></tr> <tr> <td>Total</td><td>1</td></tr> </table>	FEI	0	FEVI	1	Total	1
FEI	0						
FEVI	1						
Total	1						
<i>City of Courtenay Solar Pool Demonstration Project</i>	<p>Collaboration with the City of Courtenay to demonstrate Solar thermal pool heating on a highly attended and highly visible recreation facility in 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.</p> <p>Service Region Participants</p> <table> <tr> <td>FEI</td><td>0</td></tr> <tr> <td>FEVI</td><td>1</td></tr> <tr> <td>Total</td><td>1</td></tr> </table>	FEI	0	FEVI	1	Total	1
FEI	0						
FEVI	1						
Total	1						
<i>City of Vancouver Residential Solar Water Heating Pilot</i>	<p>Pilot project initiated by the City of Vancouver, Offsetters and SolarBC to promote the installation of 30 Solar Hot Water systems in Vancouver. The Companies have committed \$50,000 to support this project and to gather real data and validate the energy systems claims.</p> <p>Service Region Participants</p> <table> <tr> <td>FEI</td><td>30</td></tr> <tr> <td>FEVI</td><td>0</td></tr> <tr> <td>Total</td><td>30</td></tr> </table>	FEI	30	FEVI	0	Total	30
FEI	30						
FEVI	0						
Total	30						

Table 8-2: Pilots (Continued)

Participants	Service Region	2012 Projected	2012 Actual			
	FEI	0	82			
	FEVI	0	8			
	FEW	0	0			
	Total	0	90			
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	92	4	7	121	224
	FEVI	9	2	1	27	40
	FEW	0	0	0	0	0
	Total	102	6	8	148	263

Table 8-3: Studies

Description	In order to evaluate market-ready technologies, it is important to participate in technology performance studies. 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 have commissioned 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	N/A
<i>Thermal Performances of Building Envelope Assemblies for Mid- and High-Rise Buildings in B.C.</i>	Study managed by BC Hydro. Improving the thermal resistance of building envelopes is the single-most effective measure for reducing energy loads associated with space heat loss and gains. Over 50% of building space heating energy consumption is generated by heat transfer and air leakage through envelope assemblies. The study will gather wall assemblies and innovative technologies that would reduce conductance.
<i>Review of Packaged Rooftop Equipment Upgrades for DSM Utility programs</i>	Study through the CEATI Customer Energy Solutions Interest Group ("CESIG") to review packaged roof top unit ("RTU") upgrades for DSM utility Programs. the objective is to complete a market and technical assessment of current and emerging RTU equipment, in order to determine gas and electricity savings in the commercial and institutional building sector.
<i>Energy Savings Potential Using Occupancy Sensors</i>	Study through CEATI (CESIG) to assess the technical savings potential of occupancy-based controls, as well as their overall conservation potential within the service territories of the three sponsoring utilities: Enbridge Gas Distribution, SaskPower and FortisBC. Although the majority of market activity to date has involved occupancy sensors applied as a lighting control strategy, the study also examines the potential for occupancy-based controls in emerging applications, including heating, ventilation & air conditioning ("HVAC") and plug load controls.
<i>Geoexchange BC – Phase 1 Energy Performance Evaluation Project</i>	Study through GeoexchangeBC and BC Hydro to conduct a review of the operational performance of ground-coupled heat pump systems (geo-exchange heat pumps) installed over a range of building types and locations in British Columbia. This work compared the electrical and natural gas consumption in geo-exchange buildings relative to conventional buildings to assess the energy savings from the technology.
<i>Transpired Solar Collector Market Study</i>	Study facilitated by FortisBC to assess a market assessment of transpired solar collectors within British Columbia. The report provides a review of the current adoption rate of the technology and its market barriers as well as an assessment of the incremental costs.
<i>Pre-Feasibility Study Microwave Assist Technology</i>	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.
<i>Pre-Feasibility Study Catalytic Radiant Burner Technology</i>	Catalytic infrared technology is a recent advancement in the heat treatment industry whereby radiant heat is produced through a flameless catalytic process. It has claimed natural gas savings of approximately 30-50% over Convection Heating (base case).

Table 8-3: Studies (continued)

Participants	Service Region	2012 Projected	2012 Actual			
	FEI	0	0			
	FEVI	0	0			
	FEW	0	0			
	Total	0	0			
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	0	0	122	122
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	0	0	122	122

Table 8-4: Memberships

Description	Participating in industry memberships allows the Companies to stay abreast of market available technologies, while collaborating and sharing costs amongst other gas and electric utilities.					
<i>CEATI Membership</i>	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 heating 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.					
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	0	0	9	9
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	0	0	9	9

8.3 Innovative Technologies Activities Planned for 2012 But Not Launched

In the 2012-2013 EEC Plan the Companies identified pilot and demonstration projects to be the primary areas of focus, subject to results from prefeasibility studies. Studies conducted to assess the value of these activities resulted in the decision not to move forward with them. In some cases the initiatives were deemed by Program Managers to be unfeasible and in other cases not priorities for 2012.

The following Innovative Technology Programs listed in the 2012-2013 EEC Plan were not launched in 2012:

8.3.1 THERMAL CURTAINS

A study conducted by Prism Engineering originally identified the use of thermal curtains for greenhouse applications as a potential energy management opportunity. However, following the completion of the 2012-2013 EEC Plan, a further prefeasibility study came back from Prism Engineering indicating that Thermal Curtains already had a high adoption rate in British Columbia and thus didn't qualify as an innovative technology.

8.3.2 SOLAR AIR HEATING SYSTEM

A prefeasibility study was completed for Q2 of 2012; however, due to the limited market potential, the program was deemed a low priority by Program Managers and was deferred to allow other, higher priority programs to proceed in 2012.

8.3.3 OCCUPANCY SENSORS/CONTROLS

The Companies are awaiting results from the Occupancy Control to Unit Ventilator Pilot¹³ before moving forward with this initiative.

8.4 Summary

Innovative Technologies represent a key component of the Companies' overall commitment to EEC activities by identifying viable technologies and projects that have the potential to support the development of new programs within the larger EEC portfolio. Although it is too early to report on pilots resulting in programs, there are outcomes from the Residential High Efficiency Water Heater Pilot and the ENERGY STAR® 0.67 Storage Tank Water Heater Pilot which were used toward the design of the ENERGY STAR® Domestic Water "DHW" Technologies Program. These initial outcomes were:

- Initiating relationships with key stakeholders and policy makers
- Gathering a list of technologies that meet the minimum efficiency levels
- Determining the availability of the technology
- Determining the demand for that technology amongst participants
- Determining retail and installed costs for the technologies
- Tracking any installation barriers or the need for contractor education

Overall, the Innovative Technology initiatives were successful in achieving results in evaluating the feasibility of new technologies as well as being used towards the design of future EEC programs. While the framework for Innovative Technologies continues to evolve, the evidence demonstrates that it has come a long way in making sure that innovative technologies are selected with care using consistent criteria to ensure the greatest potential for further development as full programs in other areas of the EEC Portfolio.

¹³ The expenditures for the Occupancy Control to Unit Ventilator Pilot were reported in the 2011 EEC Annual Report. The final analysis will be conducted and report prepared in Q4, 2013.

9 INDUSTRIAL ENERGY EFFICIENCY PROGRAM AREA

9.1 Overview

The Industrial Energy Efficiency Program Area designs and manages programs to encourage Industrial and Manufacturing customers who use natural gas for process heat to engage in energy efficiency projects. In 2012, the Industrial Energy Efficiency Program Area achieved an overall TRC of 2.3, accomplished by one project from the Technology Retrofit Program with estimated savings of over 70,000 GJ/year. Activities in the Energy Audit and Analysis Program resulted in several energy audit reports that identified projects in industrial facilities that provide potential future natural gas savings of over 400,000 GJ/year. Relationships with key industry players were also enhanced in 2012 in order to identify industrial customers' motivations and incentive levels and increase the future uptake of Industrial Energy Efficiency programs.

Table 9-1 summarizes the projected and actual expenditures for the Industrial Energy Efficiency Program Area in 2012, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost-effectiveness test results.

Table 9-1: 2012 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				
	2012-2013 EEC Plan	2012 Actual		Incentives		Non-Incentives		All Spending		TRC	MTRC	Utility	Participant	RIM
				2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual					
Non Program Specific Expenses														
FEI				0	0	0	8	0	8					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	8	0	8					
Technology Retrofit Program														
FEI	72,587	70,000	474,187	595	250	89	19	684	269	2.3	n/a	4.9	2.1	1.4
FEVI	0	0	0	0	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
Total	72,587	70,000	474,187	595	250	89	19	684	269					
Energy Audit & Analysis Program														
FEI				353	43	35	1	388	45					
FEVI	No Direct Savings			0	10	0	0	0	10			No Direct Savings		
Total				353	53	35	2	388	55					
Process Heat Program														
FEI				208	0	5	20	212	20					
FEVI	No Direct Savings			23	0	0	0	24	0			No Direct Savings		
Total				231	0	5	20	236	20					
Customer Energy Analysis														
FEI				0	0	0	5	0	5					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	5	0	5					
ALL PROGRAMS														
FEI	72,587	70,000	474,187	1,155	293	129	54	1,284	347	2.3	n/a	4.7	2.1	1.4
FEVI	0	0	0	23	10	0	0	24	10	n/a	n/a	n/a	n/a	n/a
Total	72,587	70,000	474,187	1,179	303	129	54	1,308	358	2.3	n/a	4.7	2.1	1.4

Notes:

- The Energy Audit & Analysis Program does not include direct savings as the incentives are aimed only at identifying energy saving opportunities (see Table 9-3 for details).
- Process Heat Program development activities were initiated in 2012; therefore, the program does not include direct savings (see Table 9-4 for details).

- The Customer Energy Analysis Program was closed in 2011. An outstanding invoice was paid in the first quarter of 2012. Since there was no other program activity in 2012, program specific details are not included in Section 9. Please see Section 9.2 of the 2011 EEC Annual Report for details.

9.2 2012 Industrial Energy Efficiency Programs

The following tables outline the specific Industrial Energy Efficiency programs undertaken in 2012, including program and measure descriptions and a breakdown of non-incentive spending.

Table 9-2: Technology Retrofit Program (new)

Program Description	This program provides eligible customers with funding to encourage the implementation of any cost effective retrofits to industrial processes using natural gas as process heat or energy source. The expected energy savings, measures, incentives, measure cost and life will necessarily vary depending on the customer, though each project is subjected to a TRC test and must be approved by the utility.					
Target Market	Medium and Large Industrial Facilities ²					
New vs Retrofit	Retrofit					
Eligible Measures	Variable					
Incremental Measure Cost	Dependent upon participant's proposed Energy Saving Measures.					
Incentive Amount	If TRC ≥ 1.0 then \$5 / GJ saved over 3 years					
Savings Per Participant	Variable					
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	2012 Projected	2012 Actual			
	FEI	4	1			
	FEVI	0	0			
	FEW	0	0			
	Total	4	1			
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	250	1	3	15	269
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	250	1	3	15	269

Notes:

- The 2011 EEC Annual Report included separate tables for the Heat Exchanger Pilot and Burner Management System Programs. In the 2012-2013 EEC Plan both projects were included in the Technology Retrofit Program.
- The Burner Management System Program was cancelled by the client and no incentives were paid in 2012.
- In the 2012-2013 EEC Plan the Technology Retrofit Program only focused on four eligible technologies. In 2012 the scope of the program was widened to any cost-effective retrofits to industrial processes using natural gas as process heat or energy source.

Table 9-3: Energy Audit and Analysis Program

Program Description	This program provides eligible customers with funding toward the completion of an energy audit report aimed at identifying energy saving opportunities in industrial manufacturing processes using natural gas as process heat or energy source. Participants hire a Certified Energy Manager or Professional Engineer to conduct an energy audit of their facility and write an energy audit report. Each energy audit report describes the facility and lists possible efficiency upgrades and/or technology replacements focused on natural gas saving opportunities.					
Target Market	Medium and Large Industrial Facilities					
New vs Retrofit	Retrofit					
Eligible Measures	Industrial energy audit					
Incremental Measure Cost	N/A					
Incentive Amount	-For eligible customers consuming less than 150,000 GJ/yr of natural gas, the lesser of 50% of the cost of energy audits or \$20,000* -For eligible customers consuming more than 150,000 GJ/yr of natural gas, the lesser of 75% of the cost of energy audits or \$40,000* * Clients might be eligible to receive 100% of the cost of the audit, up to the maximum amount, if any of the energy efficient upgrades identified in the report are implemented					
Savings Per Participant	Variable					
Measure Life & Source	Variable					
Free Rider Rate & Source	10% for audits (best estimate)					
Participants	Service Region	2012 Projected	2012 Actual			
	FEI	35	4			
	FEVI	0	1			
	FEW	0	0			
	Total	35	5			
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	43	0	1	0	45
	FEVI	10	0	0	0	10
	FEW	0	0	0	0	0
	Total	53	1	1	0	55

Notes:

- The Energy Audit and Analysis Program does not include direct savings as the incentives are aimed only at identifying energy saving opportunities. The client is not required to implement energy saving projects identified in the audit process.
- If the client decides to implement any of the projects identified in the audit process, then the client has to apply to the Technology Retrofit Program to receive incentives. Direct savings from each approved project will be included in the Technology Retrofit Program.
- The Industrial Energy Efficiency Program Area cost-effectiveness ratios include the incentives and other costs attributed to the Energy Audit and Analysis Program.

Table 9-4: Process Heat Program (new)

Program Description	This program provides rebates to encourage energy efficiency retrofits targeted towards manufacturing processes.				
Target Market	Medium and Large Industrial Facilities				
New vs Retrofit	Retrofit				
Eligible Measures	Medium and high efficiency boilers, heat recovery economizers, boiler controls				
Incremental Measure Cost	TBD				
Incentive Amount	TBD				
Savings Per Participant	TBD				
Measure Life & Source	TBD				
Free Rider Rate & Source	TBD				
Participants	Service Region	2012 Projected	2012 Actual		
	FEI	21	0		
	FEVI	2	0		
	FEW	0	0		
	Total	23	0		
Expenditures (\$,000s)	2012				
	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	0	20	0	0
	FEVI	0	0	0	0
	FEW	0	0	0	0
	Total	0	20	0	0

Notes:

- In both the 2011 EEC Annual Report and the 2012-2013 EEC Plan, the Process Heat Program was included in the Commercial Energy Efficiency Program Area. This program was moved to the Industrial Energy Efficiency Program Area in 2012 as it targets primarily industrial customers.
- The program development activities were initiated in 2012 and the Companies anticipate launching this program in 2013.

9.3 Summary

The Companies are satisfied with the results of the Industrial Energy Efficiency Program Area in 2012. Two new projects initiated in 2012 for the Technology Retrofit Program are planned to be commissioned in 2013. In addition, nine energy audits reports are expected to be submitted in 2013.

Progress has been made toward developing a long-term strategy to identify the most efficient way to achieve substantial natural gas savings and GHG emissions reductions, while attending to the needs of the Company's industrial customers. By having a clear roadmap, the Industrial Energy Efficiency Program Area will continue to represent a considerable opportunity for the Companies to achieve their energy efficiency goals.

10 CONSERVATION, EDUCATION AND OUTREACH INITIATIVES

10.1 Overview

The CEO Program Area was successful in launching all but one program presented in the 2012-2013 EEC Plan, while effectively collaborating with other British Columbia utilities in 2012. This increased collaboration with the FortisBC Inc. electric utility optimized expenditures by integrating print communications, booth displays and production items for various events and campaigns occurring in the shared services territory. Steps were also taken in 2012 toward increased collaboration with BC Hydro in sharing best practices on partnership negotiations and outreach tactics. Ongoing collaboration in delivering the energy conservation message is planned for 2013 through joint or side-by-side booth space at six outreach events. This growing partnership with other British Columbia utilities addresses the Commission's directive from the 2012-2013 RRA Decision to pursue opportunities for increased collaboration on CEO activities¹⁴.

As CEO programs are generally informational and education based, promoting behaviour change with no cost to the customer and no incentives provided, there are currently no energy savings attributed to CEO activities in 2012. 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 incorporated into the overall EEC portfolio TRC.

Although there were no energy savings attributed to the CEO Program Area in 2012, it should be noted that the Companies continue to explore ways to identify and confirm energy savings from CEO activities. If sufficient evidence becomes available, these savings may be claimed in future EEC Annual Reports.

Table 10-1 summarizes the projected and actual expenditures for the CEO Program Area in 2012. Based on the campaign, key message and location, several of the costs, particularly production materials, outreach and advertisements, were proportionally shared between CEO and other EEC Program Areas, as well as with various departments in the Companies and with FortisBC Inc. in order to maximize cost efficiency.

¹⁴ 2012-2013 RRA Decision, April 12, 2012. p.160.

Table 10-1: 2012 CEO Initiative Results Summary

Program and Service Territory	Annual Gas Savings (GJ/yr.)		Actual NPV Gas Savings (GJ)	Utility Expenditures (\$000s)						Benefit/Cost Ratios				
	2012-2013 EEC Plan	2012 Actual		Incentives		Non-Incentives		All Spending		TRC	MTRC	Utility	Participant	RIM
				2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual					
Residential and General Public														
Residential Mass Education on Conservation and Energy Literacy														
FEI				0	0	236	232	236	232	No Direct Savings				
FEVI		No Direct Savings		0	0	26	28	26	28					
Total				0	0	262	260	262	260					
Residential Home Shows and Community Events Outreach														
FEI				0	0	585	541	585	541	No Direct Savings				
FEVI		No Direct Savings		0	0	65	61	65	61					
Total				0	0	650	602	650	602					
Canadian Home Builders' Association Promotions and Support														
FEI				0	0	90	23	90	23	No Direct Savings				
FEVI		No Direct Savings		0	0	10	17	10	17					
Total				0	0	100	40	100	40					
Residential Outreach Education Tools														
FEI				0	0	135	93	135	93	No Direct Savings				
FEVI		No Direct Savings		0	0	15	18	15	18					
Total				0	0	150	111	150	111					
Energy Champion Program														
FEI				0	0	360	252	360	252	No Direct Savings				
FEVI		No Direct Savings		0	0	40	59	40	59					
Total				0	0	400	311	400	311					
Home Efficiency Measures														
FEI				0	0	162	17	162	17	No Direct Savings				
FEVI		No Direct Savings		0	0	18	0	18	0					
Total				0	0	180	17	180	17					
Municipal Partnerships – Other														
FEI				0	0	115	8	115	8	No Direct Savings				
FEVI		No Direct Savings		0	0	10	1	10	1					
Total				0	0	125	9	125	9					
Commercial Customers														
Medium-Large Commercial Education Sessions														
FEI				0	0	25	39	25	39	No Direct Savings				
FEVI		No Direct Savings		0	0	3	9	3	9					
Total				0	0	28	48	28	48					
Small Commercial Education and Outreach														
FEI				0	0	125	68	125	68	No Direct Savings				
FEVI		No Direct Savings		0	0	10	7	10	7					
Total				0	0	135	75	135	75					
Commercial Trade Shows and Association Events														
FEI				0	0	170	77	170	77	No Direct Savings				
FEVI		No Direct Savings		0	0	20	4	20	4					
Total				0	0	190	81	190	81					
Behaviour Programs - Online Community Site														
FEI				0	0	125	67	125	67	No Direct Savings				
FEVI		No Direct Savings		0	0	15	0	15	0					
Total				0	0	140	67	140	67					
Behaviour Programs - Energy Specialists														
FEI				0	0	72	14	72	14	No Direct Savings				
FEVI		No Direct Savings		0	0	8	3	8	3					
Total				0	0	80	17	80	17					
Conservation Assistance														
Conservation Assistance - Education and Outreach														
FEI				0	0	125	29	125	29	No Direct Savings				
FEVI		No Direct Savings		0	0	15	5	15	5					
Total				0	0	140	34	140	34					

Table 10-1: 2012 CEO Initiative Results Summary (continued)

Program and Service Territory	Annual Gas Savings (GJ/yr.)		Actual NPV Gas Savings (GJ)	Utility Expenditures (\$000s)						Benefit/Cost Ratios				
	2012-2013 EEC Plan	2012 Actual		Incentives		Non-Incentives		All Spending		TRC	MTRC	Utility Participant	RIM	
				2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual					
School Outreach														
School Programs: Class and Online Curriculum														
FEI		No Direct Savings		0	0	18	9	18	9	No Direct Savings				
FEVI				0	0	2	4	2	4					
Total				0	0	20	13	20	13					
School Programs: K-12 In-Class Programs and Presentations														
FEI		No Direct Savings		0	0	400	344	400	344	No Direct Savings				
FEVI				0	0	50	68	50	68					
Total				0	0	450	412	450	412					
School Programs: K-12 Home Efficiency Measures														
FEI		No Direct Savings		0	0	90	1	90	1	No Direct Savings				
FEVI				0	0	10	0	10	0					
Total				0	0	100	1	100	1					
School Programs: Post Secondary														
FEI		No Direct Savings		0	0	165	96	165	96	No Direct Savings				
FEVI				0	0	20	7	20	7					
Total				0	0	185	103	185	103					
ALL PROGRAMS														
FEI		No Direct Savings		0	0	2,998	1,909	2,998	1,909	No Direct Savings				
FEVI				0	0	337	291	337	291					
Total				0	0	3,335	2,200	3,335	2,200					

10.2 2012 CEO Programs

Tables 10-2 through 10-18 outline the CEO initiatives undertaken in 2012. This includes program descriptions as well as a breakdown of spending, all of which is classified as “non-incentive spending”.

Table 10-2: Residential Mass Education on Conservation and Energy Literacy (new)

Program Description	This program promotes natural gas conservation and energy literacy by providing consumers with the information they need to make smart energy choices. In 2012, a new online energy calculator and a comprehensive education campaign to aid customers in their decision making on appliances, fuel costs and conservation were launched. The online energy calculator allows residential customers to compare their estimated annual energy costs between fuel types and also the annual energy cost of various home appliances. The comprehensive advertising campaign included print advertising in local community newspapers, online advertisements and radio spots for both mainstream and ethnic audiences.					
Target Market	Residential customers and general public					
New vs Retrofit	Retrofit					
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research &	Total
	FEI	0	21	211	0	232
	FEVI	0	1	27	0	28
	FEW	0	0	0	0	0
	Total	0	22	238	0	260

Table 10-3: Residential Home Shows and Community Events Outreach

Program Description	This program supports direct face-to-face interactions and online engagement with customers through regional home shows, community outreach events, hardware and grocery stores, contests and online behavioural pledges. In 2012, the Companies engaged with approximately 60,000 residential customers on topics such as home renovations, equipment upgrades and energy savings. Development of a new pilot program targeting ethnic customers through face-to-face, in-home education began in 2012, and will be launched in 2013. A key development in this area was the increased collaboration with the FortisBC Inc. electric utility on several events. Steps were also taken toward increased collaboration with BC Hydro on sharing best practices on partnership negotiations and outreach tactics, and there will be collaboration in delivering the energy conservation message together through a joint booth space or side-by-side location at 6 events in 2013.				
Target Market	Residential customers and general public				
New vs Retrofit	Retrofit				
Expenditures (\$,000s)	2012				
	Incentives	Admin	Communication	Research & Evaluation	Total
Service Region					
FEI	0	443	98	0	541
FEVI	0	51	10	0	61
FEW	0	0	0	0	0
Total	0	494	108	0	602

Table 10-4: Canadian Home Builders' Association Promotions and Support

Program Description	This program encourages energy efficiency practices by supporting regional Canadian Home Builders' Association (CHBA) events such as green building awards, home shows and education sessions targeted at residential customers.				
Target Market	Builders/renovators, Association members and general public				
New vs Retrofit	Both				
Expenditures (\$,000s)	2012				
	Incentives	Admin	Communication	Research & Evaluation	Total
Service Region					
FEI	0	21	1	0	22
FEVI	0	15	1	0	17
FEW	0	0	0	0	0
Total	0	36	3	0	39

Table 10-5: Residential Outreach Education Tools

Program Description	These tools include production materials, booth collateral, energy saving giveaways such as five minute shower timers, weatherstripping and other prizes to enable customers to practice energy conservation at home. These prizes are distributed at various community events.				
Target Market	Residential customers and children at events				
New vs Retrofit	Retrofit				
Expenditures (\$,000s)	2012				
	Incentives	Admin	Communication	Research & Evaluation	Total
Service Region					
FEI	0	49	41	3	93
FEVI	0	6	9	3	18
FEW	0	0	0	0	0
Total	0	55	50	6	111

Table 10-6: Energy Champion Program

Program Description	This program develops partnerships with local sports organizations such as the Western Hockey League, BC Hockey League, Kootenay International Junior Hockey League and Vancouver Canucks to promote energy conservation to consumers. Primarily targeting families and children, the Companies have engaged with approximately 18,000 customers through a variety of methods, including online competitions, face-to-face interactions, pre and in-game activities and booth activities.					
Target Market	Residential customers, students and schools, and general public					
New vs Retrofit	Retrofit					
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research &	Total
	FEI	0	122	130	0	252
	FEVI	0	59	0	0	59
	FEW	0	0	0	0	0
	Total	0	181	130	0	311

Table 10-7: Home Efficiency Measures (new)

Program Description	This program promotes low-cost measures for customers to install at home in order to achieve energy savings. The Companies supported the Tap by Tap program to deliver water and energy savings kits to approximately 650 residential homes in the Okanagan-Similkameen region and collaborated with FortisBC Inc. to achieve cost efficiencies. The program will be complete in 2013 and will be evaluated for potential energy savings at that time.					
Target Market	Residential customers					
New vs Retrofit	Retrofit					
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	17	0	0	17
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	17	0	0	17

Table 10-8: Municipal Partnerships – Other

Program Description	This program provides support to municipal conservation programs. In Q4 2012, the Companies launched a study to identify collaborative opportunities with municipalities on energy efficiency programs.					
Target Market	Commercial customers, builders/developers and municipal employees					
New vs Retrofit	Retrofit					
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	0	0	8	8
	FEVI	0	0	0	1	1
	FEW	0	0	0	0	0
	Total	0	0	0	9	9

Table 10-9: Medium-Large Commercial Education Sessions (new)

Program Description	This program includes the development and delivery of education sessions on natural gas equipment to guide commercial building operators and facility managers in identifying prospective natural gas savings and optimizing building performance. The curriculum was developed by Natural Resources Canada (NRCan) and was delivered to over 200 attendees in 8 regions of BC. The Companies collaborated with the Climate Action Secretariat on three sessions to achieve cost efficiencies. In addition, FEI collaborated with FortisBC Inc. to deliver two NRCan 'Spot the Savings' workshops in the Okanagan and Kootenay regions.				
Target Market	Commercial building operators				
New vs Retrofit	Retrofit				
Expenditures (\$,000s)	2012				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	39	0	39
	FEVI	0	9	0	9
	FEW	0	0	0	0
	Total	0	48	0	48

Table 10-10: Small Commercial Education and Outreach

Program Description	This program promotes energy efficient practices to small and medium sized commercial customers through print and online communications and events. These initiatives include bill inserts, ethnic communication materials and partnerships with Climate Smart and Small Business BC.				
Target Market	Small commercial customers				
New vs Retrofit	Retrofit				
Expenditures (\$,000s)	2012				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	62	6	68
	FEVI	0	7	0	7
	FEW	0	0	0	0
	Total	0	69	6	75

Table 10-11: Commercial Trade Shows and Association Events

Program Description	This program takes advantage of industry trade shows, industry association meetings and events, building award events and partnerships such as with the Business Improvement Areas of British Columbia (BIABC) to promote energy efficiency and conservation practices to commercial customers.				
Target Market	Commercial customers				
New vs Retrofit	Both				
Expenditures (\$,000s)	2012				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	63	13	76
	FEVI	0	4	0	4
	FEW	0	0	0	0
	Total	0	67	13	80

Table 10-12: Behaviour Programs - Online Community Site

Program Description	This program continues to support the Health Authority Staff Engagement Pilot Program that began in 2011 through increased development of the online tool and surveying engaged employees on changes in their actions. Development of the program to extend to other health authorities and large institutional/municipal customers is in progress and will continue into 2013. This will be a particularly valuable educational tool for organizations that have committed to becoming carbon neutral under the BC Climate Action Charter.				
Target Market	Commercial/municipal/institutional organizations and their employees				
New vs Retrofit	Retrofit				
Expenditures (\$,000s)	2012				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	67	0	67
	FEVI	0	0	0	0
	FEW	0	0	0	0
	Total	0	67	0	67

Table 10-13: Behaviour Programs - Energy Specialists (new)

Program Description	This program supports behaviour education programs generally delivered by Energy Specialists or other Energy Management staff in their respective organizations. Examples of these education initiatives include the University of British Columbia's 'Shut the Sash' campaign on fume hoods, and Capilano University's fleece campaign. Other initiatives include green fairs, education sessions, "green" teams and competitions.				
Target Market	Commercial/municipal/institutional organizations and their employees				
New vs Retrofit	Retrofit				
Expenditures (\$,000s)	2012				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	8	6	14
	FEVI	0	3	0	3
	FEW	0	0	0	0
	Total	0	11	6	16

Table 10-14: Conservation Assistance - Education and Outreach

Program Description	This program included three initiatives in 2012: the BC Housing Tenant Engagement Program, the BC Non-Profit Housing Association annual conference and a needs assessment study for the development of a building operators best practices training program led by the BC Non-Profit Housing Association.				
Target Market	Low income, residential customers				
New vs Retrofit	Retrofit				
Expenditures (\$,000s)	2012				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	29	0	29
	FEVI	0	5	0	5
	FEW	0	0	0	0
	Total	0	34	0	34

Table 10-15: School Programs: Class and Online Curriculum (new)

Program Description	This program continued development from 2011 of the EEC in-class and online modules and printed collateral. This program also supports section 44.1 (8) (c) of the Utilities Commission Act, R.S.B.C 1996, c.473, s.125.1 (4) (e), where a public utility's plan portfolio is adequate if it includes an education program for students enrolled in schools in the Companies' service area.					
Target Market	Students					
New vs Retrofit	N/A					
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	0	9	0	9
	FEVI	0	0	4	0	4
	FEW	0	0	0	0	0
	Total	0	0	13	0	13

Table 10-16: School Programs: K-12 In-Class Programs and Presentations

Program Description	This program continued support for a variety of in-school and student programs such as Destination Conservation, BC Green Games, Environmental Mind Grind and the BC Lions Energy Champion Assembly presentations. New initiatives started in 2012 targeting high school students include partnerships with Green Bricks and the Vancouver Aquarium (launching in 2013). This program also supports section 44.1 (8) (c) of the Utilities Commission Act, R.S.B.C 1996, c.473, s.125.1 (4) (e), where a public utility's plan portfolio is adequate if it includes an education program for students enrolled in schools in the Companies' service area. The expenditures below include expenditures for the 2011-2012 and 2012-2013 school years.					
Target Market	Students					
New vs Retrofit	Both					
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	344	0	0	344
	FEVI	0	68	0	0	68
	FEW	0	0	0	0	0
	Total	0	412	0	0	412

Table 10-17: School Programs: K-12 Home Efficiency Measures

Program Description	This program supports efficient low-cost fixtures distributed to students through the Beyond Recycling program, and in 2012 started distributing low flow showerheads and aerators to over 200 students to apply energy conservation concepts in the home. This program also supports section 44.1 (8) (c) of the Utilities Commission Act, R.S.B.C 1996, c.473, s.125.1 (4) (e), where a public utility's plan portfolio is adequate if it includes an education program for students enrolled in schools in the Companies' service area. The energy savings for this program were minimal, but should this program expand, the Companies will consider including energy savings.				
Target Market	Students and residential customers				
New vs Retrofit	N/A				
Expenditures (\$,000s)	2012				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	1	0	1
	FEVI	0	0	0	0
	FEW	0	0	0	0
	Total	0	1	0	1

Table 10-18: School Programs: Post-Secondary

Program Description	This program supported 3 initiatives targeting post-secondary institutions: Go Beyond's competition encouraging students living on campus to conserve energy; Northwest Wildlife Preservation Society's competition for students to develop an action plan focused on achieving natural gas EEC initiatives for the province; and funding support for Selkirk College's new energy management course. This program also supports section 44.1 (8) (c) of the Utilities Commission Act, R.S.B.C 1996, c.473, s.125.1 (4) (e), where a public utility's plan portfolio is adequate if it includes an education program for students enrolled in post secondary institutions schools in the Companies' service area.				
Target Market	Students				
New vs Retrofit	N/A				
Expenditures (\$,000s)	2012				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	59	37	96
	FEVI	0	4	3	7
	FEW	0	0	0	0
	Total	0	63	40	103

10.3 2012 CEO Programs Planned But Not Launched

10.3.1 COMMERCIAL MULTI FAMILY

This program includes the educational campaign for multi-family customers that would supplement the Multi Unit Residential Building ("MURB") program in the Commercial Energy Efficiency Program Area. It will be launched when the MURB program expands in 2013.

10.4 Summary

All of the initiatives described in this section were vital to promoting and educating the public on energy conservation behaviours and keeping the Companies' conservation message "top of mind" among customers in 2012. 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.

11 ENABLING ACTIVITIES

11.1 Overview

In 2012, Enabling Activities continued to support and supplement the Companies' EEC program development and delivery, advancing energy efficiency in British Columbia. This included the ongoing Efficiency Partners program, and work completed in advancing national, provincial and municipal building codes and appliance/equipment standards. While these Programs play a very important role in the Companies' portfolio of EEC activities by advancing the delivery of all Program Areas, the FEU have not claimed any energy savings for work completed in this area. The Companies are exploring an acceptable methodology for measuring and attributing energy efficiency savings from Codes and Standards work and will claim savings on a program-by-program basis at such time an appropriate methodology has been determined.

Enabling Activities expenditures are captured in the Residential Energy Efficiency Program Area costs in 2012 (see Section 5, Table 5.1) and are not separately included in the portfolio level results¹⁵. This section has been included because the Companies wish to highlight the importance of these Enabling Activities to the success of the overall EEC initiative.

The EEC team worked toward increased integration and collaboration with the FortisBC Inc. electric utility in 2012. Steps were taken toward integrating the Efficiency Partners program in the shared services territory, with a plan to integrate heat pump contractors in the Companies' directory listing of contractors in 2013. Table 11-1 summarizes the projected and actual expenditures for the Enabling Activities in 2012.

Table 11-1: 2012 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		TRC	MTRC	Utility	Participant	RIM
	2012-2013 EEC Plan	2012 Actual		2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual	2012-2013 EEC Plan	2012 Actual					
Efficiency Partners Program														
FEI		No Direct Savings		0	0	450	259	450	259	No Direct Savings				
FEVI				0	0	50	75	50	75					
Total				0	0	500	334	500	334					
Codes and Standards														
FEI		No Direct Savings		0	0	0	15	0	15	No Direct Savings				
FEVI				0	0	0	0	0	0					
Total				0	0	0	15	0	15					
ALL PROGRAMS														
FEI		No Direct Savings		0	0	450	274	450	274	No Direct Savings				
FEVI				0	0	50	75	50	75					
Total				0	0	500	349	500	349					

¹⁵ These costs are not double counted at the portfolio level.

Notes:

- The Energy Specialist program was formerly included under Enabling Activities. In 2012 it was included under the Commercial Energy Efficiency Program Area. This reporting change reflects both the financial tracking of the program within the Commercial Program Area and the commercial nature of the Energy Specialist activities.

11.2 2012 Enabling Activities by Program

The following tables outline the specific Enabling Activities undertaken in 2012 by program, including both program and measure descriptions along with a breakdown of non-incentive spending. The success of the Residential Furnace Replacement Pilot program (see Section 5, Table 5-9), which was promoted through the contractor network, and oversubscribed in the eight-week pilot period, demonstrates the value of the Efficiency Partners Program. Communications were immediate and responsive through the network and at the end of the pilot period 73 per cent of the program's participants used contractors who were members of the Contractor program network.

Table 11-2: 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.					
Participants	Service Region	2012 Projected	2012 Actual			
	FEI	0	0			
	FEVI	0	0			
	FEW	0	0			
	Total	0	0			
Expenditures (\$,000s)	2012 Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	91	160	7	259
	FEVI	0	13	57	4	75
	FEW	0	0	0	0	0
	Total	0	104	218	12	334

Notes:

- Approximately \$151,000 of the \$218,000 in communication expenditures is from contractor co-op advertising activity.
- The companies do not currently attribute energy savings directly to this program as it is difficult to quantify the impact in terms of GJ savings.

Table 11-3: Codes and Standards

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 involvement with a variety of codes and standards activities.					
<i>Public consultation process</i>	Evaluation and analysis of National, Provincial and City of Vancouver initiatives for energy efficiency. Development of appropriate responses to these initiatives within specified timelines.					
<i>Industry consultation process</i>	Collaboration with entities like BC Hydro and the Home Owner Protection Office (HPO) for the development of industry training and guidelines on implementation of new energy efficiency measures. Participation with the BC Safety Authority Gas Technology Committee industry stakeholder group.					
<i>Involvement with supporting projects</i>	Active participation for supporting projects like: the RDH Engineering Group's Measured Energy Savings Attributable to Deep Retrofits of High-Rise Residential Buildings (which is demonstrating energy efficient retrofits for Multi-Unit Residential Buildings) and the Morrison Hershfield Engineering study of Thermal Performance of Building Envelope Assemblies for Buildings in BC (which is helping to identify which wall assemblies are most cost and energy effective).					
<i>Codes and Standards Strategy</i>	Active participation on the Candian Standards Association (CSA) Strategic Steering Committee on Fuel Burning Equipment. This committee is the highest committee in the fuel sector at CSA and oversees all committees and sub-committees in the fuel burning sector.					
<i>Codes and Standards Maintainance</i>	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.					
<i>Thermal Metering</i>	The CSA C-900 Canadian Heat Meter Standard has now been developed and is in the final review process. A stakeholder group has been created and is working through the final remaining issues to open up this opportunity for energy measurement and savings.					
<i>Internal awareness of Code and Regulatory changes</i>	Development of internal documents and updates for relevant program areas and personnel.					
<i>Standards library</i>	Purchase of up to date standards for reference.					
Participants	Service Region	2012 Projected	2012 Actual			
	FEI	0	0			
	FEVI	0	0			
	FEW	0	0			
	Total	0	0			
Expenditures (\$,000s)	2012					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	15	0	0	15
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	15	0	0	15

11.3 Summary

Enabling Activities are critical initiatives that support the advancement of energy efficiency for a variety of EEC Program Area activities. In 2012, the Efficiency Partners Program experienced a 40 percent increase in the number of Contractor program members over 2011, bringing the number of applicants in the network to 483. As the program continues to expand, so too does the number of contractors available to support the delivery of EEC programs. The Companies' involvement in Codes and Standards work in 2012 encompassed varying degrees of activities including monitoring, analyzing and responding to existing and proposed regulatory changes and direct participation in energy efficiency pilot projects that enable program development, market transformation, and the early adoption of energy efficiency Regulations.

12 EVALUATION

The FEU have advanced their evaluation activities significantly in 2012, in keeping with the expectation that as program activity has ramped up and more programs are put into market, an increase in evaluation activity will follow. This section outlines the evaluation initiatives and activities undertaken in 2012.

12.1 EM&V Framework

The FEU developed an EM&V Framework in 2012 to formalize the background, objectives, principles and general practices that guide the Companies' approach, resources and timeframes for EM&V activities. The framework addresses the following Commission directive from the April 2012-2013 RRA Decision.

"The Commission Panel sees benefit in the establishment of an EM&V Framework. The Commission Panel directs the FEU to develop an evaluation plan and to determine an appropriate measurement and verification protocol to be used by the FEU and third party contractors in the EM&V Framework. The Commission Panel further directs the FEU to present the EM&V Framework to the EEC Stakeholder Group and solicit member feedback prior to implementing the Framework."

The draft EM&V Framework was presented to the EECAG at the fall 2012 workshop (see Section 4). The Companies have plans to finalize the EM&V Framework in 2013, taking into consideration feedback received from the EECAG and our evaluation partners. The EM&V Framework will be updated periodically to meet new industry standards and best practices. While it is currently in draft form, the Companies have adopted the Framework in so far as it is developed and do review any new evaluation activities and planning to ensure they are aligning with it.

12.2 2012 Program Evaluation and Evaluation Research Activities

Many EEC programs reached maturity in 2012, resulting in increased evaluation activities¹⁶. The evaluation activities conducted were focused on identifying energy savings, assessing participant awareness, satisfaction and education, and research. In order to present and acknowledge this increase, the summary of all program evaluation and evaluation research related activities will be presented in two separate tables.

¹⁶ Types of evaluations include: Communications, which focus on advertising and media outreach; Process, where surveys and interviews are used to assess customer satisfaction and program success; Impact, to measure the achieved energy savings attributable from the program; and Measurement & Verification, to monitor real time energy savings associated with energy conservation measures.

Table 12-1 contains an inventory of all program evaluation and evaluation research related activities undertaken in 2012. Table 12-2 contains an inventory of all program evaluation studies completed in 2012, including a brief description of the Methodologies and Key Findings. Expenditures for activities presented in Table 12.1 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 2012 evaluation activities; the Program Area each activity occurred in; the general type of evaluation activity undertaken; the Companies' actual 2012 expenditures; and a status update on each activity. The total expenditures for program evaluation and research activities in 2012 were \$469,000.

Table 12-1: Inventory of EEC Program Evaluation and Evaluation Research Activities Conducted in 2012

Evaluation Name	Program Area	Type of Evaluation	Years the program has been running	Evaluation Partnership	Actual Evaluation Expenditure (\$000's)	Evaluation Status
EEC/PowerSense Ad Tracking 2012	EEC Portfolio	Communication	ongoing	none	\$37	Tracking EEC and Advertising awareness Phase 1: Completed December 2012. Phase 2: Expected completion April 2013
EEC Collaboration with Municipalities	EEC Portfolio	Communication	new	none	\$8	In progress. Expected completion March 2013
Evaluation, Measurement & Verification Framework	EEC Portfolio	N/A	N/A	none	\$4	Habart & Associates assisted in the initial development of the EM&V Framework.
TLC Furnace/Fireplace 2011	Residential	Process	3	none	\$14	Participant Survey - Completed February 2012 by Sentis
TLC Furnace/Fireplace 2012	Residential	Process	3	none	\$0	Participant Survey - to be completed Spring 2013 by TNS
New Construction Program - Non - Energy Benefit Analysis	Residential	Process	0	BCHydro	\$13	Residential New Construction Non-Energy Benefits - Completed February 2012 by Dunsky Energy Consulting in collaboration with Research Into Action. Cost incurred in 2011
Furnace Replacement Pilot Program	Residential	Process	New	none	\$14	Customer satisfaction survey collection - Expected completion February 2013 by IPSOS. Analysis of results to be completed March 2013.
Furnace Replacement Pilot Program: Phase 2	Residential	Process	New	none	\$0	Survey questionnaire in design stage - Expected completion March 2013 by TNS. Quality Installation Study for Furnaces : RFP stage Estimation of Remaining Life on Replaced Furnaces in Furnace Replacement Pilot Program: Design stage
LiveSmart BC program evaluation	Joint Initiatives	Impact & Process	4.5	BCHydro, FEU, FBC and MEM	\$50	Preliminary Report completed Fall 2012. Final Report to be completed in 2013. Results will guide savings estimates reported for LiveSmartBC and 2013 program launch offering.
Switch 'N Shrink	High Carbon Fuel Switching (Residential)	Impact & Process	3	none	\$27	Switch 'N Shrink Program Evaluation Survey Summary Report - Completed December 2012 by Insights West.
Energy Savings Kits (ESK)	Conservation for Affordable Housing	Process	2	BC Hydro	\$0	Small in-house customer satisfaction survey conducted by FortisBC in 2012. Program savings refer to the in-depth customer survey performed by BCHydro in 2010 and savings assumptions from the latest CPR figures.

Table 12-1: Inventory of EEC Program Evaluation and Evaluation Research Activities Conducted in 2012 (continued)

Evaluation Name	Program Area	Type of Evaluation	Years the program has been running	Evaluation Partnership	Actual Evaluation Expenditure (000's)	Evaluation Status
Energy Specialist Pilot Program Energy Savings Audit	Commercial (Enabling Activities)	Impact	2	none	\$26	Energy Specialist Program - Energy Savings Audit - Preliminary Results completed January 2013 include verified project savings. Final Report to be completed by March 2013 by Prism Engineering Ltd and ClearLead Consulting Ltd.
Efficient Boiler Program (Retrofit)	Commercial	Impact & Process	9	none	\$66	Analysis of Energy Savings from FortisBC Efficient Boiler Program (EBP) - Preliminary results completed December 2012. Final Report to be completed Q2 2013 by Prism Engineering Ltd. Further analysis to be conducted in 2013.
Fireplace Timers Pilot Project	Commercial	Impact & Process	1	none	\$10	Analysis of Energy Savings from FortisBC Fireplace Timer Pilot Project - Preliminary results completed September 2012. Final Report to be completed Q2 2013 by Prism Engineering Ltd. Further analysis to be conducted in 2013.
Efficient Commercial Water Heater Program - Metering project	Commercial	Impact	2.5	none	\$6	Metered pre and post implementation natural gas consumption to validate savings assumptions. Monitoring results expected to be completed by March 2013
Radiant Tube Heater Pilot Program	Commercial	Impact	2	none	\$1	Metered pre and post implementation natural gas consumption to validate savings assumptions Data Collection completed February 2012. Summary of results to be completed Q2 of 2013.
City of Vancouver Residential Solar Water Heating Pilot	Innovative Technologies	Measurement & Verification	2	City of Vancouver & Solar BC	-\$6	Received 20K contribution from COV towards M&V of the project which reduced costs for FortisBC. 4 sites under monitoring for minimum 12 months. Expected completion of M&V + Final Report by October 2013.
City of Courtenay Pool Heating Demonstration Project	Innovative Technologies	Measurement & Verification	2	City of Courtenay	\$16	Expected completion of M&V + Final Report by November 2013.
PSECA Solar	Innovative Technologies	Measurement & Verification	3	Ministry of Energy Mining (PSECA)	\$0	Post consumption analysis to be completed in 2013
Occupancy Sensor Ventilation Control Pilot	Innovative Technologies	Measurement & Verification	2	School District (Burnaby & North Delta)	\$0	4 schools under monitoring for a minimum 12 months. Previously anticipated completion by late 2012. Due to delay in monitoring installation completion of M&V + Final Report is expected to be June 2013.

Table 12-1: Inventory of EEC Program Evaluation and Evaluation Research Activities Conducted in 2012 (continued)

Evaluation Name	Program Area	Type of Evaluation	Years the program has been running	Evaluation Partnership	Actual Evaluation Expenditure (\$000's)	Evaluation Status
AHU Coil Cleaning Pilot	Innovative Technologies	Measurement & Verification	1	Vancouver Island Health Authority	\$5	Expected completion of M&V + Final Report by February 2014.
0.80 Pilot	Innovative Technologies	Measurement & Verification	2	Canadian Gas Association, Natural Gas Technology Centre & other utilities	\$96	Expected completion of M&V + Final Report by Q1, 2014.
0.67 Pilot	Innovative Technologies	Measurement & Verification	1	none	\$50	Expected completion of M&V + Final Report by July 2014.
COV MURB Pilot	Innovative Technologies	Measurement & Verification	new	City of Vancouver	\$0	Pending further pilot design details. Also referred to as the 'Condo Retrofit Pilot'
Technology Retrofit Program	Industrial	Measurement & Verification	1	none	\$15	M&V Plan developed and awaiting commissioning.
Event Tracking 2011	Conservation Education and Outreach	Communication	6	none	\$6	Participant Awareness - Completed April 2012 by IPSOS
Contractor Program Research 2011	Efficiency Partners Program	Process	2	none	\$4	Contractor Participation Research - Completed February 2012 by Participant Research. \$4,175 paid in 2011 and remainder in 2012. Total fees for this project were \$8350.
Contractor Program Co-ops Ads Research Project	Efficiency Partners Program	Process	2	none	\$7	Interviewing stage. Expected completion February 2013

Table 12-2 contains a summary of all program evaluation studies completed in 2012 and includes a brief description of the Methodologies and Key Findings.

Table 12-2: Inventory of EEC Program Evaluation Studies Completed in 2012

Evaluation Name	Program Area	Type of Evaluation	Methodology	Key Findings
EEC/PowerSense Ad Tracking 2012	EEC Portfolio	Communication	Online Panel	<p>Results from Phase 1: 2 effective communications channels: - Bill inserts and TV ads are said to be the most engaging, informative and memorable platforms for reaching residents. - Utility websites, friends & family, hardware stores and newspapers are also effective communication channels.</p> <p>Since FortisBC's EEC programs are not well known, communication recall levels are low for these programs. There is confusion among the public over who sponsored the communications.</p> <p>There are many individually-promoted FortisBC EEC programs in the market. This has resulted in low awareness of each program, compared to the most recognized program in the province – PowerSmart (BC Hydro).</p> <p>Outcome from Key Findings: Continued with bill inserts and increased communications about residential programs in local community newspapers in Fall 2012. Implemented a Consolidated Fall Campaign that covered multiple concurrent programs, rather than running individual program communications plans.</p>
TLC Furnace/Fireplace 2011	Residential	Process	<p>406 telephone interviews were completed between January 20 and 24, 2012 with FortisBC customers who participated in the 2011 program.</p> <p>The interviewing was distributed by region and by appliances serviced to ensure representativeness of all participants in the program.</p>	<p>Results from 488 participants:</p> <p>The \$25 gift card incentive was useful. 4 in 10 participants (42%) indicate that it positively influenced their decision to get their furnace and/or fireplace serviced.</p> <p>For participants, the perceived main benefits of annual appliance servicing are peace of mind/safety and improved efficiency.</p> <p>Program evaluation determined that 16% of participants identified leaks and other safety hazards from the heating systems serviced.</p> <p>Contractors made recommendations to 11% of the participants to either upgrade or replace their gas appliance to a higher efficiency model. 3% were in compliance.</p> <p>Outcome from Key Findings: promoting the Furnace Replacement Pilot Program with the TLC Program to encourage contractors to leverage on the relatively easy-to-access TLC program to promote furnace upgrade. The Companies will be starting an installatino quality inspection study on furnaces to quantify and verify leaks and other safety hazards.</p>

Table 12-2: Inventory of EEC Program Evaluation Studies Completed in 2012 (continued)

Evaluation Name	Program Area	Type of Evaluation	Methodology	Key Findings
New Construction Program - Non - Energy Benefit Analysis	Residential	Process & Impact	Quantify the 'non-energy benefits' consumers enjoy due to the energy efficiency programs implemented. Combination of secondary research in other jurisdictions and primary research in BC to quantify dollar value of non-energy benefits. The NEB analysis was based on a conservative approach using published studies in 5 jurisdictions.	The results of the study indicated that the non-energy benefits are significant, ranging from 15% to 361% higher than the 'energy' benefits when calculating the TRC. This suggests that the 15% for NEB attributed using the MTRC pursuant to the BC DSM Regulation may be underestimating these benefits. Due to small sample size, results were used as directional measures. Outcome from Key Findings: The results confirms more research is required before the results can be applied to the design of the New Homes Program.
Switch N Shrink	High Carbon Fuel Switching (Residential)	Impact & Process	Survey: online/mail survey conducted on a sample size of 369 program participants. Technical: Gas consumption compared to oil bills.	A sample size of 369 program participants surveyed indicated they were extremely satisfied with the Switch N' Shrink Program (score of 8.6 on a 10-point scale). Program received a very strong Net Promoter score of 62. The participants that were surveyed are also very likely to recommend the program to friends and family (8.9 out of 10). The lower energy bills and the \$1,000 rebate are the key drivers of program participation. Study showed a median annual cost savings of \$139 per year and the average percentage cost savings from switching from heating oil to natural gas was 16%. (Results were based on 14 participants with 12 continuous months of heating oil and natural gas cost data) Annual energy savings were 4.63 gj per year. Energy savings results were considered directional only due to the small sample size. Outcome from Key Findings: Introduced a contractor incentive as contractors were the key to promoting the program. Extended the program by another year due to program's success.
Energy Savings Kits (ESK)	Conservation for Affordable Housing	Process	Small in-house customer survey conducted by CRM to measure customer satisfaction.	36 participants were surveyed and results showed a high level of customer program satisfaction. A score of 9.4 on a scale out of 10. Outcome from Key Findings: No change required to the program due to the high level of customer program satisfaction.
Efficient Boiler Program (Retrofit)	Commercial	Impact & Process	Participant survey and consumption analysis were conducted for a sample size of 239 Commercial participants.	Preliminary results from the sample size showed an average savings of 19.3%. Outcome from Key Findings: Conduct further analysis and include a larger sample size to verify savings. Calculate an annual rate of savings (GJ) per year for the program. Conduct follow-up phone calls to further analyze outliers.

Table 12-2: Inventory of EEC Program Evaluation Studies Completed in 2012 (continued)

Evaluation Name	Program Area	Type of Evaluation	Methodology	Key Findings
Fireplace Timers Pilot Project	Commercial	Impact & Process	Participant survey and consumption analysis were conducted for all 8 Multi-Unit Residential Building locations with 384 timers installed.	Preliminary results: average annual natural gas savings of 4.1 GJ for each timer installed. Outcome from Key Findings: Conduct further analysis on outliers and verification of savings. Conduct analysis to investigate fuel substitution due to participants increasing usage of their electric baseboard heating.
Energy Specialist Pilot Program Energy Savings Audit	Commercial (Enabling Activities)	Impact	A total of 35 projects were reviewed by Prism Engineering Ltd and ClearLead Consulting Ltd. Each Energy Specialist was required to complete project specific questionnaire, and provide detail project calculations and information for review. Project savings were verified on a project by project basis. Energy Specialist gas savings projects verified were those that did not take advantage of an existing Fortis BC incentive program.	Results from 29 completed projects were reviewed to represent savings in 2011 and 2012. 6 projects are still ongoing and therefore excluded from the 2011/2012 findings. In 2012, 12 projects were completed and evaluated. Results indicated 1,081 GJ annual savings & 4,713 GJ of NPV Gas Savings. In 2011, 17 projects were completed and evaluated. Results indicated 8,742 GJ annual savings & 24,943 GJ of NPV Gas Savings. Outcome from Key Findings: Update and revise the Energy Specialist training to provide a structured approach on how to document the research, estimate the energy savings, and provide overall targets to achieve.
Event Tracking 2011	Conservation Education and Outreach	Communication	On-site intercept interviews were conducted during various events targeted for this study, using interviewer administered surveys completed on paper.	FortisBC's participation in public and community events in 2011 has encouraged energy conservation. To consolidate these effects, FortisBC needs to sustain its participation in public and community activities over a longer period of time. The positive effects of participating in these events was limited by fairly low awareness of the company's involvement in them. To reach a broader base of event participants with its EEC communications, FortisBC needs to increase promotion of its participation in community and public events prior to the events or enhance its visibility at them. Outcome from Key Findings: Increase effort on cross promoting events through the use of social media channels. Redesign of the event booths to create a stronger presence on site.
Contractor Program Research 2011	Efficiency Partners Program	Process	Participant Research conducted 20 interviews with natural gas contractors representing all FortisBC regions, including participants and non-participants in the FortisBC Contractor Program.	Contractors generally acknowledge Program participation offers many benefits however, research suggests that many contractors postponed or failed to complete the necessary application forms, perceiving the process to be too time-consuming. Many responses underscore that the enrollment process must be effortless. Overall program marketing could benefit from improvements that increase contractor interest and participation. Outcome from Key Findings: Contractor forms and applications were revised to allow for easier completion.

12.3 Summary

Evaluation is an integral part of DSM planning and implementation. Early consideration of evaluation requirements helps to ensure that the necessary data is collected throughout the program development and implementation process. The companies have significantly increased the amount of evaluation activities completed and initiated in 2012 over previous years and continue to be diligent in ensuring industry standards are met in the evaluation of EEC programs. The EM&V Framework provides valuable information relating to the types of evaluation activities that should be conducted and when, approaches for managing evaluation studies and the implementation of industry standards for evaluation work.

13 DATA GATHERING, REPORTING AND INTERNAL CONTROLS PROCESSES

13.1 Overview

The following section demonstrates that the Companies have business practices in place to ensure EEC activities and associated spending are in compliance with the Commission Orders and the internal control processes of the Companies in general. 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.

13.2 Program Tracking, Evaluation and Reporting Functions

The 2011 Annual Report (Section 14) described the way in which the companies had separated the EEC tracking, evaluation and reporting functions from the group responsible for program development and implementation. While the Companies believe they have been effective in conducting these activities throughout the history of its EEC programming, the following benefits of and accomplishments by the tracking, evaluation and reporting group have been achieved in 2012, the first full year of separation of tracking, evaluation and reporting:

Reduction of regulatory burden on Program Managers and other program staff, allowing increased productivity in the development and delivery of programs,

- Implementation of and improvements to the new EEC tracking software system,
- Improvements to the planning and implementation of evaluation, measurement and verification activities,
- Improvements in the oversight of and support to program staff in the review and identification of measure savings information and calculation of cost/benefit values,
- Improvements to annual reporting activities and other special reporting requirements as necessary from time to time, and
- Improvements to EEC Advisory Group engagement activities (see Section 4).

13.3 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, and believe doing so ensures an increased chance of pilot or program effectiveness.

Business cases include 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 use an in-house cost-benefit modeling tool developed in partnership with expert industry consultants¹⁷ to provide the following areas of analysis:

- Benefits incurred over measure life of the individual programs, including energy savings;
- Total costs incurred in implementing the program, including administrative, incentive, marketing and evaluation;
- The four CST tests (Rate Impact Measure [“RIM”], Utility, Participant, and TRC); and
- The MTRC in accordance with British Columbia Demand-Side Measures Regulation.

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.

13.4 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;
- 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.

13.5 Internal Audit Services

The EEC team engaged the Companies’ own Internal Audit Services (“IAS”) group to review the internal controls associated with the EEC initiative. An IAS review of 2012 EEC activities was again conducted with the finding that EEC management processes and controls are designed and operating effectively. A copy of the 2012 IAS review summary is included in Appendix B.

¹⁷ Willis Energy Services Ltd. and The Cadmus Group Inc. provided input into this in-house cost-benefit model.

IAS is also conducting a review of the DSM tracking system 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.

13.6 Summary

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

14 2012 EEC ANNUAL REPORT SUMMARY

2012 was a successful year for the FEU's EEC Programming. Both energy savings and incentives to customers have been cost effectively increased to new levels within the spending limits approved by the Commission, and in accordance with the BC Demand-Side Measures Regulation. The availability and effectiveness of program expenditures were expanded in all Program Areas and evaluation activities were diligently increased to monitor the effectiveness of EEC programming through this growth period. The Companies believe that they have made every reasonable effort to ensure EEC programs are universally available and meet provincial requirements for adequacy. The Companies also continue to implement good internal data gathering, monitoring and reporting control practices.

Appendix A

BC HYDRO AND FORTISBC MOU REPORT EXECUTIVE SUMMARY

Working in partnership: The FortisBC and BC Hydro collaboration

Executive summary

Introduction

Led by the Ministry of Energy, Mines and Natural Gas (formerly the Ministry of Energy, Mines & Petroleum Resources), the *BC Partnership for Energy Conservation and Efficiency* was created in 2007 to support public utilities in pursuing cost-effective and competitive demand side energy management (DSM) opportunities. The express goal: to ensure “a coordinated approach to conservation and efficiency is actively pursued in British Columbia.” In response to this initiative, BC Hydro and the FortisBC Energy Utilities (FortisBC) entered into a voluntary Memorandum of Understanding (MOU) to develop enhanced utility integration in support of government legislation, policy and direction. The MOU, which was executed in July 2009 and concluded on July 2012, provided shared objectives, areas of focus, guiding principles and administrative guidance. A new agreement has been established for another three years (2012 – 2015) under the same principles and objectives. This report summarizes key accomplishments achieved during the timeframe of the 2009 – 2012 MOU agreement¹.

Overview

FortisBC and BC Hydro (the “utility partners”) share many of the same customers. They know that customers view their energy demands holistically, and that it makes sense to address energy efficiency and conservation for natural gas and for electricity in a coordinated fashion. By combining their skills, resources and DSM experience, the utility partners are improving the delivery of dual-fuel DSM programs that are helping customers manage their energy consumption and energy costs while meeting the goals of government.

The shared objectives as listed in the MOU were to:

- reduce overall energy consumption and net greenhouse gas (GHG) emissions intensities
- coordinate each party’s efforts in support of the B.C. Government’s goals
- provide the most cost-effective DSM programs on behalf of customers and ratepayers, while maintaining distinct and well-regarded brand identities
- reduce customer and marketplace confusion
- share knowledge and research findings

¹ Note that for the purposes of this report the time period examined was July 2009 to August 2012 as the second MOU agreement was not signed until late-August 2012.

To meet the intent of the MOU, a Project Charter was created to structure the desired outcomes, including how they would be achieved. The Charter established the necessary and appropriate organizational and management structure, including:

- a communications protocol
- a reporting system and issue resolution process
- guidance to determine project prioritization, work planning and resource allocations
- a process for creating work groups, deliverables, milestones and outcomes
- a framework on how outcomes will be achieved
- a process for entering into binding Collaborative Agreements
- clarification on confidentiality

Management structure²

Executive sponsorship committee (responsible for overall governance of MOU; provides leadership and vision)



Project steering group (executes the Charter within the framework and guidance of the MOU, ensures projects are in compliance with legislation, assigns resources and budgets, defines success for the projects through the definition of desired outcomes and success metrics, establishes areas of priority, resolves issues, prepares updates, approves communications plans/activities)



Project management office (coordinates and facilitates the smooth operation of the Working Groups and reports on progress of deliverables and key metrics)



Initiative working groups (delivers the desired outcomes and business objectives within framework of MOU and Charter, develops Task Plans and reporting methods, offers advice, produces deliverables, delivers projects to completion, defines cost sharing arrangement)

² Formed with equal representation from FortisBC and BC Hydro.

A criteria of decision-making principles was developed to determine which projects would be undertaken by the utility partners. These criteria included:

- impacted sectors
- required resources
- desired outcomes
- potential incremental DSM (natural gas, electricity and participation/uptake)
- projected efficiencies (speed to market impacts, cost-sharing potential, cost reduction/efficiencies potential)
- risk determination
- timescale
- fit with BC Hydro and FortisBC strategic priorities

Based on these decision-making principles, BC Hydro and FortisBC selected their collaborative projects. Twelve of these projects undertook significant preparatory work and/or made it to market during the first MOU period. The projects were as follows:

- Energy Saving Kits
- Residential Energy and Efficiency Works (REnEW)
- Energy Conservation Assistance Program (ECAP)
- On-Bill Financing Pilot
- Appliance Rebate Program (clothes washers)
- LiveSmart BC
- Residential New Home Program
- Continuous Optimization Program
- Public Sector Energy Conservation Agreement (PSECA)
- Commercial New Construction
- Energy Specialist Pilot Program
- Industrial Collaboration Initiatives

Summary of results

To date, these collaborative projects have been extremely successful in generating cost savings for the utility partners. (Project objectives, outcomes and benefits are detailed further in this report.) In fact, by joining forces and sharing skills and resources (e.g., marketing, communications, joint studies, consultation) the utility partners have saved approximately \$1,920,000 in shared incremental costs as a result of collaborative efforts. Overall, this represents about five per cent in total cost savings as a result of the program collaborations. This figure, however, does not reflect additional savings in the form of better customer reach and more streamlined programs. Additionally, this figure does not include projects that were only recently launched, since total cost savings are not yet available. For instance, cost savings for the Residential New Home Program are not indicated in the table below, but the utility partners anticipate future cost savings of \$100,000 to \$125,000 per year.

To determine incremental cost savings as a result of the partnership, project leads were asked to provide conservative estimates. Only dollars that clearly would have been spent in absence of a partnership were captured under these estimates. The methodology utilized for each program collaboration increment cost saving reported can be found in the respective program collaboration profiles in this report.

Overall energy savings attributable to these programs have also been substantial. Since the beginning of each program's collaborative efforts, it is estimated the utility partners have saved 40.35 GWh³ in electricity and 292,635 GJ⁴ in natural gas under these programs. This is equivalent to the annual electricity consumption of over 3,600⁵ BC homes and the annual natural gas consumption of over 3,300⁶ BC homes respectively. Note that these energy savings are estimates, and have been provided to illustrate the scope/scale of the overall collaboration. These figures represent total energy savings and do not represent incremental savings as a result of the partnership. Incremental energy savings as a result of collaborative efforts could not be determined as sufficient evaluation, measurement and verification (EM&V) protocols were not set up in time to undertake this analysis. However, as noted further in this report, the intent is for BC Hydro and FortisBC to set up EM&V protocols moving forward that should hopefully enable the utilities to accurately track incremental cost and energy savings as a result of collaborative efforts.

Collaboration snapshot

The following table summarizes total program costs, energy savings and incremental costs savings incurred over the period of the collaboration.

Project/Program	BC Hydro Total Program Costs	FortisBC Total Program Costs	Energy Savings		Total Program Costs	Total Incremental Cost Savings As a Result of Collaboration	% Cost Savings As a Result of Collaboration
			GWh Savings	GJ Savings			
Energy Saving Kits	\$2,500,000	\$751,000	6.53 GWh	63,600 GJ	\$3,251,000	\$550,000	14%
On-Bill Financing Pilot	\$128,000	\$114,000	n/a	n/a	\$242,000	n/a	n/a
REnEW	\$254,000	\$375,000	n/a	n/a	\$629,000	\$250,000	28%
ECAP	\$509,000	\$487,000	n/a	n/a	\$996,000	\$250,000	20%
Appliance Rebate Program (clothes washers)	\$3,200,000	\$598,000	2.5 GWh	15,000 GJ	\$3,798,000	\$100,000	3%
LiveSmart BC	\$5,400,000	\$3,526,000	5.62 GWh	174,035 GJ	\$8,926,000	\$380,000	4%
Residential New Home Program	\$1,340,000	\$74,000	n/a	n/a	\$1,414,000	n/a	n/a
Continuous Optimization Program	\$898,000	\$31,000	n/a	n/a	\$929,000	\$80,000	8%
PSECA	n/a	\$1,094,000	25.7 GWh	40,000 GJ	\$1,094,000	n/a	n/a
Commercial New Construction	\$5,100,000	\$266,000	n/a	n/a	\$5,366,000	\$210,000	4%
Energy Specialist Pilot Program	\$5,700,000	\$1,721,000	n/a	n/a	\$7,421,000	\$100,000	1%
Industrial Collaboration Initiatives	n/a	n/a	n/a	n/a	\$0	n/a	n/a
TOTAL	\$25,029,000	\$9,037,000	40.35 GWh	292,635 GJ	\$34,066,000	\$1,920,000	5%

The following are the key qualitative benefits that were realized from the collaboration:

- streamlined application process for customers
- extended program reach
- consistent and unified messaging resulting in improved energy literacy

³ Net cumulative run rate effective the determined start date of collaboration. 1 GWh is equal to 1,000,000 kWh.

⁴ Net annual natural gas savings.

⁵ Assumes that the average BC single-family home uses 11,000 kWh/year.

⁶ Average FortisBC residential customer consumption in 2012 was 87.7 GJ.

Next steps

This 2009-2012 MOU has been a successful pilot in the joint delivery of DSM projects/programs and the utility partners have identified key lessons and future opportunities for improvement. The utility partners are currently working on creating consistent key performance indicators (KPIs). The need for a formalized evaluation strategy has been identified as a priority, going forward. Having a strategy in place to capture measurable outcomes of the collaboration will better enable future reporting, evaluation and screening, and will also allow a greater understanding of the incremental benefits. Both utility partners are currently engaging their respective evaluation teams to develop a plan to quantify the deliverables of our partnership, and are working cooperatively to identify a consistent, shared approach. The plan is expected to be developed by April 2013.

Additional lessons have been learned from these joint projects, which will be used to gain greater efficiency and effectiveness with future collaborations. Key lessons learned were as follows:

- Streamlined customer process offers great benefit and should continue to be a priority.
- Reporting alignment can be challenging, as the two utility partners have different fiscal periods.
- Planning for programs and incentive funding has been complicated by differences in the timing of utility funding cycles (e.g. business case and regulatory timelines).
- There are delays/challenges associated with contracts/agreements (e.g. the need to establish a simplified contract process has been identified).
- There is a need to clearly define co-branding rules for new joint initiatives (underway).

Lessons learned are elaborated on within the individual project profiles in this report.

Appendix B

**INTERNAL AUDIT SERVICES
2012 EEC REVIEW REPORT**

**FortisBC Energy
Internal Audit Report**

Date: June 30, 2012

To: Doug Stout, Vice President, Energy Solutions and External Relations

CC: Sarah Smith, Senior Manager, Energy Efficiency and Conservation
David Bennett, Vice President, General Counsel and Corporate Secretary

From: Terry McMillan, Director, Internal Audit

Re: Energy Efficiency & Conservation Program – Internal Control and Process Review

INTRODUCTION

The Energy Efficiency and Conservation Program (“The Program” or “EEC”) is designed to provide customers with tools and incentives to manage their natural gas consumption, reduce their energy costs, and lower their greenhouse gas emissions.

In April 2009, the British Columbia Utilities Commission (“BCUC”) granted approval for the Program expenditure of \$41.5 million. The Program includes rebates and incentives on a number of energy efficient appliances, equipment and systems as well as education and outreach initiatives to increase awareness of the energy efficiency and environmental benefits that can be achieved by using clean burning natural gas in high efficiency appliances.

SCOPE AND OBJECTIVES

An Internal Audit of the EEC Program was completed in the first quarter of 2011. This is a follow up to that project as requested by management.

The objective of the review was to evaluate the design and operating effectiveness of the EEC project management processes and controls as established for the facilitation of the Program using the following criteria:

- Identify key risks and determine whether risks are appropriately managed;
- Review existing policies, procedures and practices with reference to best practices;
- Review the level of adherence to and compliance with existing policies and procedures;
- Develop recommendations and potential action plans to address any significant issues or opportunities for improvement that may be identified;
- Review for compliance with the BCUC Decision regarding EEC.

OBSERVATIONS

Policies and procedures are in place to ensure timely monitoring of program effectiveness in all program areas by management; however, Internal Audit has identified some recommendations for minor improvements regarding internal program administration as shown in the attached summary.

CONCLUSION

Based on our review, we have concluded that the EEC project management processes and controls are designed and operating effectively. The project is operating in compliance with the BCUC decision.



Observations and Recommendations

#	Observations	Risk	Recommendations	Management Response
1.	<p>Internal Program Administration</p> <p>A review of various programs and related applications resulted in the following exceptions:</p> <p>The following programs had a number of duplicate payments to customers after additional testing by IA.</p> <p>a) TLC Gift Cards for Fireplaces & Furnaces – 26 duplicates (\$1,300)</p> <p>IA did not find any evidence of more than two applications for any customer or premise from over 25,000 applications.</p> <p>b) Energy Efficient Water Heater Program – confirmed only two duplicate payments (\$200) from over 3,400 applications</p> <p>c) Enerchoice Fire Place Program – 2 duplicate payments (\$600) from over 1,700 applications</p>	<p>Ineffective application evaluation process can result in two or more payments to customers.</p>	<p>a) Adherence to program terms and conditions should be monitored.</p> <p>b) Process improvements should be implemented to verify/confirm if an application has been previously processed and paid.</p>	<p>Management Response:</p> <p>Incentive payments for these programs are administered by a third party fulfillment house. The implementation of FEI's tracking system, TrakSmart, should eliminate any need for manual duplicate checking on the spreadsheets currently being used by the fulfillment house. TrakSmart is expected to be fully implemented by Q3 2012.</p> <p>Management Accountability:</p> <p>Sarah Smith, Senior Manager, EEC</p> <p>Beth Ringdahl, EEC Program Manager (Residential)</p> <p>Estimated Timing: Q3 2012</p>



Observations and Recommendations

#	Observations	Risk	Recommendations	Management Response
2.	Contract Renewal One contract (Energy Savings Kit) with BC Hydro has expired and there is no evidence that either party had agreed to continue in writing as per the terms of the contract.	No active contract in place covering Third Party services.	Management should develop a process to track active contracts for renewal.	Management Response Currently in progress to extend contract. Management Accountability: Ned Georgy, EEC Program Manager (Affordable Housing) Estimated Timing: September 2012.