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March 28, 2014

Via Email
Original via Mail

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 - 2013 Annual Report

Attached please find the Energy Efficiency and Conservation Program 2013 Annual Report for the FortisBC Energy Utilities.

If further information is required, please contact Ken Ross, Manager Integrated Resource Planning and EEC Reporting at 604-576-7343 or ken.ross@fortisbc.com.

Sincerely,

on behalf of the FORTISBC ENERGY UTILITIES

Original signed by: Ilva Bevacqua

For: Diane Roy

Attachment

cc (email only): EEC Advisory 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 2013 Annual Report

March 28, 2014

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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”). In 2013, the companies achieved a combined portfolio MTRC² of 1.1 on expenditures of almost \$28 million, meeting the EEC goal of cost-effective program delivery.

2013 EEC activity has been conducted within the funding amounts set out in the BC Utilities Commission’s (“BCUC” or the “Commission”) approval of the FEU’s 2012-2013 Revenue Requirement Application (“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.

This EEC Annual Report (the “Report”) outlines the Companies’ actual results and expenditures for 2013. The format of this Report follows the format of the 2012 Report, and relies on detailed tables to demonstrate EEC Program results and expenditures.

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

This Report details the Companies’ activities in each Program Area and on a portfolio level. EEC incentive and non-incentive expenditures are reported at the level of each program or measure, as well as at the program area and portfolio levels. 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 is provided in Section 2.1.

This Report also demonstrates that the Companies are meeting the accountability mechanisms directed 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.”

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

² Pursuant to the BC Demand-side Measures Regulation, the portfolio level MTRC is calculated based on costs and benefits of all programs in the portfolio as well as any program area and portfolio level administration costs, and including the ZEEA and benefit adders for those programs for which the MTRC is relied upon to determine cost effectiveness on an individual program basis (i.e. those programs that have been designated as being under the MTRC Cap as presented in Section 2.1 of this report).

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

1.2 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 2013 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 discussion on funding transfers.

Section 4: EEC Advisory Group Activities

- Provides information regarding EEC Advisory Group (“EECAG”) activities in 2013, 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 2013, 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 2013 programs, including program and measure descriptions, program assumptions and sources for these assumptions, and a breakdown of incentive and non-incentive spending. Where

applicable, details on program closures or planned programs that were not launched in 2013 are also included in these program detail sections.

Section 10: Conservation Education and Outreach Initiatives

- Provides both summary and detail regarding actual 2013 expenditures for the Conservation Education and Outreach (“CEO”) Program Area.

Section 11: Enabling Activities

- Provides both summary and detail regarding actual 2013 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 2013 program evaluation activities, as well as summary results from evaluations and studies completed in 2013.

Section 13: Data Gathering, Reporting and Internal Control Processes

- Provides a summary of the Companies’ data tracking, process control and reporting for 2013 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’ 2013 EEC activity.

2 PORTFOLIO OVERVIEW

In this Section, the Companies provide their EEC energy savings, expenditures and cost-effectiveness test results on an overall portfolio level for 2013. A summary of the overall portfolio results is provided in Table 2-1, demonstrating that the Companies achieved a combined portfolio MTRC of 1.1. EEC expenditures were almost \$28 million and recorded natural gas savings were almost 500,000 GJ. These are positive outcomes resulting from the Companies' EEC activity over 2013.

Table 2-1: Overall EEC Portfolio Results for 2013

Indicator - 2013 Results		Service Territory		Total
		FEI	FEVI	
Annual Gas Savings (GJ/yr.)		423,844	73,989	497,833
NPV of Gas Savings (GJ)		2,980,959	303,116	3,284,075
Utility Expenditures, Incentives (\$000s)		14,431	2,274	16,705
Utility Expenditures, Non-Incentives (\$000s)		9,508	1,377	10,886
Utility Expenditures, Total (\$000s)		23,939	3,651	27,591
Benefit/Cost Ratios	TRC	1.0	0.9	1.0
	MTRC	1.1	1.1	1.1
	Utility	1.1	1.2	1.1
	Participant	2.7	3.1	2.8
	RIM	0.5	0.4	0.5

Table 2-2 below 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	2013 Actual		2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual					
Portfolio Level Activities														
FEI	No Direct Savings			0	0	0	4,161	0	4,161	No Direct Savings				
FEVI				0	0	0	611	0	611					
Total				0	0	0	4,772	0	4,772					
Residential Sector (includes Enabling Activities)														
FEI	131,090	124,267	1,337,765	6,360	7,383	3,056	1,901	9,418	9,284	0.9	1.2	1.4	1.8	0.5
FEVI	17,447	16,136	164,228	830	985	281	381	1,111	1,366	0.9	1.2	1.2	3.1	0.3
Total	148,537	140,403	1,501,993	7,190	8,368	3,337	2,282	10,528	10,650	0.9	1.2	1.3	1.9	0.4
Low Income														
FEI	27,169	13,374	83,660	2,753	423	1,698	400	4,450	824	1.2	1.5	1.1	n/a	0.5
FEVI	3,019	4,285	26,230	306	79	214	36	519	115	2.8	3.0	2.5	n/a	0.4
Total	30,188	17,659	109,890	3,058	502	1,911	436	4,969	939	1.4	1.6	1.3	n/a	0.5
Commercial Sector														
FEI	306,281	258,424	1,355,182	9,552	5,646	992	454	10,544	6,100	1.9	n/a	2.0	3.8	0.5
FEVI	168,310	52,305	101,395	1,446	1,115	152	80	1,597	1,195	1.8	n/a	2.0	2.9	0.7
Total	474,591	310,729	1,456,577	10,996	6,761	1,143	534	12,140	7,295	1.9	n/a	2.0	3.6	0.5
Innovative Technologies														
FEI	1,444	4,303	35,109	6	298	224	483	230	781	0.7	n/a	0.4	2.6	0.2
FEVI	361	1,263	11,263	2	95	6	35	8	130	0.6	n/a	0.9	1.9	0.3
Total	1,805	5,566	46,372	8	393	230	519	238	912	0.6	n/a	0.5	2.4	0.3
Industrial Sector														
FEI	389,319	23,476	169,243	1,958	681	223	87	2,181	768	2.4	n/a	1.9	3.7	0.6
FEVI	4,000	0	0	46	0	1	0	47	0	n/a	n/a	n/a	n/a	n/a
Total	393,319	23,476	169,243	2,004	681	224	87	2,228	768	2.4	n/a	1.9	3.7	0.6
Conservation, Education, and Outreach														
FEI	No Direct Savings			0	0	3,490	2,022	3,490	2,022	No Direct Savings				
FEVI				0	0	392	234	392	234					
Total				0	0	3,882	2,256	3,882	2,256					
TOTAL PORTFOLIOS														
FEI	855,303	423,844	2,980,959	20,629	14,431	9,683	9,508	30,313	23,939	1.0	1.1	1.1	2.7	0.5
FEVI	193,137	73,989	303,116	2,630	2,274	1,046	1,377	3,674	3,651	0.9	1.1	1.2	3.1	0.4
Total	1,048,440	497,833	3,284,075	23,256	16,705	10,727	10,886	33,985	27,591	1.0	1.1	1.1	2.8	0.5

Notes:

- 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. Some “zero” values are a reflection of rounding to the \$000 expenditure level when expenditures were under \$500.
- Portfolio Level Activities are those activities for which the costs cannot be assigned to an individual Program Area such as: the program tracking tool, Enabling Activities not specifically directed at a single program area, 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, 2013 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 2013 were removed from the planned Program Area totals, resulting in revised annual gas savings and program expenditures where applicable.
 - In its 2012-2013 RRA Decision, the Commission approved 80 percent of the requested expenditures for new 2012-2013 programs in existing Program Areas in 2013. The planned annual gas savings and program expenditures for new programs were adjusted accordingly to 80 percent of what was listed in the 2012-2013 EEC Plan.
 - 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 (i.e. is not included in the planned values in Table 2-2). The Commission approved expenditures of \$2 million for this program for 2013 in the 2012-2013 RRA Decision. See Table 5-7 in Section 5 for details on the 2013 Furnace Replacement Pilot Program.
 - A number of Innovative Technologies Program Area activities implemented in 2013 were not listed in the 2012-2013 EEC Plan and therefore have no planned annual gas savings or program expenditures for 2013 (see section 8).

It is the view of the Companies that, as with prior annual reports, the savings reported herein continue to be 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 provincial, federal and some municipal 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 with Section 4(1.4) of the BC Demand-Side Measures Regulation.
- Conservation Education and Outreach – CEO activities had expenditures of \$2.3 million in 2013. 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 expenditures of \$0.6 million in 2013 for the Efficiency Partners Program and Codes and Standards work that contribute to energy savings that cannot currently be quantified. Since these savings are not 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;*

Specified demand side measures within the Companies portfolio include the FEU's Innovative Technologies programs (see Section 8), FEU's education and community engagement programs (see Section 10), and FEU's Codes and Standards related EEC activity (see Section 11). The Demand Side Measures Regulation defines how the Commission must consider these specified measures. Section 4(4) of the Demand Side Measures Regulation stipulates that the cost effectiveness of specified measures must be determined by the cost effectiveness of the portfolio as a whole. These measures are therefore not subject to the 33% MTRC 'impact cap'.

Additionally, these measures cannot be determined to be not-cost effective under the Utility Cost Test.

In summary, the Companies' 2013 EEC expenditures, including specified DSM, were cost-effective under the BC Demand-Side Measures Regulation.

2.1 Portfolio Level MTRC Calculation and Results

In 2013, the FEU met the conditions of the Province's Demand-Side Measures Regulation, achieving a portfolio MTRC value of 1.1 with just under 17 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 16.9% 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.

The Low Income Energy Conservation Assistance Program (ECAP) fails both the TRC and the MTRC tests. The low cost-effectiveness of the ECAP program was first identified in the 2012-2013 RRA. The Commission's decision stated, "The only individual existing program that fails the MTRC is the Energy Conservation Assistance Program (ECAP) in the Low Income Program Area. BCSEA and BCOAPO both support the ECAP program which the FEU submit should be accepted because the overall portfolio is cost effective. (Exhibit B-92, para. 10, BCOAPO Final Submission, p. 34, BCSEA Final Submission p. 8)." The Commission approved the full funding request for the Low Income Portfolio for the 2012-2013 periods. With the confidence of this decision, FEU has continued to invest in developing and offering ECAP to low income customers. Cost-effectiveness is an important objective that FEU strives to achieve in ECAP; however, it should not be considered in isolation when evaluating the importance and impact of Low Income programs.

Table 2-3: Programs Subject to MTRC and the Relative Proportion of 2013 Portfolio Spending

Measure	TRC	MTRC	Expenditure (\$000s) subject to cap	% of Portfolio Spending
ENERGY STAR® Domestic Hot Water "DWH" Technologies Program (FEI)	0.5	1.3	\$1,027	3.70%
ENERGY STAR® Domestic Hot Water "DWH" Technologies Program (FEVI)	0.5	1.3	\$360	1.30%
New Construction- EnerGuide 80 and Energy Efficiency Appliances (FEI)	0.5	1.3	\$578	2.10%
New Construction- EnerGuide 80 and Energy Efficiency Appliances (FEVI)	0.3	0.9	\$34	0.10%
Furnace Replacement Pilot Program (FEI)	0.6	1.4	\$1,947	7%
Furnace Replacement Pilot Program (FEVI)	0.4	0.9	\$121	0.40%
Energy Conservation Assistance Program (ECAP) (FEI)	0.3	0.7	\$522	1.90%
Energy Conservation Assistance Program (ECAP) (FEVI)	0.2	0.6	\$68	0.20%
Total	n/a	n/a	\$4,656	16.90%

2.2 Meeting Approved Spending Levels

The companies' EEC expenditures were within the approved levels. In its 2012-2013 RRA Decision, the Commission approved an EEC spending limit of just over \$36 million for 2013 with \$15 million of that included in rate base additions for 2013. Any remaining expenditures above this \$15 million up to the \$36 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. \$12.6 million in EEC expenditures were placed in this non-rate based deferral account in 2013.

In the 2014-2018 Performance Based Ratemaking Application⁵ (the "PBR application"), FEI is seeking approval to transfer the balance in the non-rate base EEC incentive deferral account as of December 31, 2013 to the rate base EEC deferral account on January 1, 2014. In the 2014-18 PBR application, it is proposed that the amounts will be amortized over 10 years beginning in 2014 in accordance with the existing approved amortization period for the EEC rate base deferral account. Approval of the PBR application is pending at the time of submission of this EEC Annual Report.

⁵ The 2014-18 Performance Based Ratemaking Application is the latest revenue requirement application filed to the Commission on June 10, 2013

The Companies managed their 2013 EEC activity within the funding limits set out by the Commission⁶ for each Program Area. Actual spending in each Program Area is shown in Table 2.2 and each of the Program Area Summary Tables (Sections 5 through 10).

2.3 EEC Incentives for AES/TES Deferral Account

Commission Order No. G-44-12 directed the FEU to hold all EEC incentives that are provided for Alternative Energy Services (AES) or Thermal Energy Services (TES) technologies for projects in which the Companies are a participant in a separate deferral account. Just under \$129 thousand was added to this account in 2013. This amount consisted of just over \$116 thousand for the Public Sector Energy Conservation Agreement (PSECA) Solar Incentive to the Delta School District No. 37 (applied for in prior years but paid out in 2013), and \$12.5 thousand for customer rebates on tankless water heaters in a residential development in which a geothermal space heating system was also being installed.

The Commission directed that the recovery of this deferral account will be left to the Panel which hears the next FEU revenue requirements application and noted that the next Panel would have the benefit of the AES Inquiry decision to help determine the appropriate treatment for these costs. In the 2014-2018 PBR Application, the FEU have requested to continue accumulating EEC incentive costs relating to AES/TES activities in this deferral account and will propose disposition of this account in its first Annual Review to be held in 2014.

2.4 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 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

⁶ Approved funding amounts for each Program Area can be found on page 169 of the Commission's decision on the 2012-2013 RRA (Decision and Order Number G-44-12).

of the Commercial Energy Efficiency programs are intended for use by owners of rental buildings, including the Energy Specialist Program and the Multi Unit Residential Building (MURB) Program (see Section 8). Additionally, the Low Income Energy Conservation Assistance Program (ECAP) and Energy Savings Kit (ESK) programs, as well as all Residential Energy Efficiency programs, are available to rental properties (see Sections 5 and 7).

In terms of education programs, the Companies funded a variety of initiatives for K-12 students, including Destination Conservation, BC Green Games, BC Lions Energy Champion School Assembly Presentations, the Vancouver Aquarium Energy Program, and Green Bricks. The Companies also funded post-secondary student engagement delivered by supporting behavior change initiatives targeting post-secondary institutions at University of British Columbia and on Vancouver Island (see Section 10).

2.5 Collaboration & Integration

The Companies continue to move towards collaboration and integration of EEC/DSM programming 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.

The FEU and BC Hydro continued to expand on their program and project collaborations in 2013 through their voluntary Memorandum of Understanding (“MOU”), the purpose of which is to develop enhanced utility integration in support of government legislation, policy and direction. The 3 year MOU, which was initially executed in July 2009, and extended for another 3 years in July 2012, provides shared objectives, areas of focus, guiding principles and administrative guidance for collaborative activity.

At the November 26, 2013 FortisBC Energy Efficiency and Conservation Advisory Group (EECAG) meeting, the FEU provided an update on the results of the BC Hydro collaboration programs and projects to date. Preliminary results presented indicated that there were 22 programs and projects currently operating in collaboration, representing approximately 405,000 GJs and 88 GWh in energy savings⁷ from collaboration inception to date. Total shared incremental cost savings as a result of all the collaboration programs and projects were estimated at approximately \$3.2 million. The FEU, FortisBC Inc. and BC Hydro also continue to experience additional benefits from their collaboration efforts, including streamlined application processes for customers, extended program reach and consistent and unified messaging resulting in improved energy literacy.

⁷ 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 directly attributable to the partnership.

2.6 Summary

The Companies' EEC portfolio met the goal of cost effectiveness with a MTRC value of 1.1 in 2013. 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.

3 FUNDING TRANSFERS

There were no funding transfers between Program Areas in 2013.

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 engage the Energy Efficiency and Conservation Advisory Group (EECAG). The purpose of this advisory body is to provide insight and feedback on the Companies' portfolio of 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 relevant subject matter expertise, representation of a common interest shared by stakeholders, or representation of a particular organization/group and/or interest. This includes, but is not limited to, governments, regions, First Nations organizations, customers, suppliers, industries, 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 program design and implementation and develop positive working relationships with stakeholders. EECAG input continues to be instrumental as the Companies move forward with EEC activities, helping to ensure that efforts are aligned with the interests and suggestions of stakeholders.

4.2 Summary of 2013 Workshops

EECAG workshops provide a forum for stakeholders to learn about EEC programs and engage in constructive dialogue with the Companies. For 2013, the Companies hosted a spring conference call, a summer web-based conference call, and fall in-person workshop held on November 27 in Vancouver. These activities were well attended by EECAG members as well as occasional alternates and guests. EECAG members were also given the opportunity to attend an official stakeholder review of the 2014-18 EEC Plan held at the BCUC offices on May 15, 2013. This workshop related to the 2014-2018 PBR Plan on the topics of EEC and the Demand Forecast. The workshop was well attended by members of the EECAG, along with many other interested stakeholders. Additionally, copies of materials and minutes for these meetings were distributed to EECAG members and other workshop attendees.

4.2.1 SPRING CONFERENCE CALL

During the May 1st conference call, the EECAG was presented with an overview of the 2014-2018 EEC Plan, and given the opportunity to ask questions and provide their initial input and comments prior to the official stakeholder review of the Plan held at the BCUC offices on May 15, 2013. The EECAG Independent Facilitator was introduced at this meeting, and took over

facilitation duties. The conference call resulted in a number of questions and answers about the EEC Plan, with the conclusion that those in attendance did not see a need for any major course corrections with regard to that plan.

The conference call format was selected for this special EECAG session because it focused on a single, time-sensitive discussion: review of the 2014-2018 EEC Plan. The conference call format, which was suggested by EECAG as an alternative to an in-person workshop, allowed for timely discussion with minimum disruption to members' busy schedules, but at the same time allowed for detailed feedback on this important item. It also had a secondary benefit of testing out the effectiveness of this type of meeting format for future use.

4.2.2 SUMMER WEB-BASED CONFERENCE CALL

A brief web-based conference discussion was called on July 17th in order to discuss upcoming EECAG activities and to seek input on the agenda for the in-person Fall Workshop. This webinar resulted in a list of potential topics that are of interest to the EECAG membership, some of which were covered in the fall workshop, and others that will be addressed in future workshops.

The Independent Facilitator also gave an update on the EECAG membership review and solicited EECAG member feedback on any missing perspectives or expertise that could add value to the EECAG.

4.2.3 FALL IN-PERSON WORKSHOP

The fall workshop provided EEC program area updates for 2013, and sought input on two policy areas: potential options for addressing the impacts to the cost effectiveness of FortisBC EEC programs resulting from a change in the value of the Zero Emissions Energy Alternative (ZEEA); and potential options to address the limitations to Low Income EEC programming due to the current definition of "low income" in BC's Demand Side Regulations.

With regards to the discussion on potential changes to the value of the ZEEA, each group reported agreement that there should be a change, but presented a variety of suggested alternatives, including:

- Changing the ZEEA value to make it reflective of the long-run marginal cost (LRMC) of Carbon or the true avoided cost of taking natural gas out of the ground and burning it.
- Changing the ZEEA value to make it reflective of the LRMC of bio-methane.
- Changing the 0.5 adjustment factor in applying the LRMC of clean electricity, with the added suggestion that a different adjustment factor could be used to evaluate programs for different participant groups—programs aimed at low income, First Nations, seniors groups, etc.
- Adding more programs (low-income) to the "Specified DSM" list, exempting them from the TRC/MTRC tests.

- Stipulating a % of EEC projects that should go forward in a portfolio despite failing cost effectiveness tests.

With regards to potential options to address the limitations to Low Income EEC programming due to the current definition of “low income” in BC’s Demand Side Regulations, groups were presented with three viable solutions that might help to overcome the challenge to low-income programming and were asked to discuss and comment on these options. Groups were also invited to present alternative solutions. These solutions included:

- Change the classification of Low Income programs in the Demand Side Regulation from “Adequacy” to “Specified”. By making Low Income programs “Specified”, the costs and benefits of the program are rolled up to the portfolio level and therefore the individual program is not singled out.
- Changing the definition of “low Income” from one that is based on the LICO national standard to a definition based on a higher threshold (i.e. LICO plus 35%), in order to have a more realistic definition of who qualifies as low income.
- Include Housing Societies, Co-op Housing, and First Nations housing (and other non-profit housing units). This is a suggestion that allows more entities to be classified as “low income.”

There was general support for the suggestions discussed by each group. Participants generally agreed that universality of access to EEC programs was a value to be preserved in overall EEC programming.

EECAG input garnered through these discussions will inform the Companies’ potential proposals for regulatory change, which will be reported on in future EECAG workshops. It was also recognized that these are complex, but important policy issues. The Companies will strive for clarity of understanding in presenting and discussing similar issues in the future.

Additional updates were presented on 2012-13 program impact evaluations and the HVAC Systems Occupancy Sensor Pilot Program. There were no funding transfers to report to the EECAG for 2013. For the discussion of 2012-13 program impact evaluations, the EECAG was provided with executive summaries on the completed 2013 program impact evaluations prior to the workshop. The Companies will continue to provide summaries of completed program impact evaluations and will make the full evaluations available upon request. Presentations on these topics were followed by a question and answer period and discussion to solicit input for future consideration.

4.3 Accomplishments

In addition to enabling general constructive dialogue with stakeholders, the 2013 EECAG activities resulted in several accomplishments. These are summarized below.

4.3.1 INDEPENDENT FACILITATOR

In 2012, EECAG members expressed their interest in seeing an independent third party play a role in facilitating group activities. The Companies followed through and for the 2013 spring conference-call the representative from the Fraser Basin Council began in this role. The responsibilities of the Independent Facilitator include acting as a facilitator at EECAG meetings and advising the Companies on EECAG activity plans, membership, reporting and other activities as needed.

Collaboration with the Independent Facilitator was deemed beneficial for 2013. The Independent Facilitator worked with EECAG members and the Companies to help develop meeting agendas and discussion formats that would be of interest to the EECAG membership, and solicit useful feedback for the Companies. The Independent Facilitator also assisted with the design of engagement activities that would provide opportunities for targeted input from EECAG members. Feedback from the EECAG membership on the quality of meeting facilitation was wholly positive.

4.3.2 FORMALIZING THE EECAG TERMS OF REFERENCE

The Terms of Reference that was developed through extensive consultation with the EECAG membership in 2011 and 2012 was finalized in Q1 2013. The ToR guides EECAG activities and membership. At the fall workshop, EECAG members were asked to voluntarily sign the ToR to acknowledge their acceptance of the guiding principles of the EECAG and build 'ownership' of the ToR. A signature sheet was circulated and the majority of members at the workshop signed it. The signature sheet will be circulated at the next EECAG workshop for members who were not present, or for those that may have missed the opportunity to sign it at the Fall 2013 workshop.

4.3.3 MEMBERSHIP REVIEW

As laid out in the EECAG ToR, the Independent Facilitator has the responsibility to conduct a membership review on a periodic basis. The purpose of the review is to assess the adequacy and appropriateness of representation on the EECAG, give existing inactive or disinterested members (if any) the opportunity to step down; and explore the potential for additions of new members to the EECAG as a means to bring new insights and ideas to the work of the group. At the suggestion of the EECAG, such a review was conducted over the Summer of 2013.

Prior to the July webinar, EECAG Members were asked to complete an online survey to convey the perspectives and expertise they bring to the table, and/or interests they represent on the EECAG. Survey results were used to help identify gaps in representation. Members were also invited to comment on what groups, interests, and expertise would make positive additions to the EECAG. Current members were also given the opportunity to step down for any reason.

The review indicated that all existing members continue to be interested in the work of the EECAG and wished to carry on as members. Individuals unable to attend a specific meeting often send alternates to attend in their place. In cases where certain members were no longer

actively engaged in EECAG, it was typically because they had left their organization, or had moved to a position within their organization that did not link with the work of EECAG.

Based on the membership review results, the Companies made the following additions to the EECAG in order to add valuable insights to EECAG activities:

- A representative from the Aboriginal Housing Management Association to provide the perspective of an aboriginal organization with a First Nations housing focus and a province-wide mandate that links to the EECAG ToR;
- A representative from the First Nations Energy and Mining Council to provide the perspective of province-wide First Nations energy efficiency and conservation issues;
- A representative from the Union of BC Municipalities to provide enhanced local government participation by way of an organization that reflects interests/perspectives from all over BC;
- A representative from BCIT's Sustainable Energy Manager Program to provide the perspectives of a relevant academic institution; and,
- A representative that reflects the views of a typical residential ratepayer/homeowner.

4.4 Feedback & Lessons Learned

In addition to input 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 2013 EECAG workshops was largely positive. Feedback was solicited verbally at the spring conference call and summer web-based call conference. For these activities, feedback was largely focused on technical issues with the call and web format and these comments will be taken into consideration to improve using these formats in the future.

At the Fall Workshop, feedback was solicited through an evaluation form. 93 percent of evaluation form respondents indicated that they found the workshop interactive and engaging, that they had sufficient opportunity to ask questions and provide input, that the material presented was of interest, and that they feel their participation in the EECAG is valued and their input is being considered. It was clear that most EECAG members valued the opportunity to discuss fundamental policy questions facing EEC programming. Realising the complexity of many EEC issues, the Companies will strive to clearly communicate objectives of all EECAG discussions.

While feedback was again largely positive (80% positive response) in terms of FortisBC explaining how EECAG input is used, written comments indicated more could be done to inform and update the EECAG on how inputs from the group are used. The Companies take this

feedback seriously and are making improvements for 2014 in reporting back this important information to the EECAG.

With regards to designing EECAG activities, lessons learned from prior meetings have led the Companies to continually enhance their efforts, in consultation with the Independent Facilitator, to design future meetings in ways that provide information to the EECAG at the appropriate level of detail while also maximizing opportunities for discussion and provision of input.

The diverse groups represented by the EECAG are interested in many different aspects of EEC programing. This diversity means presenting topics of collective interest is challenging. Nevertheless, the Companies are confident that their ongoing efforts to solicit input on the EECAG agenda and topics of interest will continue to make the EECAG a valuable experience for members and a very helpful source of input and ideas to help refine EEC programs.

5 RESIDENTIAL ENERGY EFFICIENCY PROGRAM AREA

5.1 Overview

The Residential Energy Efficiency Program Area cost effectively reduced annual natural gas consumption by over 140,000 GJ, achieving an overall TRC of 0.9 and MTRC of 1.2 in 2013. The Residential Program Area expenditures were closely aligned with approved expenditures of \$10.5 Million and within 95% of projected annual gas savings. FortisBC received national recognition for their residential programs, winning the NRCAN 2013 ENERGY STAR® Market Transformation Award,⁸ Regional Utility in recognition of FortisBC's ENERGY STAR water heater program and pilots, for their impact on advancing energy efficiency. The communications strategy for the programs received North American recognition, winning the 2013 Annual eSource Award for 'Best Residential Print Ad' for the "Just Like Family" campaign that promoted furnaces in the Spring campaign coinciding with program launch.

Table 5-1 summarizes the projected and actual expenditures for the Residential Energy Efficiency Program Area in 2013, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC, MTRC and other cost-effectiveness test results. Enabling Activities' expenditures were included in the Residential Program Area in 2013. However, due to the importance of these activities in supporting all 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 manufactured homes.⁹ 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 NRCAN 2013 ENERGY STAR® Market Transformation Awards News Release:
<http://www.nrcan.gc.ca/media-room/news-release/2013/13771>

⁹ 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: 2013 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	2013 Actual		Incentives		Non-Incentives		All Spending		TRC	MTRC	Utility	Participant	RIM
				2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual					
Non Program Specific Expenses														
FEI				0	0	0	167	0	167					
FEVI	No Direct Savings			0	0	0	29	0	29			No Direct Savings		
Total				0	0	0	195	0	195					
ENERGY STAR® Domestic Hot Water "DHW" Technologies														
FEI	16,200	11,596	119,867	972	823	314	203	1,286	1,027	0.5	1.3	1.1	1.1	0.4
FEVI	1,800	4,513	47,592	108	313	35	47	143	360	0.5	1.3	1.2	1.6	0.3
Total	18,000	16,109	167,459	1,080	1,136	350	251	1,430	1,386					
Enerchoice Fireplace Program														
FEI	12,555	20,993	198,157	486	1,062	267	250	753	1,312	2.7	n/a	1.4	8.4	0.4
FEVI	2,945	7,018	65,695	114	353	63	71	177	424	2.1	n/a	1.4	12.6	0.3
Total	15,500	28,011	263,852	600	1,415	330	321	930	1,736					
"Give your Furnace/Fireplace Some TLC" – Service Campaign														
FEI				394	290	169	129	563	419					
FEVI	No Direct Savings			44	68	19	16	63	84			No Direct Savings		
Total				438	358	188	145	626	503					
LiveSmart BC - April 1, 2012 through March 31, 2013														
FEI	84,240	65,850	753,964	2,147	2,720	575	201	2,722	2,921	1.1	n/a	2.5	1.3	0.6
FEVI	9,360	3,169	36,528	239	121	64	20	303	141	1.2	n/a	2.5	2.4	0.4
Total	93,600	69,019	790,492	2,386	2,841	639	221	3,025	3,062					
ENERGY STAR® Washers and Other Measures for DHW Conservation														
FEI	9,180	6,349	57,437	306	397	72	43	378	439	1.6	n/a	1.2	2.6	0.4
FEVI	1,020	500	4,488	34	31	8	7	42	38	1.9	n/a	1.2	3.1	0.3
Total	10,200	6,849	61,925	340	428	80	50	421	478					
Furnace Replacement Pilot Program														
FEI	0	15,892	166,523	1,575	1,650	225	298	1,800	1,947	0.7	1.4	0.8	1.3	0.4
FEVI	0	797	8,276	175	84	25	37	200	121	0.4	1.0	0.6	1.7	0.2
Total	0	16,689	174,799	1,750	1,734	250	335	2,000	2,068					
New Construction - EnerGuide 80 and Energy Efficient Appliances														
FEI	8,915	3,587	41,817	481	442	144	136	625	578	0.5	1.3	0.7	1.3	0.3
FEVI	2,322	139	1,649	115	15	17	19	132	34	0.3	0.9	0.5	1.8	0.2
Total	11,237	3,726	43,466	596	457	161	156	757	613					
Customer Engagement Tool														
FEI				0	0	840	5	840	5					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	840	5	840	5					
Enabling Activities														
FEI				0	0	450	444	450	444					
FEVI	No Direct Savings			0	0	50	134	50	134			No Direct Savings		
Total				0	0	500	578	500	578					
On-Bill Financing														
FEI				0	0	0	26	0	26					
FEVI	No Direct Savings			0	0	0	0	0	0			No Direct Savings		
Total				0	0	0	26	0	26					
ALL PROGRAMS														
FEI	131,090	124,267	1,337,765	6,360	7,383	3,056	1,901	9,418	9,285	0.9	1.2	1.4	1.8	0.5
FEVI	17,447	16,136	164,228	830	985	281	381	1,111	1,366	0.9	1.2	1.1	3.1	0.3
Total	148,537	140,403	1,501,993	7,190	8,368	3,337	2,282	10,528	10,650	0.9	1.2	1.3	1.9	0.4

Notes:

- 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 gas commodity 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. Without the MTRC, the overall 2013 Residential Program Area TRC was 0.9 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 Home – EnerGuide 80 program; and the Furnace Replacement Pilot program.

5.3 2013 Residential Energy Efficiency Programs

Tables 5-2 through 5-9 outline the specific Residential Energy Efficiency programs undertaken in 2013, including program and measure descriptions and a breakdown of non-incentive spending.

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

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 introduced 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- Customer	\$200	\$400		\$500		\$500		\$1,000		
Incentive - Dealer				\$50						
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 communications with trades 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 2010 Conservation Potential Review & 2012 REUS Study Participant feedback on application forms									
Free Rider Rate & Source	10% Weighted average based on estimates of market penetration of total water heater market from manufacturers and CANETA									
Participants	2013		2013 Actual							
	Service Region	Total Projected	ESTAR 0.67 EF Storage Tank		Non-Condensing Tankless		Condensing Tankless & Hybrids		Condensing Storage Tank	
			Retrofit	New Construction	Retrofit	New Construction	Retrofit	New Construction	Retrofit	New Construction
	FEI	3,631	1,232	6	93	15	909	90	28	4
	FEVI	408	149	8	130	39	373	36	9	0
	FEW	41	0	0	0	0	2	0	0	0
	Total	4,080	1,381	14	223	54	1,284	126	37	4
Expenditures (\$,000s)	Incentives		Non-Incentives				Total			
	Service Region		Dealer Incentives	Admin	Communication	Research & Evaluation				
	FEI	822	108	39	49	8	1,026			
	FEVI	313	34	4	8	1	360			
	FEW	1	0	0	0	0	1			
	Total	1,136	142	42	57	9	1,386			

Notes:

- ENERGY STAR 0.67 EF water heater storage tanks are demonstrating significant market adoption. With this technology having been recently introduced in market (September, 2012) the program uptake of 1400 participants in 2013 is a significant achievement.
- Dealer incentives of \$50 per participant are broken out as non-incentive expenditures

Table 5-3: EnerChoice Fireplace Program

Program Description	This program provides rebates to customers that install an EnerChoice qualified energy efficient 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 ambience and 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 - Customer	\$300						
Incentive - Dealer	\$50						
Savings Per Participant	7.8 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 & 2012 REUS Study Participant feedback on application forms						
Free Rider Rate & Source	24% - Findings of previous programs. In this competitive industry it is challenging to access market share data.						
Participants	2013 Projected		2013 Actual				
	Service Region		Retrofit	New	Total		
	FEI	1,600	3,394	137	3,531		
	FEVI	380	1,098	79	1,177		
	FEW	20	8	0	8		
	Total	2,000	4,500	216	4,716		
Expenditures (\$,000s)	Incentives		Non-Incentives		Total		
	Service Region		Dealer	Admin	Communication	Research &	
	FEI	1,059	170	33	47	0	1,309
	FEVI	353	55	8	8	0	424
	FEW	2	0	0	0	0	2
	Total	1,415	225	42	55	0	1,736

Notes:

- EnerChoice program uptake exceeded forecasted participation
- Dealer incentives of \$50 per participant are 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.																																								
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	<table><tr><td>Service Region</td><td>2013 Projected</td><td>2013 Actual</td></tr><tr><td>FEI</td><td>15,575</td><td>11,598</td></tr><tr><td>FEVI</td><td>1,750</td><td>2,711</td></tr><tr><td>FEW</td><td>175</td><td>0</td></tr><tr><td>Total</td><td>17,500</td><td>14,309</td></tr></table>					Service Region	2013 Projected	2013 Actual	FEI	15,575	11,598	FEVI	1,750	2,711	FEW	175	0	Total	17,500	14,309																					
Service Region	2013 Projected	2013 Actual																																							
FEI	15,575	11,598																																							
FEVI	1,750	2,711																																							
FEW	175	0																																							
Total	17,500	14,309																																							
Expenditures (\$,000s)	<table><tr><td></td><td></td><td colspan="3">Non-Incentives</td><td></td></tr><tr><td>Service Region</td><td>Incentives</td><td>Admin</td><td>Communication</td><td>Research & Evaluation</td><td>Total</td></tr><tr><td>FEI</td><td>290</td><td>90</td><td>24</td><td>15</td><td>419</td></tr><tr><td>FEVI</td><td>68</td><td>10</td><td>4</td><td>2</td><td>84</td></tr><tr><td>FEW</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Total</td><td>358</td><td>100</td><td>28</td><td>17</td><td>503</td></tr></table>							Non-Incentives				Service Region	Incentives	Admin	Communication	Research & Evaluation	Total	FEI	290	90	24	15	419	FEVI	68	10	4	2	84	FEW	0	0	0	0	0	Total	358	100	28	17	503
		Non-Incentives																																							
Service Region	Incentives	Admin	Communication	Research & Evaluation	Total																																				
FEI	290	90	24	15	419																																				
FEVI	68	10	4	2	84																																				
FEW	0	0	0	0	0																																				
Total	358	100	28	17	503																																				

Notes:

- The 2013 TLC program achieved 80% of target because the program duration was one month shorter than the 2012 iteration of the program in order to align with the Furnace Replacement Pilot Program timelines.

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

Program Description	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 and Doors	Certified Installation
Incremental Measure Cost	\$989	\$1,357	\$1,186	\$1,398	\$684	\$35/ window	N/A
Incentive Amount - FBC	\$279	\$297	\$392	\$398	\$168	\$27	\$50
Incentive Amount - LiveSmart	\$30	\$179	\$257	\$622	\$209	\$28	\$50
Savings Per Participant (GJ)	6.4 GJ	11.7 GJ	9.4 GJ	20.8 GJ	5.9 GJ	0.8 GJ	N/A
Measure Life & Source	(15 years for Air Sealing, 20 years for Insulation, and 20 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 and 2012 REUS Study Dunskey Energy Consulting, Hot 2000 Modeling 2012, 2013 Evaluation of the LiveSmart BC Efficiency Incentive Program, (F2009 - F2011) BCHydro, 2013						
Participants	Service Region	2013- Projected	2013 Customers				
	FEI	8,010	5714				
	FEVI	900	263				
	FEW	90	0				
	Total	9,000	5,977				
Expenditures (\$,000s)	Non-Incentive Expenditures						Total
	Service Region	Building Envelope Incentives	Certified Installation	Admin	Communication	Research & Evaluation	
	FEI	2,613	107	104	65	28	2,921
	FEVI	117	4	12	8	1	141
	FEW	0	0	0	0	0	0
	Total	2,733	111	116	73	30	3,062

Notes:

- This program is a collaboration between FEU, Ministry of Energy, Mines and Natural Gas, BC Hydro PowerSmart and FortisBC Inc
- The results in this table represent invoices received in 2013 for retrofits that occurred between April 1, 2012 and March 31, 2013.
- The FEU incentive is supplemented by a Ministry of Energy, Mines and Natural Gas incentive.
- Measure costs were based on market analysis provided by Dunskey Energy Consulting.
- Energy savings estimates sourced both the BC Hydro Evaluation of the LiveSmart BC Efficiency Incentive Program based on billing consumption data of 2009-2011 participants and Dunskey Energy Consulting Hot 2000 estimates, which are more representative of the installed measures in the 2012 -2013 iteration of the program.

- Partners collaborated on developing a BC Home Energy Performance Industry strategy and a BC Standards of Practice Guide for Air Sealing and Insulation Retrofits

Table 5-6: 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	2013 Projected	2013 Actual			
	FEI	6,052	7,936			
	FEVI	680	625			
	FEW	68	0			
	Total	6,800	8,561			
Expenditures (\$,000s)	Non-Incentive Expenditures					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	397	29	14	0	439
	FEVI	31	4	3	0	38
	FEW	0	0	0	0	0
	Total	428	33	17	0	478

Notes:

- The FEU has collaborated with BC Hydro Power Smart and FortisBC Inc. on this program.

Table 5-7: Furnace Replacement Pilot Program

Program Description	The Furnace Replacement Pilot Program (FRPP) 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 through a cost effective program design for future years.						
Target Market	Residential customers						
New vs Retrofit	Retrofit						
Eligible Measures / % of participants	Standard efficiency (76%)	Mid - Efficiency (21%)	Boilers (3%)				
Incremental Measure Cost	\$1,856	\$1,856	\$3,796				
Incentive Amount	\$800						
Savings Per Participant	10.3	5.7	9.2				
Measure Life & Source	Furnace - 18 years and Boiler - 18 years -Navigant Consulting report, BC Hydro Power Smart QA						
Free Rider Rate & Source	18% - Sampson and Associates based on information gathered in Customer Surveys for 2012 FRPP						
Sources of Assumptions	2012 Furnace Replacement Pilot Program Evaluation - Preliminary Report, by Habart and Associates. 2013 Furnace Replacement Pilot Program Evaluation - Preliminary Analysis, by Habart and Associates.						
Participants	Service Region	2013 Projected	2013 Actual				
	FEI	0	2,062				
	FEVI	0	105				
	FEW	0	0				
	Total	2,000	2,167				
Expenditures (\$,000s)	Service Region	Incentives	Non-Incentives				Total
			Dealer Incentive	Admin	Communication	Research & Evaluation	
	FEI	1,650	83	51	22	142	1,947
	FEVI	84	5	6	4	22	121
	FEW	0	0	0	0	0	0
	Total	1,734	88	56	26	164	2,068

Notes:

- Program budget was 3% over target with over 2100 participants in the 2013 Furnace Replacement Pilot Program which was run outside of heating season to reduce the incidence of emergency replacements.
- The promotional period consisted of a requirement for customers to obtain a pre-qualification code from April 22, 2013 through June 30, 2013 with furnace purchase and installation by August 30, 2013.
- The preliminary analysis of the 2013 pilot resulted in minor updates to cost effectiveness inputs. Although remaining life of the appliance increased by about 12%, energy savings only increased by 3%. However, FEU believe that the off-season early replacement program provides advantages in supporting early rather than emergency replacement as evidenced by the noted extension of remaining life.

Table 5-8: New Construction – EnerGuide 80

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 updates to the BC Building Code (2012) 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, with FEU providing incentives only for primarily gas-heated homes. Although promoted within the New Home program, water heaters and fireplaces are recorded in their respective individual programs.			
Target Market	Builders / homeowner 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	\$3,880	\$1,166	\$1,350	
Incentives - BCHydro	\$1500 + \$500 from BCHydro	\$100 + \$100 from BCHydro	\$1,000	
Incentives - Power Sense	\$2,000 from FEU	N/A		
Savings Per Participant	16.2 GJs	4.5 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, Dunsky Energy Consulting, Consultations with BCHydro and FortisBC PowerSense B.C. Building Code (2014) & New Homes Program , November, 2013. Cooper and Habart			
Free Rider Rate & Source	10% - Further analysis will be conducted in 2014.			
Participants	Service Region	2013 Projected	2013 Actual	
			EG80 SFD EG80 Rowhome Boiler	
	FEI	1,087	138 87 208	
	FEVI	223	8 0 3	
	FEW	0	0 0 0	
	Total	1,310	146 87 211	
Expenditures (\$,000s)	Service Region	Incentives	Non-Incentive Expenditures	
			Program Communication Research & Administration Evaluation	Total
	FEI	442	64 36 37	578
	FEVI	15	6 7 7	34
	FEW	0	0 0 0	0
	Total	457	70 42 44	613

Notes:

- The FEU has collaborated with BC Hydro Power Smart and FortisBC Inc. on this program.
- Energy savings and participant costs were derived from a 2013 study, *BC Building Code (2014) & New Homes Program*, by Cooper and Habart. This study was co-developed with electric utilities, , BC Hydro and FortisBC Inc. More in-depth analysis of energy savings and participant costs, and analysis on the attribution of savings for codes and standards will be conducted in 2014.

Table 5-9: On-Bill Financing Pilot Program

Program Description	A loan of up to \$10,000 to implement energy efficient measures was available in the pilot program 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	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	2013 Projected	2013 Actual			
	FEI	4	1			
	FEVI	n/a	n/a			
	FEW	n/a	n/a			
	Total	4	0			
Expenditures (\$,000)	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	24	2	0	26
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	24	2	0	26

Notes:

- This program was a collaboration with FortisBC PowerSense

5.4 2013 Residential Energy Efficiency Programs Planned But Not Launched

5.4.1 CUSTOMER ENGAGEMENT TOOL FOR CONSERVATION BEHAVIOUR

The Customer Engagement Tool for Conservation Behaviour rollout was delayed until 2014. Vendor selection was initiated in 2013 with an RFP in market in early 2014. Project launch is intended to coincide with the Customer Portal Project.

5.5 2013 Residential Energy Efficiency Program Closures

5.5.1 A FOCUS ON LOW FLOW FIXTURES WILL REPLACE ENERGY STAR WASHER PROGRAM

Because the clothes washer market has largely been transformed, thereby resulting in a reduced opportunity to capture natural gas savings, FEU will limit investment in ENERGY STAR® washers to short term promotions in collaboration with BC Hydro. Hot water conservation initiatives will focus on partnership opportunities for the installation of low flow fixtures and continued support for the ENERGY STAR water heater program.

5.6 Summary

Residential Energy Efficiency Program Area activity in 2013 resulted in over 140,000 GJ/year of natural gas savings. Residential Energy Efficiency programs enabled customers to upgrade appliances and capture energy savings, supported the introduction of new provincial regulations and continued to build on 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 2013. The Companies saw continued success with the Energy Savings Kit (“ESK”) Program, implemented another successful Residential Energy Efficiency Works (“REnEW”) session, and saw significant participation in the first full year of the Energy Conservation Assistance Program (“ECAP”). All three of these programs are partnerships with BC Hydro. The ESK program is also a partnership with FortisBC PowerSense.

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 2009 to enable energy efficiency in low income households. In 2013, the Companies invested \$620 thousand of this funding, primarily in retrofits in low income homes, which is not included in the spending amounts shown in Table 6-1. The remaining \$2.3M will be invested over the next 2-3 years.

Table 6-1 summarizes the projected and actual expenditures for the Low Income Program Area in 2013, including incentive and non-incentive spending, annual and NPV gas savings, as well as the cost-effectiveness test results. The TRC and MTRC 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: 2013 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	2013		Incentives		Non-Incentives		All Spending		TRC	MTRC	Utility	Participant	RIM
				2012-2013	2013	2012-2013	2013	2012-2013	2013					
	EEC Plan	Actual		EEC Plan	Actual	EEC Plan	Actual	EEC Plan	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					
Residential Energy Efficiency Works (REnEW)														
FEI				0	0	145	87	145	87					
FEVI	No Direct Savings			0	0	40	0	40	0				No Direct Savings	
Total				0	0	185	87	185	87					
Energy Saving Kit (ESK)														
FEI	14,164	11,828	72,188	165	146	135	62	300	207	4.6	n/a	3.7	n/a	0.8
FEVI	1,574	3,424	20,791	18	40	16	7	34	47	7.6	n/a	5.8	n/a	0.4
Total	15,738	15,252	92,979	183	186	151	68	334	255					
Energy Conservation Assistance Program (ECAP)														
FEI	13,005	1,841	13,275	2,588	278	1,418	244	4,005	522	0.3	0.7	0.3	n/a	0.2
FEVI	1,445	194	1,392	288	38	158	30	445	68	0.2	0.6	0.2	n/a	0.2
Total	14,450	2,035	14,667	2,875	316	1,575	273	4,450	589					
ALL PROGRAMS														
FEI	27,169	13,669	85,463	2,753	423	1,698	400	4,450	824	1.2	1.5	1.1	n/a	0.5
FEVI	3,019	3,618	22,183	306	79	214	36	519	115	2.8	3.0	2.5	n/a	0.4
Total	30,188	17,287	107,646	3,058	502	1,911	436	4,969	939	1.4	1.6	1.3	n/a	0.5

6.2 2013 Low Income Programs

Tables 6-2 through 6-4 outline the specific Low Income programs undertaken in 2013, 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.					
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	2013 Projected	2013 Actual			
	FEI	43	11			
	FEVI	12	0			
	FEW	0	0			
	Total	55	11			
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	87	0	0	87
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	87	0	0	87

Notes:

- REnEW is a collaborative partnership with BC Hydro Power Smart
- In 2013, REnEW was delivered in Kelowna by the John Howard Society of the Central and South Okanagan.
- Within three months of completing the training, 46% of the participants were either employed or engaged with further training.

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 and FortisBC Inc.					
Target Market	Low Income Residential Customers					
New vs Retrofit	Retrofit					
Eligible Measures	Faucet aerators, Low Flow Showerhead, Water Heater Pipe Wrap, Caulking, Draft proofing Tape, Outlet Gaskets, Window Film					
Incremental Measure Cost	\$20.85					
Incentive Amount	\$20.85 - Since the program is free to participants, the incentive equals the incremental cost					
Savings Per Participant	2.2 GJ					
Measure Life & Source	8 years					
Free Rider Rate & Source	27%					
Participants	Service Region	2013 Projected	2013 Actual			
	FEI	16,287	7,172			
	FEVI	1,830	2,547			
	FEW	183	9			
	Total	18,300	9,728			
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	146	37	25	0	207
	FEVI	40	5	2	0	47
	FEW	0	0	0	0	0
	Total	186	42	26	0	255

Notes:

- FEU partners with both BC Hydro Power Smart and FortisBC Inc. on the ESK program.

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, through a third-party program delivery agent, 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	\$343 - Average based on the full cost of all gas measures installed in gas heated homes (includes both Basic and Advanced Streams.)					
Incentive Amount	\$343 - Since the program is free to participants, the incentive equals the incremental cost					
Savings Per Participant	2.3 GJ					
Measure Life & Source	10 years					
Free Rider Rate & Source	4%					
Participants	Service Region	2013 Projected	2013 Actual			
	FEI	2,225	834			
	FEVI	250	88			
	FEW	25	0			
	Total	2,500	922			
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	278	65	43	136	522
	FEVI	38	4	10	16	68
	FEW	0	0	0	0	0
	Total	316	69	53	152	589

Notes:

- In 2013 there was substantial development work performed on the Energy Conservation Assistance Program which had a negative impact on cost-effectiveness results. While development costs are an important component of direct install programs, it is expected that future year's development costs will be lower which will improve cost-effectiveness performance.
- ECAP is a partnership between BC Hydro Power Smart and FortisBC Inc. and also receives funding through the MEM Low Income Partnership Grant. In 2014 FEU will partner with FortisBC PowerSense as well.

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 been achieved through the launch of the ESK Program, the REnEW Program and ECAP. Continued increase in investment and a deeper level of savings for our low income customers is expected for 2014 as we bring High Efficiency Furnaces in to the bundle of measures included in ECAP.

7 COMMERCIAL ENERGY EFFICIENCY PROGRAM AREA

7.1 Overview

In 2013, Commercial Energy Efficiency programs continued to encourage commercial customers to reduce their overall consumption of natural gas and their associated energy costs. The Commercial Energy Efficiency Program Area reduced annual natural gas consumption by over 300,000 GJs and achieved an overall TRC of 1.9. Over \$7.29 Million was invested in Commercial Energy Efficiency, of which over 90% was incentive spending. 2013 also saw the launch of the Commercial Custom Design Program for retrofit projects - a program that promises to significantly enhance the Companies' ability to help customers implement cost effective natural gas saving measures in subsequent years.

Table 7-1 summarizes the projected and actual expenditures for the Commercial Energy Efficiency Program Area in 2013, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost-effectiveness test results.

Table 7-1: 2013 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	2013 Actual		Incentives		Non-Incentives		All Spending		TRC	MTRC	Utility	Participant	RIM
				2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual					
Non Program Specific Expenses														
FEI				0	0	0	249	0	249					
FEVI	No Direct Savings			0	0	0	28	0	28			No Direct Savings		
Total				0	0	0	276	0	276					
Efficient Boiler Program														
New Construction														
FEI	28,863	5,097	56,431	677	339	37	2	714	341	1.6	n/a	1.5	2.7	0.5
FEVI	3,207	458	0	75	58	4	0	79	58	1.5	n/a	0.8	4.6	0.3
Retrofit														
FEI	79,050	85,258	943,908	2,100	2,883	195	29	2,295	2,911	3.5	n/a	3.0	4.9	0.6
FEVI	8,670	13,432	0	234	471	22	7	256	478	3.3	n/a	2.9	3.3	0.8
Total	119,790	104,245	1,000,339	3,086	3,750	258	38	3,344	3,788					
Efficient Commercial Water Heater Program														
New Construction														
FEI	800	599	6,626	17	24	2	1	19	25	3.3	n/a	1.7	8.0	0.4
FEVI	89	0	0	3	0	0	0	3	0	n/a	n/a	n/a	n/a	n/a
Retrofit														
FEI	6,230	4,554	50,422	156	93	23	16	179	109	1.0	n/a	3.0	2.0	0.5
FEVI	1,068	2,692	0	27	56	4	2	31	58	1.2	n/a	3.3	1.5	0.7
Total	8,187	7,845	57,048	203	173	29	20	232	193					
Commercial Energy Assessment Program														
FEI	55,632	74,542	0	143	324	45	11	188	335	2.2	n/a	1.4	4.0	0.4
FEVI	18,544	13,322	0	48	69	15	5	63	74	1.7	n/a	1.2	5.6	0.2
Total	74,176	87,864	0	191	393	60	16	251	409					
Spray Valve Program														
New Construction														
FEI	28	0	0	0	0	0	0	1	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	428	1,780	42	2	2	0	44	3	6.1	n/a	5.5	2.4	2.4
FEVI	333	48	197	5	0	0	0	5	0	6.1	n/a	5.5	16.2	0.4
Total	3,294	476	1,977	47	3	2	0	50	3					
Commercial Custom Design Program														
New Construction														
FEI	7,586	0	0	640	41	49	4	689	44	n/a	n/a	n/a	n/a	n/a
FEVI	2,529	0	0	160	0	6	0	166	0	n/a	n/a	n/a	n/a	n/a
Retrofit														
FEI	69,360	0	0	2,088	6	250	14	2,338	20	n/a	n/a	n/a	n/a	n/a
FEVI	18,496	0	0	522	0	63	1	585	1	n/a	n/a	n/a	n/a	n/a
Total	97,971	0	0	3,410	47	368	19	3,778	65					
Continuous Optimization Program														
FEI	106,596	47,740	198,656	1,962	652	191	7	2,154	658	1.3	n/a	2.4	2.0	0.8
FEVI	4,512	19,380	91,119	83	175	13	1	96	176	2.1	n/a	3.6	2.9	0.8
Total	111,108	67,120	289,775	2,046	827	204	8	2,250	834					
Efficiency à la Carte (Commercial Kitchen Program)														
New Construction														
FEI	140	914	7,485	6	19	1	8	7	26	1.8	n/a	2.5	3.1	0.6
FEVI	28	0	0	1	0	0	1	1	1	n/a	n/a	n/a	n/a	n/a
Retrofit														
FEI	1,376	936	10,363	58	29	6	55	65	84	n/a	n/a	n/a	n/a	n/a
FEVI	140	374	3,043	6	9	1	5	7	14	1.6	n/a	1.9	5.5	0.3
Total	1,685	2,224	20,891	72	56	8	69	80	125					
MURB Program														
New Construction														
FEI	4,680	0	0	91	0	6	0	97	0	n/a	n/a	n/a	n/a	n/a
FEVI	1,080	0	0	23	0	1	0	24	0	n/a	n/a	n/a	n/a	n/a
Retrofit														
FEI	19,440	0	0	362	0	18	0	380	0	n/a	n/a	n/a	n/a	n/a
FEVI	4,680	201	833	90	1	5	27	95	28	0.2	n/a	0.2	18.1	0
Total	29,880	201	833	567	1	29	27	596	28					

Table 7-1: 2013 Commercial Energy Efficiency Program Results Summary (Continued)

Program and Service	Annual Gas Savings (GJ/yr.)		Actual NPV Gas Savings	Utility Expenditures (\$000s)						Benefit/Cost Ratios				
	2012-2013	2013		Incentives		Non-Incentives		All Spending		TRC	MTRC	Utility	Participant	RIM
				2012-2013	2013	2012-2013	2013	2012-2013	2013					
Fireplace Timers Pilot Program														
FEI	25,650	0	0	428	0	23	1	450	1	No Direct Savings				
FEVI	2,850	0	0	48	0	3	0	50	0					
Total	28,500	0	0	475	0	25	1	500	1					
EnerTracker Program														
FEI	0	22,801	21,421	0	190	0	69	0	259	0.6	n/a	0.6	2.1	0.3
FEVI	0	0	0	0	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
Total	0	22,801	21,421	0	190	0	69	0	259					
Energy Specialist Program														
FEI	0	14,507	59,229	780	1,046	144	-14	924	1,032	n/a				
FEVI	0	2,398	6,335	120	277	16	2	136	279					
Total	0	16,905	65,564	900	1,323	160	-12	1,060	1,311					
PSECA Program														
FEI	No Direct Savings			0	0	0	3	0	3	No Direct Savings				
FEVI				0	0	0	0	0	0					
Total				0	0	0	3	0	3					
ALL PROGRAMS														
FEI	408,365	257,376	1,356,321	9,552	5,646	992	454	10,544	6,100	1.9	n/a	2.0	3.8	0.5
FEVI	66,226	52,305	101,527	1,446	1,115	152	80	1,597	1,195	1.8	n/a	2.0	2.9	0.7
Total	474,591	309,681	1,457,848	10,996	6,761	1,143	534	12,140	7,295	1.9	n/a	2.0	3.6	0.5

7.2 2013 Commercial Energy Efficiency Programs

The following tables outline the specific Commercial Energy Efficiency programs undertaken in 2013, 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.				
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 Utilization Efficiency.				
	FEI		FEVI		
	Retrofit	New Construction	Retrofit	New Construction	
Incremental Measure Cost	\$17,629	\$32,842	\$11,152	\$19,145	
Incentive Amount	\$16,662	\$28,255	\$10,467	\$28,848	
Savings Per Participant	601	518	364	279	
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 2013 Projected - New Construction		2013 Projected- Retrofit		2013 Actual - New Construction
					2013 Actual - Retrofit
	FEI	27	154	12	173
	FEVI	3	17	2	45
	FEW	0	1	0	0
	Total	30	173	14	218
Expenditures (\$,000s)	2013				
New Construction	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	339	0	1	0
	FEVI	58	0	0	0
	FEW	0	0	0	0
	Total	397	0	2	0
Expenditures (\$,000s)	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	2,883	1	22	5
	FEVI	471	0	5	2
	FEW	0	0	0	0
	Total	3,354	1	27	7

Notes:

- 2013 marked the Efficient Boiler Program's most successful year in terms of participation and total incentive spend. Compared to 2012 levels, program uptake increased by 100 additional participants, or 76%, and the total incentive spend increased by more than \$2 million, or 124%, in 2013.
- The incremental measure cost noted for the FEVI new construction market is based on only two participants and was abnormally low as one of the two purchased their boilers at a considerable discount to the normally observed price level.
- The cost of high efficiency boilers has been observed to be generally decreasing, and is now comfortably below (on an equivalent boiler input basis) where it stood 2 years ago. Note that the condensing boiler incentive will be reduced in consequence in early 2014.

Table 7-3: 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	\$6,983	\$2,902	\$6,705	N/A	
Incentive Amount	\$1,979	\$3,998	\$2,160	N/A	
Savings Per Participant	102	105	109	N/A	
Measure Life & Source	12 years - Conservation Potential Review, Consortium for Energy Efficiency data, Other Utility programs				
Free Rider Rate & Source	5% - Ontario Energy Board Approved DSM assumptions				
Participants	Service Region	2013 Projected - New Construction	2013 Projected - Retrofit	2013 Actual - New Construction	2013 Actual - Retrofit
	FEI	8	70	6	47
	FEVI	1	12	0	26
	FEW	0	1	0	0
	Total	9	83	6	73
Expenditures (\$,000s)	2013				
New Construction	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	24	0	1	0
	FEVI	0	0	0	0
	FEW	0	0	0	0
	Total	24	0	1	0
Expenditures (\$,000s)	2013				
Retrofit	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	93	0	16	0
	FEVI	56	0	2	0
	FEW	0	0	0	0
	Total	149	0	18	0

Notes:

- The incremental measure cost noted for the FEI new construction market is based on only six participants and was abnormally low as two of the six purchased their water heaters at a considerable discount to the normally observed price level.

Table 7-4: 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	\$1,379	\$1,639	
Incentive Amount	\$1,379	\$1,639	
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	2013 Projected	2013 Actual
	FEI	112	234
	FEVI	38	42
	FEW	2	1
	Total	152	277
Expenditures (\$,000s)	2013		
	Service Region	Incentives	Admin Communication Research & Evaluation Total
	FEI	321	1100332
	FEVI	69	50074
	FEW	3	0003
	Total	393	1600409

Notes:

- 2013 projected participants were based on results observed prior to 2011. In 2010, the Energy Specialist and Energy Solutions Manager roles were founded, leading to an increase in participation beyond what could have been forecasted when preparing the 2012/2013 EEC Plan in early 2011.

Table 7-5: 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: \$42.25		FEVI: \$42.25			
Incentive Amount	FEI: \$42.25		FEVI: \$42.25			
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	2013 Projected - New		2013 Projected - Retrofit		2013 Actual - New	
	2013 Actual - Retrofit					
	Service Region	Construction		Construction		
	FEI	3	322	0	54	
	FEVI	0	36	0	6	
	FEW	0	4	0	0	
	Total	3	362	0	60	
Expenditures (\$,000s)	2013					
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)	2013					
Retrofit	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	2	0	0	0	3
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	3	0	0	0	3

Notes:

- The projected participation number is taken from the 2013/2013 DSM Plan which assumed that a Spray Valve program would be in market and actively promoted. This was not the case however and participation and expenditures in the program in 2013 resulted from a desire to clear out the stock of low flow pre-rinse spray valves remaining from the program operated in 2012. The program operator indicated that some valves remained at the start of 2013, and requested permission to continue operating the program in order to distribute all valves. Permission to do so was granted.
- Note that the projected participation number assumed that the Companies would be operating a full Low Flow Pre Rinse Spray Valve direct install program in 2013, similar to previous years. The Commercial program staff however believed that low flow pre rinse spray valves could be incorporated as a measure in both the Efficiency à la Carte and the Commercial Energy Assessment Programs instead of operating as an independent program. This incorporation was accomplished for the Commercial Energy Assessment Program which was re launched in January of 2014, and will also be accomplished for the Efficiency à la Carte Program in 2014.

Table 7-6: Commercial Custom Design Program

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	2013 Projected - New		2013 Projected - Retrofit		2013 Actual - New		2013 Actual - Retrofit	
	Service Region	Construction			Construction			
		2		12		5		2
		1		3		0		0
		0		0		0		0
	Total	3		15		5		2
Expenditures (\$,000s) New Construction	2013							
	Service Region	Incentives		Admin	Communication		Research & Evaluation	Total
		41		0	4		0	44
	FEI			0	0		0	0
	FEVI			0	0		0	0
	FEW	0		0	0		0	0
	Total	41		0	4		0	45
Expenditures (\$,000s) Retrofit	2013							
	Service Region	Incentives		Admin	Communication		Research & Evaluation	Total
		6		14	0		0	20
	FEI			1	0		0	1
	FEVI	0		0	0		0	0
	FEW			0	0		0	0
	Total	6		15	0		0	21

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 is challenging. In general, the savings in this program occurs in later years after participants have had the time to implement customized Energy Conservation Measures, while some program incentives and costs are payable at the outset. Please refer to the notes provided below for additional details. As a result, despite having paid out incentives and incurred costs, there are no savings attributable to the program in 2013.
- New Construction Program:
 - Participation in this program can last for approximately 5 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. In addition to the 5 noted participants there were 18 additional projects in the building energy simulation stage, and 2 projects in the implementation stage at the end of year 2013. These will be recorded as program participants when the energy simulations or the new buildings are completed and incentive funding becomes payable.
- Retrofit Program:
 - Participation in this program can last for approximately 2 years. This is broken down into approximately 6 months to prepare the required energy study, followed by 18 months to implement the proposed Energy Conservation Measures. The program incurs incentive expenditures upon the successful completion of the energy study, as well as upon completion of the approved Measures, while natural gas savings are only obtained upon completion of the Measures.
 - This program was formally made available in July of 2013. By year-end, the program saw 54 applicants, of which 9 were accepted into the program, and were either completing an energy study or implementing capital upgrades by end of year. Of the remaining, 6 canceled their application, 8 were rejected, 4 are on hold, and 27 were having their proposals reviewed.
 - The 3 retrofit participants noted in the table represent participants who successfully completed their energy studies in 2013.

Table 7-7: Continuous Optimization Program

Program Description	<p>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.</p> <p>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.</p>				
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	<p>Average nominal program duration incremental cost (7 years): \$41,866</p> <p>2013 observed average implemented incremental cost: FEI - \$50,098, FEVI - \$23,844</p>				
Incentive Amount	<p>Average nominal program duration incentive amount (7 years): \$17,986</p> <p>2013 observed average implemented incentive amount: FEI - \$23,270, FEVI - \$9,214</p>				
Savings Per Participant	<p>Average expected annual natural gas savings: 1,465 GJ/year</p> <p>2013 observed average implemented natural gas savings: FEI - 1,705 GJ/year, FEVI - 1,020 GJ/year</p>				
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	2013 Projected	2013 Actual	Participants Implementing in 2013	Cumulative Program Participants	
Service Region					
FEI	150	222	24		349
FEVI	6	47	19		76
FEW	2	2	4		6
Total	158	271	47		431
Expenditures (\$,000s)	2013				
Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
FEI	645	0	6	0	652
FEVI	175	0	1	0	176
FEW	7	0	0	0	7
Total	827	0	7	0	834

Notes:

- The Continuous Optimization Program is conducted in partnership with BC Hydro Power Smart. BC Hydro is the primary administrator of program activities, with FortisBC providing financial and process support.
- Participation in this program lasts for approximately 7 years for a typical participant. The 7 years are composed of approximately 12 months of baseline data collection, 24 months of re-commissioning study work, plus the implementation of a recommended bundle of energy saving measures, and 48 months of monitoring and continuous improvement.
- Participants are recorded as soon as they are accepted into the program; however, natural gas savings do not occur until they have completed the implementation of a recommended bundle of energy saving measures, approximately 36 months later. As such, the program incurs incentive expenses (for the upgrading of metering equipment, re-commissioning costs and EMIS costs) before natural gas savings are obtained.

- The Average nominal program duration incremental cost represents the total incremental cost expected to be incurred when an average participant completes the full 7 year run in the program. The 2013 observed average implemented incremental cost represents the incremental costs incurred specifically in 2013 divided by the total number of participants who implemented in 2013.
- The Average nominal program duration incentive amount represents the total incentive expected to be paid when an average participant completes the full 7 year run in the program. The 2013 observed average implemented incentive amount represents the incentive paid specifically in 2013 divided by the total number of participants who implemented in 2013. Due to the nature of the program, the incentive amount paid is not solely attributable to those who implemented in 2013.
- The Average expected annual natural gas savings represents the expected annual natural gas savings per average participant after they have completed the implementation of a recommended bundle of energy saving measures. The 2013 observed average implemented natural gas savings represents natural gas savings attributed to customers who have completed the implementation of a recommended bundle of energy saving measures specifically in 2013 divided by the total number of participants who implemented in 2013.
- Participant count clarification:
 - "2013 Actual" represents the number of new participants who were approved in 2013.
 - "Participants Implementing in 2013" represents the number of participants who have successfully completed implementing the bundle of energy saving measures in 2013.
 - "Cumulative Program Participants" represents the total number of approved program participants from the entire multi-year program duration.

Table 7-8: Efficiency à la Carte (Commercial Kitchen Program)

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	\$2,775	\$11,842	\$3,584	N/A	
Incentive Amount	\$1,583	\$6,167	\$2,125	N/A	
Savings Per Participant	65	381	117	N/A	
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	2013 Projected - New Construction	2013 Projected - Retrofit	2013 Actual - New Construction	2013 Actual - Retrofit
	FEI	4	38	3	18
	FEVI	1	4	0	4
	FEW	0	1	0	0
	Total	5	43	3	22
Expenditures (\$,000s)	2013				
New Construction	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	19	0	7	1
	FEVI	0	0	1	0
	FEW	0	0	0	0
	Total	19	0	8	1
Expenditures (\$,000s)	2013				
Retrofit	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	29	0	50	5
	FEVI	9	0	5	0
	FEW	0	0	0	0
	Total	37	1	55	5

Notes:

- The Efficiency a la Carte program was launched towards the end of 2012. Typical of any new program, program awareness remains low due to the limited time spent in market. Continued communication efforts are expected to garner additional participants in 2014.
- Efficiency a la Carte applicants (as well as Efficient Commercial Water Heater and Efficient Boiler Program participants) must obtain an installation permit in order to qualify for a rebate. Based on anecdotal evidence, very few foodservice establishments obtain a permit when installing new foodservice equipment. This functions as an impediment to program participation, and the Companies are considering how best to address this issue.

Table 7-9: MURB Program

Program Description	This program focuses on "In-Suite" gas saving measures for multi-unit residential buildings (MURBs). In 2013, energy saving measures were limited to the direct installation of low-flow showerheads on a limited scale in the Capital Regional District.					
Target Market	Commercial customers					
New vs Retrofit	Both					
Eligible Measures	Low flow showerheads					
Incremental Measure Cost	\$4.99 per showerhead					
Incentive Amount	\$4.99 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	2013 Projected - New Construction	2013 Projected - Retrofit	2013 Actual - New Construction	2013 Actual - Retrofit	
	FEI	10	42	0	0	
	FEVI	2	10	0	186	
	FEW	0	1	0	0	
	Total	13	54	0	186	
Expenditures (\$,000s)	2013					
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)	2013					
Retrofit	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	0	0	0	0
	FEVI	1	27	0	0	28
	FEW	0	0	0	0	0
	Total	1	27	0	0	28

Notes:

- The forecasted participants in the 2012-2013 DSM plan represented estimated participating buildings. Conversely, the number presented here represents the number of low-flow showerheads installed.
- Program activities in 2013 consisted of a direct install program in the Capital Regional District in partnership with City Green Solutions. The MURB Program will have a low TRC in the first year due to the majority of administration costs being incurred in 2013. The program target is 1,500 low-flow showerhead installations by 2014.

Table 7-10: Fireplace Timers Pilot Program

Program Description	NOTE: This program was not open to participants in 2013. 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	2013 Projected	2013 Actual			
	FEI	8,455	0			
	FEVI	950	0			
	FEW	95	0			
	Total	9,500	0			
Expenditures (\$,000s)	2013					
		Incentives	Admin	Communication	Research & Evaluation	Total
	Service Region					
	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:

- There are no participants in 2013, as the pilot is closed to new participants. Expenditures are entirely associated with the completion of the impact evaluation report.

Table 7-11: 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	\$1,129.50 / yr (Average)					
Incentive Amount	\$1,129.50 / 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	2013 Projected	2013 Actual			
	FEI	65	168			
	FEVI	0	0			
	FEW	0	0			
	Total	65	168			
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	190	69	0	0	259
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	190	69	0	0	259

Notes:

- As there is currently insufficient AMR (Automated Meter Reader) infrastructure in the FEVI service territory to support the roll out of this pilot, program availability is limited to the FEI service territory.
- Some FEI participants have older AMR infrastructure that needs to be upgraded in order to provide appropriately granular data for the energy management information system. This required upgrade results in a higher incremental measure cost in the first year of participation for affected participants. This AMR upgrade cost will not be present in a customer's subsequent years of participation.
- The average annual consumption per participant was lower than what the business case had originally estimated, resulting in a lower average energy savings per participant. Actual savings to be confirmed through EM&V in 2014.
- Note that participation in the program is cumulative, meaning the participant is enrolled for multiple years, claiming savings and incurring costs on an annual basis for the duration of the EMIS software license.

Table 7-12: 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	Total 2013 verified (non-EEC program) annual natural gas savings = 16,905 GJ/year					
Measure Life & Source	N/A					
Free Rider Rate & Source	0% - Learnings from 2012/2011 Energy Specialist Pilot Program					
Participants	Service Region	2013 Projected	2013 Actual			
	FEI	13	22			
	FEVI	2	7			
	FEW	0	0			
	Total	15	29			
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	1,046	13	0	(27)	1,032
	FEVI	277	5	0	(3)	279
	FEW	0	0	0	0	0
	Total	1,323	18	0	(30)	1,311

Notes:

- The Energy Specialist Program was formerly included under Enabling Activities. In 2012 it was included under the Commercial Energy Efficiency Program for reporting purposes and remains under the Commercial program area in 2013. This reporting change was done to reflect both the financial tracking of the program within the Commercial Program Area and the commercial nature of the Energy Specialist activities

- The Energy Specialist Program continues to experience success as an enabling program. In 2013, organizations with Energy Specialists represented 20% of all EEC Commercial program participation and 22% of all EEC Commercial program incentives paid out. This is in addition to the EEC Conservation Education and Outreach, Innovative Technologies and Low Income programs and incentives that Energy Specialists promoted and utilized in 2013.
- Some organizations had Energy Specialists for part of the year only.
- The energy savings listed apply only to third party verified natural gas projects completed by Energy Specialists in 2013 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.
- Research & Evaluation expenditures are displayed in negative values due to an accrual overestimation made at the end of 2012 for the Energy Specialist Program Energy Savings Verification Study. The vendor overestimated the amount that was to be attributed to 2012 work and therefore a negative accrual balance was carried into 2013. Total actual Research & Evaluation expenditures incurred in 2013 was \$19,890.

Table 7-13: PSECA

Program Description	NOTE: This program was not open to participants in 2013. In 2010 and early 2011 the Companies worked in partnership with the Climate Action Secretariat, BC Hydro, and Solar BC to encourage public sector organizations to reduce energy consumption and GHG emissions by offering incentives for the completion of qualifying projects.					
Target Market	Commercial					
New vs Retrofit	Retrofit					
Eligible Measures	All cost effective (TRC > 1.0) Energy Saving Measures (ESMs) as identified in an energy study and approved by the utility. ESMs are variable and site dependent.					
Incremental Measure Cost	Variable. Dependent upon participant's proposed Energy Saving Measures.					
Incentive Amount	If TRC ≥ 1.0 then \$5 / discounted GJ saved over 50% of the Energy Measure Life (EML), up to 10 yrs max.					
Savings Per Participant	Variable. Dependent upon participant's proposed Energy Saving Measures.					
Measure Life & Source	Variable. Dependent upon participant's proposed Energy Saving Measures.					
Free Rider Rate & Source	0%					
Participants	Service Region	2013 Projected	2013 Actual			
	FEI	0	0			
	FEVI	0	0			
	FEW	0	0			
	Total	0	0			
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	0	0	3	3
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	0	0	3	3

Notes:

- These charges are attributable to one technical review of a project that changed scope, and miscellaneous travel expenditures to perform post completion site audits of the participant's projects as per the program's terms and conditions.

7.3 Other Commercial Energy Efficiency Program Area Initiatives

7.3.1 ENERGY REBATE CENTRE

In addition to the formal programs detailed in the tables above, the Commercial Energy Efficiency group also continued to invest funding and time in the Energy Rebate Centre in conjunction with FortisBC electric, formerly known as the Product Rebate Program. The Energy Rebate Centre represents the EEC group's initial attempt at allowing rebate applications to be filled out and submitted online. It allows customers in the shared gas and electric service 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.

As this is not a program in the traditional sense (with attributable GJ savings, incremental measure costs, measure lives, free ridership etc.) it is not presented in tabular format in this report. EEC funds invested in the continued development of the Energy Rebate Centre have been captured under the Commercial Energy Efficiency Program Area's general administration and communications expenditures.

7.4 2013 Commercial Energy Efficiency Program Closures

7.4.1 SPRAY VALVE PROGRAM

This program operated on a limited basis in 2013 in order to clear out FortisBC's remaining stock of low flow pre rinse spray valves. Refer to table 7-5: Spray Valve Program for details. While a program specifically aimed at low flow pre rinse spray valves is no longer offered, this measure will in future be offered to customers via the Efficiency à la Carte program as well as the revised Commercial Energy Assessment program.

7.5 Summary

Commercial Energy Efficiency Program Area activity in 2013 successfully achieved 310,729 GJ of natural gas savings and a positive TRC of 1.9. Most programs performed well, while the Efficient Boiler Program saw its most successful year ever, driving much of the increased spending. The work to simplify the program process and bring clarity to the incentives appears to have paid significant dividends in 2013. The Commercial Custom Design Program, now available to both New Construction and Retrofit markets, is currently providing funding towards detailed energy studies of participants' buildings. When energy conservation measures are subsequently implemented at participants' facilities, considerable additional EEC investments and natural gas savings will result.

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 pilot and demonstration projects, pre-feasibility studies and the use of EM&V protocols to validate manufacturers' claims related to equipment and system performance. In 2013, results from Innovative Technologies activities were used in making future EEC programming decisions and technology inclusions.

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.

All 2013 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,¹⁰ 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.¹¹ 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.¹²

Table 8.1 summarizes the projected and actual expenditures for the Innovative Technologies Program Area in 2013, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost-effectiveness test results where applicable.

¹⁰ 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

¹¹ 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.

¹² 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: 2013 Innovative Technologies Program Area Results Summary

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						
Pilot/Demonstration Projects														
Residential High-Efficiency Water Heater Pilot														
FEI	-	8	92	0	2	0	20	0	22	0.0	n/a	0.0	0.9	0.0
FEVI	-	8	91	0	2	0	4	0	5	0.2	n/a	0.2	1.0	0.1
Total	-	16	183	0	4	0	24	0	28					
ENERGY STAR® 0.67 Storage Tank Water Heater Pilot														
FEI	-	27	233	0	7	0	6	0	13	0.3	n/a	0.2	0.6	0.1
FEVI	-	-	-	0	0	0	0	0	0				No Direct Savings	
Total	-	27	233	0	7	0	6	0	13					
Ice Rink Resurfacing Efficiency Pilot														
FEI	-	3,040	21,916	0	232	0	31	0	263	1.5	n/a	0.8	2.2	0.3
FEVI	-	760	5,446	0	58	0	2	0	59	1.7	n/a	0.8	2.2	0.4
Total	-	3,800	27,362	0	289	0	33	0	322					
City of Courtenay Pool Heating Project														
FEI	-	-	-	0	0	0	0	0	0					
FEVI	-	-	-	0	0	0	12	0	12				No Direct Savings	
Total	-	-	-	0	0	0	12	0	12					
City of Vancouver Residential Solar Water Heating Pilot														
FEI	-	-	-	0	0	0	3	0	3					
FEVI	-	-	-	0	0	0	0	0	0				No Direct Savings	
Total	-	-	-	0	0	0	3	0	3					
Condensing Gas-Fired Ventilation Units														
FEI	1,444	1,228	12,868	6	58	24	202	30	260	0.5	n/a	0.5	4.6	0.2
FEVI	361	154	1,593	2	7	6	18	8	25	0.6	n/a	0.6	4.6	0.3
Total	1,805	1,382	14,461	8	65	30	220	38	286					
PSECA Solar														
FEI	-	-	-	0	0	0	0	0	0				No Direct Savings	
FEVI	-	341	4,133	0	28	0	0	0	28	0.2	n/a	1.4	0.8	0.3
Total	-	341	4,133	0	28	0	0	0	28					
Studies and Memberships														
Studies														
FEI				0	0	200	204	200	204					
FEVI	No Direct Savings			0	0	0	0	0	0				No Direct Savings	
Total				0	0	200	204	200	204					
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	1,444	4,303	35,109	6	298	224	483	230	782	0.7	n/a	0.4	2.6	0.2
FEVI	361	1,263	11,263	2	95	6	35	8	130	0.6	n/a	0.9	1.9	0.3
Total	1,805	5,566	46,372	8	393	230	519	238	912	0.6	n/a	0.5	2.4	0.3

Notes:

- For 2013, \$1.5 million dollars in expenditures were approved for the Innovative Technologies Program Area. This planned expenditure is not reflected in the summary table above under the columns titled "2013-2013 EEC Plan." This is due to the fact that Innovative Technologies identifies which pilots to pursue subject to pre-feasibility studies. Once studies are completed, pilots and demonstration projects may or may not be launched. The table above therefore reports pilots and studies that resulted in expenditures in 2013 and this actual expenditure can be compared to the \$1.5 million approved expenditures.
- Energy savings were realized in the Residential High-Efficiency Water Heater Pilot, but these savings were low compared to the cost. The resulting low TRC and Utility Cost Test scores in the FEI service area rounded down to zero.

8.2 2013 Innovative Technologies Activities

Tables 8-2 to 8-4 outline the specific Innovative Technologies activities undertaken in 2013, including program and measure descriptions and a breakdown of non-incentive spending¹³.

¹³ As Innovative Technologies activities are not considered pilots rather than 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 Area 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>1</td></tr> <tr> <td>FEVI</td><td>1</td></tr> <tr> <td>Total</td><td>2</td></tr> </table>	FEI	1	FEVI	1	Total	2
FEI	1						
FEVI	1						
Total	2						
<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 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 0.67 EF 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>0</td></tr> <tr> <td>Total</td><td>9</td></tr> </table>	FEI	9	FEVI	0	Total	9
FEI	9						
FEVI	0						
Total	9						
<i>Ice Rink Resurfacing Efficiency Pilot</i>	<p>Pilot to validate energy savings claims, assess customer acceptance rates, and identify technical issues associated with the installation and operation of vortex mechanical de-aerator technology for ice re-surfacing in British Columbia ice arenas. Non-incentive expenditures in 2013 represent measurement and verification costs as well as administrative costs. The pilot is expected to deliver results in the second quarter of 2014.</p> <p>Service Region Participants</p> <table> <tr> <td>FEI</td><td>8</td></tr> <tr> <td>FEVI</td><td>2</td></tr> <tr> <td>Total</td><td>10</td></tr> </table>	FEI	8	FEVI	2	Total	10
FEI	8						
FEVI	2						
Total	10						
<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 in 2012 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. The non-incentive expenditures in 2013 are associated to measurement and verification costs. Final results are projected to become available in the third quarter of 2014.</p> <p>Service Region Participants</p> <table> <tr> <td>FEI</td><td>0</td></tr> <tr> <td>FEVI</td><td>0</td></tr> <tr> <td>Total</td><td>0</td></tr> </table>	FEI	0	FEVI	0	Total	0
FEI	0						
FEVI	0						
Total	0						

Table 8-2: Pilots (continued)

Condensing Gas-Fired Ventilation Units	Pilot to validate energy savings claims, assess customer acceptance rates, and identify technical issues associated with the installation and operation of condensing gas-fired ventilation units in British Columbia commercial buildings. Non-incentive expenditures in 2013 represent measurement and verification as well as communications costs. Final results are projected to become available in the last quarter of 2015.					
	Service Region Participants					
	FEI	8				
	FEVI	1				
	Total	9				
City of Vancouver Residential Solar Water Heating Pilot	Pilot project initiated by the City of Vancouver, Offsetters and SolarBC to promote the installation of 30 Solar Hot Water systems in Vancouver. The Companies committed \$50,000 in 2012 to support this project and to gather real data and validate the energy systems claims. The non-incentive expenditures in 2013 are associated to measurement and verification costs. Final results are projected to become available in the third quarter of 2014.					
	Service Region Participants					
	FEI	0				
	FEVI	0				
	Total	0				
PSECA Solar	During the 2011 and 2012 period, the BC Government, through the PSECA was working with SolarBC to fund solar thermal water and air heating systems in provincial public sector buildings including schools, universities, colleges, hospitals and Crown corporations. The program is now closed and not expecting to realize any further incentive and non-incentive expenditures. The incentive expenditure for 2013 was associated to one project whereby there was a delay in receiving the documentation required to release the rebate.					
	Service Region Participants					
	FEI	0				
	FEVI	1				
	Total	1				
Participants	Service Region	2013 Projected	2013 Actual			
	FEI	0	26			
	FEVI	0	5			
	FEW	0	0			
	Total	0	31			
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	298	17	3	242	560
	FEVI	95	0	0	35	130
	FEW	0	0	0	0	0
	Total	393	18	3	276	690

Table 8-3: Studies

Description	In order to evaluate market-ready technologies, it is important to participate in technology performance and prefeasibility 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 inventory and 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>Combination Units Prefeasibility Study</i>	The goal of the study is to provide an inventory and energy savings assessment of combined space and water heating appliances available in British Columbia for residential single family dwellings. The study is expected to be completed within the first quarter of 2014.
<i>Condensing Unit Heater Prefeasibility Study</i>	Study to determine the feasibility of and requirements for launching a pilot in order to validate energy savings claims, assess customer acceptance rates, and identify technical issues associated with the installation and operation of condensing unit and infrared radiant tube heaters in British Columbia commercial buildings. The results from the study indicated that radiant tube heaters already had a high adoption rate in British Columbia and thus did not qualify as an innovative technology. Condensing unit heaters was deemed a low priority by the Program Managers due to the limited market potential and negative cost effective results.
<i>Assessment of opportunities for natural gas in net zero buildings</i>	Study to define the various types of net zero definitions (net zero energy, net zero energy/cost, etc.), and the terms typically used (net zero site energy building, net zero source energy building, net zero cost building, net zero emission building). Study results are expected in the first quarter of 2014.
<i>Deep MURB Retrofit Energy Study</i>	The proposed Part 3 of the study is expected to take 2.5 years to complete. The first phase of Part 3 is designed to map the air flows and pressure differentials in 2 to 3 test buildings in order to better understand how ventilation air is distributed. The next phase of Part 3 is to implement efficiency measures and evaluation, first enclosure rehabilitation and then mechanical upgrades in one of the buildings. The final phase of Part 3 is the development of a market transformation report based on the findings.
<i>Fireplace Upgrades Prefeasibility Study</i>	Study to determine the feasibility of and requirements for launching a pilot in order to validate energy savings claims, assess customer acceptance rates, and identify technical issues associated with retrofitting existing decorative fireplaces in British Columbia residential and multi-unit residential buildings with higher-efficiency models. The study is expected to deliver final results in the first quarter of 2014.
<i>Inventory and energy Savings Estimates for Residential Programmable Thermostats</i>	The pre-feasibility study will assess the market opportunity, technical characteristics and projected energy savings for residential self-programmable thermostats, in comparison to the products now prevailing in the market place. Participating utilities will use this study to determine the feasibility of launching a pilot project in this field.
<i>Inventory and Energy Savings Estimates in Commercial Buildings with EMS and AFDDs</i>	Objectives of the study is to compile an inventory of EMS and Advanced Automated FDD in use, an analysis of what is being done and where within North America, and estimate the electricity and natural gas savings potential of Advanced Automated FDD systems (those that operate with or without EMS systems). The analysis would also capture the value-added (in terms of increased savings) associated with where and how the EMS system is being deployed. The outcome of the analysis would be to provide utilities with a general indication of the range of savings associated with varying levels of EMS and Advanced Automated FDD system utilization.

Table 8-3: Studies (continued)

<i>SPF Heat Treat Efficiency Enhancement Using Energy Management System</i>	Program initiated by BC Hydro geared to validate energy savings claims by using improved process controls for lumber drying. BC Hydro anticipates both electric and gas savings of 10% from a reduction in drying time and more precise drying control. FortisBC committed \$9,750 to support this project and to gather real data and validate the energy savings claims with the following measure – Advanced Control of Beetle Kill Drying using an Energy Management System					
<i>Technology and Savings Assessment for On-Demand Controls Retrofitted to Central Hot Water Recirculation Loops</i>	The goal of the study is to provide an inventory and energy savings assessment of on-demand central domestic hot water controls available in British Columbia for multi-unit residential buildings. This technology claims a reduction of heat loss while providing fast hot water delivery to tenants. This technology works in conjunction with Central Domestic Hot Water Systems. A typical installation costs \$2,095 and takes approximately an hour and a half. This measure can be retrofitted to the re-circulation loop which is used for central domestic water in multi-family units and claims to reduce the runtime of the re-circulation loop from 24 hours to as little as five hours per day.					
Participants	Service Region	2013 Projected	2013 Actual			
	FEI	0	0			
	FEVI	0	0			
	FEW	0	0			
	Total	0	0			
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	0	0	204	204
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	0	0	204	204

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, motion sensor thermostats, energy management controls and smart wifi thermostats. 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)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	9	0	0	9
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	9	0	0	9

8.3 Innovative Technologies Activities Planned for 2013 But Not Launched

In the 2012-2013 EEC Plan the Companies identified pilot and demonstration projects to be the primary 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 2013. The following Innovative Technologies Programs listed in the 2012-2013 EEC Plan were not launched in 2013.

8.3.1 ADVANCED CONTROL OF LUMBER DRYING USING AN ENERGY MANAGEMENT SYSTEM

A demonstration project initiated by BC Hydro geared to validate energy savings claims by using improved process controls for both wet and dry lumber assortments. The results of the demonstration project became available in 2013 indicating that there is a potential for saving energy but unfortunately the product is not commercially available at this time.

8.3.2 CATALYTIC RADIANT BURNER TECHNOLOGY

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 throughout the 2012 to 2013 period.

8.3.3 CERAMIC MANUFACTURING USING MICROWAVE ASSIST TECHNOLOGY

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 throughout the 2012 to 2013 period.

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. In 2013, the Companies received outcomes from the Occupancy Sensor Unit Ventilator pilot that resulted in the technology being included as an eligible measure within the Commercial Programs Area. The M&V was conducted over a 12-month period from April 2012 to March 2013. Based on the M&V results, the monitored sites showed average natural gas savings of 3.0 GJ or 32% annually per room by using occupancy sensors to control heating in those rooms. Results were presented to the EEC Advisory Group in November 2013. Occupancy Sensors were included as an eligible measure within the Commercial Custom Design Retrofit Program. Additionally, in 2013, results from a prefeasibility study on radiant tube heaters indicated that a program was not justified since the cost of the technology was relatively close to the cost of a baseline unit heater and the market was already adopting radiant tube heaters in absence of utility intervention.

Overall, the Innovative Technologies initiatives successfully achieved results in evaluating the feasibility of new technologies and providing insights used towards the design of future EEC programs. The Innovative Technologies Program Area continues to use consistent criteria to ensure the greatest potential for screening technologies for further development as full programs in other areas of the EEC portfolio.

9 INDUSTRIAL ENERGY EFFICIENCY PROGRAM AREA

9.1 Overview

In 2013, the Industrial Energy Efficiency Program Area achieved an overall TRC of 2.4, due to two projects in the Technology Retrofit Program, with a combined potential natural gas savings of over 60,000 GJ/year. Activities in the Energy Audit and Analysis Program also resulted in ten energy audit reports that identified projects with the potential to provide natural gas savings of over 320,000 GJ/year. Throughout 2013, the Companies continued to enhance relationships with key industry players in order to identify industrial customers' motivations for adopting energy efficiency and the appropriate incentive levels to increase the uptake of Industrial Energy Efficiency programs.

Table 9-1 summarizes the projected and actual expenditures for the Industrial Energy Efficiency Program Area in 2013, including incentive and non-incentive spending, annual and NPV gas savings, as well as TRC and other cost-effectiveness test results.

Table 9-1: 2013 Industrial Energy Efficiency Program Results Summary

Program and Service Territory	Annual Gas Savings (GJ/yr.)		Actual NPV Gas Savings (GJ)	Utility Expenditures (\$000s)						Benefit/Cost Ratios					
				Incentives		Non-Incentives		All Spending							
	2012-2013 EEC Plan	2013 Actual		2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual	TRC	MTRC	Utility	Participant	RIM	
Non Program Specific Expenses															
FEI				0	0	0	55	0	55	No Direct Savings					
FEVI		No Direct Savings		0	0	0	0	0	0						
Total				0	0	0	56	0	56						
Technology Retrofit Program															
FEI		290,349	23,476	169,243	1,190	446	178	18	1,368	464	2.7	n/a	3.2	4.1	0.7
FEVI		0	0	0	0	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
Total		290,349	23,476	169,243	1,190	446	178	18	1,368	464					
Energy Audit & Analysis Program															
FEI		56,970	0	0	353	235	35	0	388	236	No Direct Savings				
FEVI		0	0	0	0	0	0	0	0	0					
Total		56,970	0	0	353	235	35	0	388	236					
Process Heat Program															
FEI		42,000	0	0	415	0	10	13	425	13	No Direct Savings				
FEVI		4,000	0	0	46	0	1	0	47	0					
Total		46,000	0	0	462	0	10	13	472	13					
ALL PROGRAMS															
FEI		389,319	23,476	169,243	1,958	681	223	87	2,181	768	2.4	n/a	1.9	3.7	0.6
FEVI		4,000	0	0	46	0	1	0	47	0	n/a	n/a	n/a	n/a	n/a
Total		393,319	23,476	169,243	2,004	681	224	87	2,228	768	2.4	n/a	1.9	3.7	0.6

Notes:

- 2013 Technology Retrofit Program projects resulted in over 60,000 GJ/year in savings, but as explained in section 9.2, for the purpose of cost effectiveness tests, 23,476 GJ in savings have been claimed for 2013 due to incentives being paid out based on each of the projects' natural gas saving performance throughout the first three years after the project's commissioning. Please see the Technology Retrofit Program description, Section 9-2, for detailed information.
- 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).
- The Process Heat Program continued to be developed in 2013; therefore, the program does not include direct savings (see Table 9-4 for details).

9.2 2013 Industrial Energy efficiency Programs

The following tables outline the specific Industrial Energy Efficiency programs undertaken in 2013, including program and measure descriptions and a breakdown of non-incentive spending.

Table 9-2: Technology Retrofit Program

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				
New vs Retrofit	Retrofit				
Eligible Measures	Variable				
Incremental Measure Cost	Dependent upon participant's proposed Energy Saving Measures.				
Incentive Amount	Varies by measure. If TRC ≥ 1.0 then approximately \$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	2013 Projected	2013 Actual		
		4	3		
		0	0		
		0	0		
		4	3		
Expenditures (\$,000s)	2013				
	Service Region	Incentives	Admin	Communication	Research & Evaluation

Notes:

- The cost-effectiveness ratios for the Technology Retrofit Program are based on three projects, two commissioned in 2013 and one commissioned in 2012 as shown in Table 9-2a:

Table 9-2a: Technology Retrofit Program project numbers

Commissioned in 2012	Commissioned in 2013
Number of Projects: 1	Number of Projects: 2
Total Estimated Savings: 70,000 GJ/yr	Total Estimated Savings: 64,885 GJ/yr
Total Project Cost: \$2,000,000	Total Project Cost: \$1,433,560
Total Incentive: \$1,000,000	Total Incentive: \$816,550

The Technology Retrofit program's incentives are paid based on each of the projects' natural gas saving performance throughout the first three years after the project's commissioning. Hence, only a portion of the incentives is paid in the year a project is commissioned. For consistency, in performing cost benefit analysis, only a prorated portion of the natural gas savings and project costs are included in the determination of the cost benefit ratios (e.g. if 25% of the incentives were paid in 2013, only 25% of the project cost and only the NPV of 25% of the project's savings would be used as inputs). Therefore, for the purpose of cost-effectiveness tests, 2013 savings of 23,476 GJ reflects the prorated portion of potential project savings relative to incentives paid out

in 2013. This is an adjustment to the way industrial program savings were treated in previous annual reports.

- In the 2012 report the cost-effectiveness ratios for this program were calculated using the NPV of total estimated natural gas savings, the total estimated project cost, but only twenty five percent of the calculated incentive of the project commissioned in 2012 (see Table 9-2a for details). As such the incentive paid in 2013 towards this project was necessarily included as an input to the 2013 cost-effectiveness ratios, though any energy savings and project costs were not, as these had been recorded in full in 2012. Any subsequent incentives paid to this project will also be included in future reports, without any corresponding costs or benefits, until such time as the full value of the incentive commitment has been accounted for.
- 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	2013 Projected	2013 Actual			
	FEI	36	10			
	FEVI	0	0			
	FEW	0	0			
	Total	36	10			
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	235	0	0	0	236
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	235	0	0	0	236

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

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	2013 Projected	2013 Actual		
	FEI	21	0		
	FEVI	2	0		
	FEW	0	0		
	Total	23	0		
Expenditures (\$,000s)	2013				
	Service Region	Incentives	Admin	Communication	Research & Evaluation
	FEI	0	12	0	0
	FEVI	0	0	0	0
	FEW	0	0	0	0
	Total	0	12	0	0
					Total
					13

Notes:

- In 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 continued in 2013. The Companies anticipate launching this program in 2014.

9.3 Summary

The Companies are satisfied with the results of the Industrial Energy Efficiency Program Area in 2013. Two projects in the Technology Retrofit Program were commissioned in 2013 while three other projects initiated in 2013 will likely be commissioned in 2014, leading to significant additional natural gas savings. In addition, ten energy audit reports were completed in 2013, and the companies hope to see these energy audit participants convert into Technology Retrofit Program participants.

Additionally, the following measures were identified and developed in 2013 and will be finalized in 2014:

- Two identification measures to provide funds to assessments and feasibility studies in addition to energy audits; and
- Measures to aid industrial customers to improve steam distribution system's energy efficiency.

Finally, a roadmap has been established to identify, develop and launch an offering to aid industrial customers with the implementation of Strategic Energy Management as part of the long-term strategy to achieve substantial natural gas savings and GHG emissions reductions.

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, and effectively collaborated with other British Columbia utilities in 2013. This increased collaboration with the FortisBC Inc. electric utility resulted in an effort to maximize cost-effectiveness and efficiency. This included print communications, booth displays and production items for various events and campaigns occurring in the shared service territory. The Companies also collaborated with BC Hydro on six outreach events, in addition to sharing best practices on partnership negotiations and outreach tactics. 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. In addition, collaboration has been sought with various municipalities in 2013 to deliver 'Community Energy Diet' type programs combining all the available efficiency programs in that region.

As these are not incentive-based programs, the Companies have not attributed direct savings to them in 2013. 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 cost-effectiveness results.

Although there were no energy savings attributed to the CEO Program Area in 2013, 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 2013. The approved spending for 2013 was \$4.016 million. While the CEO Program Area remains underspent, it is consistent with 2012 spending at approximately \$2.2 million. One reason for the underspend is that several of the costs, in particular production materials, outreach and advertisements were shared between CEO and other EEC Program Areas, as well as with various departments in the Companies and with the FortisBC Inc. electric utility in order to maximize cost efficiency. In addition, some CEO programs were slow to launch or develop in 2013, in particular those that require multiple partners. For example, the Community Energy Diets launched, while some programs such as Home Efficiency Measures and Commercial Multi Family Education were in development in 2013 and will be set to launch in 2014.

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

Table 10-1: 2013 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	2013 Actual		Incentives		Non-Incentives		All Spending		TRC	MTRC	Utility	Participant	RIM
				2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual					
Residential and General Public														
Residential Mass Education on Conservation and Energy Literacy														
FEI				0	0	472	281	472	281					
FEVI	No Direct Savings			0	0	53	46	53	46				No Direct Savings	
Total				0	0	524	327	524	327					
Residential Home Shows and Community Events Outreach														
FEI				0	0	585	635	585	635					
FEVI	No Direct Savings			0	0	65	52	65	52				No Direct Savings	
Total				0	0	650	687	650	687					
Canadian Home Builders' Association Promotions and Support														
FEI				0	0	90	48	90	48					
FEVI	No Direct Savings			0	0	10	1	10	1				No Direct Savings	
Total				0	0	100	49	100	49					
Residential Outreach Education Tools														
FEI				0	0	135	94	135	94					
FEVI	No Direct Savings			0	0	15	10	15	10				No Direct Savings	
Total				0	0	150	104	150	104					
Energy Champion Program														
FEI				0	0	360	116	360	116					
FEVI	No Direct Savings			0	0	40	14	40	14				No Direct Savings	
Total				0	0	400	130	400	130					
Home Efficiency Measures														
FEI				0	0	338	0	338	0					
FEVI	No Direct Savings			0	0	38	0	38	0				No Direct Savings	
Total				0	0	376	0	376	0					
Municipal Partnerships – Other														
FEI				0	0	115	168	115	168					
FEVI	No Direct Savings			0	0	10	0	10	0				No Direct Savings	
Total				0	0	125	168	125	168					
Commercial Customers														
Medium-Large Commercial Education Sessions														
FEI				0	0	50	103	50	103					
FEVI	No Direct Savings			0	0	6	18	6	18				No Direct Savings	
Total				0	0	56	121	56	121					
Small Commercial Education and Outreach														
FEI				0	0	125	50	125	50					
FEVI	No Direct Savings			0	0	10	9	10	9				No Direct Savings	
Total				0	0	135	59	135	59					
Commercial Trade Shows and Association Events														
FEI				0	0	170	45	170	45					
FEVI	No Direct Savings			0	0	20	2	20	2				No Direct Savings	
Total				0	0	190	47	190	47					
Behaviour Programs - Online Community Site														
FEI				0	0	125	1	125	1					
FEVI	No Direct Savings			0	0	15	0	15	0				No Direct Savings	
Total				0	0	140	1	140	1					
Behaviour Programs - Energy Specialists														
FEI				0	0	144	9	144	9					
FEVI	No Direct Savings			0	0	16	3	16	3				No Direct Savings	
Total				0	0	160	12	160	12					
Conservation Assistance														
Conservation Assistance - Education and Outreach														
FEI				0	0	125	7	125	7					
FEVI	No Direct Savings			0	0	15	1	15	1				No Direct Savings	
Total				0	0	140	8	140	8					

Table 10-1: 2013 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	2013 Actual		Incentives		Non-Incentives		All Spending		TRC	MTRC	Utility	Participant	RIM
				2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual					
School Outreach														
School Programs: Class and Online Curriculum														
FEI		No Direct Savings		0	0	0	0	0	0	No Direct Savings				
FEVI				0	0	0	0	0	0					
Total				0	0	0	0	0	0					
School Programs: K-12 In-Class Programs and Presentations														
FEI		No Direct Savings		0	0	400	453	400	453	No Direct Savings				
FEVI				0	0	50	68	50	68					
Total				0	0	450	521	450	521					
School Programs: K-12 Home Efficiency Measures														
FEI		No Direct Savings		0	0	90	10	90	10	No Direct Savings				
FEVI				0	0	10	0	10	0					
Total				0	0	100	10	100	10					
School Programs: Post Secondary														
FEI		No Direct Savings		0	0	165	1	165	1	No Direct Savings				
FEVI				0	0	20	10	20	10					
Total				0	0	185	11	185	11					
ALL PROGRAMS														
FEI		No Direct Savings		0	0	3,490	2,021	3,490	2,021	No Direct Savings				
FEVI				0	0	392	234	392	234					
Total				0	0	3,882	2,255	3,882	2,255					

Notes:

- Non-program administrative expenses reside with the Residential Outreach Education Tools program.

10.2 2013 CEO Programs

Tables 10-2 through 10-18 outline the CEO initiatives undertaken in 2013. 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 2013, this program area continued to support the online energy calculator developed in 2012 to help aid customers with their decision-making on appliances. In addition, two comprehensive advertising campaigns were executed in 2013 which included print advertising in local community newspapers, online advertisements and radio spots driving both mainstream and ethnic audiences to use the online energy calculator and to interact with an online energy house educational tool.					
Target Market	Residential customers and general public					
New vs Retrofit	Retrofit					
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research &	Total
	FEI	0	9	272	0	281
	FEVI	0	1	45	0	46
	FEW	0	0	0	0	0
	Total	0	10	316	0	326

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, and contests. In 2013, the Companies engaged with over 80,000 residential customers combined through this program area and through the Energy Champion program on topics such as home renovations, equipment upgrades and energy savings. The companies continued to collaborate with the FortisBC Inc. electric utility on several events, as well as increased collaboration with BC Hydro through a joint booth space or side-by-side location at 6 events in 2013. In addition, the Companies continued supporting the Empower Me pilot program developed in 2012 educating Chinese and South Asian residential customers in the Lower Mainland through a mentor and peer modelling approach while distributing low flow efficiency measures as part of the program.				
Target Market	Residential customers and general public				
New vs Retrofit	Retrofit				
Expenditures (\$,000s)	2013				
	Incentives	Admin	Communication	Research & Evaluation	Total
Service Region					
FEI	0	543	92	0	635
FEVI	0	47	5	0	52
FEW	0	0	0	0	0
Total	0	590	97	0	687

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 home shows, green building awards, and education sessions targeted at residential customers and/or builders/developers.				
Target Market	Builders/renovators, Association members and general public				
New vs Retrofit	Both				
Expenditures (\$,000s)	2013				
	Incentives	Admin	Communication	Research & Evaluation	Total
Service Region					
FEI	0	48	0	0	48
FEVI	0	1	0	0	1
FEW	0	0	0	0	0
Total	0	49	0	0	49

Table 10-5: Residential Outreach Education Tools

Program Description	These tools include production materials, booth collateral, energy saving giveaways such as caulking samples, weather-stripping 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)	2013				
	Incentives	Admin	Communication	Research & Evaluation	Total
Service Region					
FEI	0	65	30	0	94
FEVI	0	7	3	0	10
FEW	0	0	0	0	0
Total	0	72	32	0	104

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, and Kootenay International Junior Hockey League to promote energy conservation to consumers. Primarily targeting families and children, the Companies have engaged with approximately 80,000 residential customers combined through this program and at home shows and community events 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)	2013					
	Service Region	Incentives	Admin	Communication	Research &	Total
	FEI	0	109	6	0	116
	FEVI	0	14	0	0	14
	FEW	0	0	0	0	0
	Total	0	124	6	0	130

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. In 2013, the Companies did not have a specific program for home efficiency measures; however, some measures such as low flow showerheads and low flow aerators were distributed in the Empower Me pilot program targeting Chinese and South Asian residential customers in the Lower Mainland, which was noted in the Residential Home Shows and Community Outreach program area. A low flow efficiency promotional program is in development to launch in 2014 in collaboration with BC Hydro and a retail partner.					
Target Market	Residential customers					
New vs Retrofit	Retrofit					
Expenditures (\$,000s)	2013					
	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

Table 10-8: Municipal Partnerships – Other

Program Description	This program provides support to municipal conservation programs. Along with several partners such as BC Hydro, FortisBC Electric, Community Energy Association, and local municipalities, the Companies supported four community energy diets in the East Kootenays region, West Kootenays region, Okanagan region, and City of New Westminster. Additional programs are in development with City of Surrey that will be launching in 2014.					
Target Market	Commercial customers, builders/developers and municipal employees					
New vs Retrofit	Retrofit					
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	168	0	0	168
	FEVI	0	0	0	0	0
	FEW	0	0	0	0	0
	Total	0	168	0	0	168

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

Program Description	This program includes the delivery of education sessions on natural gas equipment to guide commercial building operators, facility managers, and other energy management service providers in identifying prospective natural gas savings and optimizing building performance. The curriculum was developed by Natural Resources Canada (NRCan) and was delivered to over 220 attendees in 12 municipalities in BC. The actual spend in this area exceeds that of what was projected for 2013 (\$56,000 was projected); however, the total program spend on new Conservation Education and Outreach programs remains underspent. The total approved spend for new Conservation Education and Outreach programs in 2013 was \$1.116 million. Due to high demand from the commercial sector and from energy services professionals, the Companies decided to increase the number of education sessions held in 2013, while costs from the vendor, NRCan, to deliver the program had also greatly increased, thus causing a variance from the projected spend.					
Target Market	Commercial building operators					
New vs Retrofit	Retrofit					
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	103	0	0	103
	FEVI	0	18	0	0	18
	FEW	0	0	0	0	0
	Total	0	120	0	0	120

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, education sessions, and events. These initiatives include bill inserts, ethnic communication materials, presentations to local business chambers, and partnerships with Climate Smart, Business Improvement Associations of BC, and Small Business BC.					
Target Market	Small commercial customers					
New vs Retrofit	Retrofit					
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	50	0	0	50
	FEVI	0	9	0	0	9
	FEW	0	0	0	0	0
	Total	0	58	0	0	58

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 to promote energy efficiency and conservation practices to commercial customers and industrial customers.					
Target Market	Commercial customers					
New vs Retrofit	Both					
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total	
	FEI	0	45	1	0	46
	FEVI	0	2	0	0	2
	FEW	0	0	0	0	0
	Total	0	47	1	0	47

Table 10-12: Behaviour Programs - Online Community Site

Program Description	This program continued to seek partnerships with commercial/municipal customers in 2013; however, none have signed on yet. Minimal costs have been spent to maintain online certificates for the demonstration site to remain active. Partnerships for this program will continue to be sought in 2014. This is a tool that would likely appeal to 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)	2013				
	Incentives	Admin	Communication	Research & Evaluation	Total
Service Region					
FEI	0	1	0	0	1
FEVI	0	0	0	0	0
FEW	0	0	0	0	0
Total	0	1	0	0	1

Table 10-13: Behaviour Programs – Delivered by Energy Specialists

Program Description	This program supports behavior education campaigns generally delivered by Energy Specialists or other Energy Management staff in their respective organizations. Costs include production items such as posters , or prizes for participation in a campaign. Examples of these education initiatives include the University of British Columbia’s ‘Shut the Sash’ campaign on fume hoods, and City of Coquitlam's fleece campaign. Other initiatives include hosting green fairs, education sessions, “green” teams, and competitions.				
Target Market	Commercial/municipal/institutional organizations and their employees				
New vs Retrofit	Retrofit				
Expenditures (\$,000s)	2013				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	9	0	9
	FEVI	0	1	3	4
	FEW	0	0	0	0
	Total	0	9	3	13

Table 10-14: Low Income - Education and Outreach

Program Description	This program included support of the BC Non-Profit Housing Association annual conference in 2013.				
Target Market	Low income, residential customers				
New vs Retrofit	Retrofit				
Expenditures (\$,000s)	2013				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	7	0	8
	FEVI	0	1	0	1
	FEW	0	0	0	0
	Total	0	8	0	8

Table 10-15: 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, Green Bricks, and the BC Lions Energy Champion Assembly presentations. The Vancouver Aquarium school program also launched in 2013 targeting high school students. This program area 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 both the 2012-2013 and 2013-2014 school years.				
Target Market	Students				
New vs Retrofit	Both				
Expenditures (\$,000s)	2013				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	442	12	453
	FEVI	0	68	0	68
	FEW	0	0	0	0
	Total	0	510	12	522

Table 10-16: School Programs: K-12 Home Efficiency Measures

Program Description	This program supports low-cost fixtures distributed to students through K-12 school programs. In 2013 through the Beyond Recycling program, low flow showerheads and aerators were distributed to over 200 students to install 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)	2013				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	10	0	10
	FEVI	0	0	0	0
	FEW	0	0	0	0
	Total	0	10	0	10

Table 10-18: School Programs: Post-Secondary

Program Description	This program supported 2 behavior change initiatives targeting post-secondary institutions at University of British Columbia and on Vancouver Island . 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. The expenditures below include expenditures for both the 2012-2013 and 2013-2014 school years.				
Target Market	Students				
New vs Retrofit	N/A				
Expenditures (\$,000s)	2013				
	Service Region	Incentives	Admin Communication	Research & Evaluation	Total
	FEI	0	1	0	1
	FEVI	0	10	0	10
	FEW	0	0	0	0
	Total	0	11	0	11

10.3 2013 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. No programs were launched in 2013; however an initiative will be launched in 2014 in partnership with BC Hydro and 5 Lower Mainland municipalities. This initiative will fall within the Commercial Education program category under the revised organization of the CEO customer offerings presented in the EEC 2014-2018 Plan.

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 2013. 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 2013, 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, appliance/equipment standards, and regulations. While these activities 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 2013 (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 Companies continued to work toward increased integration and collaboration with the FortisBC Inc. electric utility in 2013. Efficiency Partners program integration of heat pump contractors in the Companies' directory listing of contractors was completed in 2013.

Table 11-1 summarizes the projected and actual expenditures for the Enabling Activities in 2013.

Table 11-1: 2013 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	2013 Actual		2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual	2012-2013 EEC Plan	2013 Actual					
Efficiency Partners Program														
FEI		No Direct Savings		0	0	450	362	450	362	No Direct Savings				
FEVI				0	0	50	125	50	125					
Total				0	0	500	487	500	487					
Codes and Standards														
FEI		No Direct Savings		0	0	0	82	0	82	No Direct Savings				
FEVI				0	0	0	9	0	9					
Total				0	0	0	91	0	91					
ALL PROGRAMS														
FEI		No Direct Savings		0	0	450	444	450	444	No Direct Savings				
FEVI				0	0	50	134	50	134					
Total				0	0	500	578	500	578					

11.2 2013 Enabling Activities by Program

The following tables outline the specific Enabling Activities undertaken in 2013 by program, including both program and measure descriptions along with a breakdown of non-incentive

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

spending. The success of the Residential Furnace Replacement Pilot program (see Section 5, Table 5-7), which was promoted through the contractor network, demonstrates the value of the Efficiency Partners Program. Communications were immediate and responsive through the network and at the end of the pilot period, 78 percent of the program's participants used contractors who were members of the Contractor program network.

Table 11-3: 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	2013 Projected	2013 Actual			
	FEI	0	0			
	FEVI	0	0			
	FEW	0	0			
	Total	0	0			
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	65	250	44	358
	FEVI	0	17	103	5	125
	FEW	0	1	3	0	4
	Total	0	83	355	49	487

Notes:

- Approximately \$249,000 of the \$355,000 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, standards, and regulations. 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 Canadian 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 Maintenance</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. It has been published in French and English and submitted to the Standards Council of Canada (SCC) for recognition as an official Canadian Standard.					
<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	2013 Projected	2013 Actual			
	FEI	0	0			
	FEVI	0	0			
	FEW	0	0			
	Total	0	0			
Expenditures (\$,000s)	2013					
	Service Region	Incentives	Admin	Communication	Research & Evaluation	Total
	FEI	0	82	0	0	82
	FEVI	0	9	0	0	9
	FEW	0	0	0	0	0
	Total	0	91	0	0	91

11.3 Summary

Enabling Activities are critical initiatives that support the advancement of energy efficiency for a variety of EEC Program Area activities. In 2013, the Efficiency Partners Program experienced a

23 percent increase in the number of Contractor program members over 2012, bringing the number of applicants in the network to 591. Building on this foundation, investigative work began in 2013 to expand the initiative to a broader Trade Ally Network incorporating additional channels for messaging, programs and products. As the program continues to expand and broaden in scope, so too does the number of contractors available to support the delivery of EEC, and other company initiatives. The Companies' involvement in Codes and Standards work in 2013 continued to encompass 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 continued to advance their evaluation activities in 2013, 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 2013.

12.1 2013 Program Evaluation and Evaluation Research Activities

The Companies' Evaluation, Measurement and Verification ("EM&V") activities for 2013 continued to grow as more programs reach maturity and more programs are put into market. 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. The evaluation activities conducted were focused on identifying energy savings, assessing participant awareness, satisfaction and education, and research.

Table 12-1 presents an inventory of all program evaluation and evaluation research related activities undertaken in 2013. Expenditures for these activities have been reported within the applicable Program Area administrative costs, but are also reported here in order to provide a concise, easy-to-view summary of evaluation activities. Included in the table are: a list of all the 2013 evaluation activities; the Program Area each activity occurred in; the general type of evaluation activity undertaken; the Companies' actual 2013 expenditures; and, a status update on each activity. The total expenditure for program evaluation and research activities in 2013 was \$548,000.

Table 12-2 contains a summary of all program evaluation studies completed in 2013 and includes a brief description of the methodologies and key findings. The complete evaluation methodologies and details are available in their respective Final Reports.

Table 12-1: Inventory of EEC Program Evaluation and Evaluation Research Activities Conducted in 2013¹⁶

Evaluation Name	Program Area	Type of Evaluation	Years the program has been running ¹⁷	Evaluation Partnership	Actual Evaluation Expenditure (000's)	Evaluation Status
EEC/PowerSense Ad Tracking 2013	EEC Portfolio	Communication	ongoing	FortisBC Inc (electric)	\$40	Media Effectiveness and Ad-Tracking for EEC Programs - Wave 4: Completed September 2013 by TNS Wave 5: Expected completion Q2 2014
EEC Collaboration with Municipalities - In-depth Interviews	EEC Portfolio	Communication	1	none	\$0	Completed April 2013 by Participant Research. Remaining costs will occur in 2014.
TLC Furnace/Fireplace 2012	Residential	Process	4	none	\$17	Participant Survey - Completed March 2013 by TNS
Furnace Replacement Pilot Program - Participant Survey	Residential	Process	1	none	\$0	Customer satisfaction survey mailed with rebate cheque - Completed February 2013 by IPSOS. Costs incurred in 2012.
Furnace Replacement Pilot Program - Furnace Rebate Levels	Residential	Process	1	none	\$8	Customer Survey - Completed April 2013 by TNS
Furnace Replacement Pilot Program - Estimation of Remaining Life of Replaced Furnaces	Residential	Evaluation Study	1	none	\$15	Furnace Testing - Completed July 2013 by Clearlead Consulting
Furnace Replacement Pilot Program - Quality Installation Study for Furnaces	Residential	Evaluation Study	1	none	\$50	Furnace Inspection - Completed October 2013 by Eccolighiten
Furnace Replacement Pilot Program - Customer and Contractor Survey (2012 Participants)	Residential	Process	1	none	\$17	Customer survey dataset - Completed June 2013 by TNS Customer survey results will be incorporated in the Billing Analysis 2014 expected to be completed Q2 of 2014. Contractor Survey - Completed July 2013 by TNS
Furnace Replacement Pilot Program - Customer Survey (2013 Participants)	Residential	Process	1	none	\$6	Customer survey dataset - Completed December 2013 by TNS Survey results will be incorporated in the Billing Analysis 2014 expected to be completed Q2 of 2014.
Furnace Replacement Pilot Program - Preliminary Evaluation Year 1 Pilot	Residential	Process	1	none	\$60	Customer and Contractor application analysis - Completed May 2013 by Habart and Associates Consulting Inc.
Furnace Replacement Pilot Program - Participant and Contractor Survey Results	Residential	Process	1	none		Participant and Contractor survey analysis (2012 participants) - Completed September 2013 by Habart and Associates Consulting Inc. with Sampson Research Inc.

¹⁶ Table 12.1 does not include Prefeasibility Studies. Please refer to the Innovative Technologies section (Section 8) for details.

¹⁷ Measurement & Verification studies require time to conduct activities which include, but are not limited to, project commissioning, installing and removal of monitoring equipment, data collection and, data analysis and reporting. The column 'Years the program has been running' will refer to the time required to conduct the M&V activities. M&V activities align with the International Performance Measurement and Verification Protocol (IPMVP). Concepts and Options for Determining Energy and Water Savings. Prepared by the Efficiency Valuation Organization: www.evo-world.org. January 2012.

Table 12-1: Inventory of EEC Program Evaluation and Evaluation Research Activities Conducted in 2013 (continued)

Evaluation Name	Program Area	Type of Evaluation	Years the program has been running ¹²	Evaluation Partnership	Actual Evaluation Expenditure (000's)	Evaluation Status
LiveSmart BC Program Evaluation	Joint Initiatives	Impact & Process	5.5	MEM, BC Hydro, FEU and FBC	\$3	Final Report completed November 2013. MEM is lead organization for the evaluation. Costs incurred in 2012.
Energy Specialist Program Energy Savings Audit-2013	Commercial	Impact	2	none	\$20	Final Report completed March 2013 by Prism Engineering Ltd and ClearLead Consulting Ltd. Key findings presented in the 2012 Annual Report.
Energy Specialist Program Energy Savings Audit-2014 Update	Commercial	Impact	3	none	\$0	The study is an update to the Energy Savings Audit 2012 to verify 2013 project savings. 2013 project savings have been verified, Final Report to be completed April 2014 by Prism Engineering Ltd and ClearLead Consulting Ltd. Evaluation costs will occur in 2014.
Efficient Boiler Program (Retrofit) - 2013 Update <i>Previously filed as "Efficient Boiler Program (Retrofit) 2012"</i>	Commercial	Impact & Process	10	none	\$6	An update study to the Efficient Boiler Program (Retrofit) 2011 Evaluation to verify energy savings. Final report completed August 2013 by Prism Engineering. Costs incurred in 2012.
Radiant Tube Heater Pilot Program	Commercial	Measurement & Verification	2	none	\$0	M&V + Final Report completed March 2013
City of Vancouver Residential Solar Water Heating Pilot	Innovative Technologies	Measurement & Verification	3	City of Vancouver & Solar BC	\$3	Data collection completed. Expected completion of M&V + Final Report by Q3 2014.
City of Courtenay Solar Pool Demonstration Project	Innovative Technologies	Measurement & Verification	2	City of Courtenay	\$12	Data collection completed. Expected completion of M&V + Final Report by Q3 2014.
Occupancy Sensor Ventilation Control Pilot	Innovative Technologies	Measurement & Verification	3	School District (Burnaby & North Delta)	\$0	M&V + Final Report completed June 2013.

Table 12-1: Inventory of EEC Program Evaluation and Evaluation Research Activities Conducted in 2013 (continued)

Evaluation Name	Program Area	Type of Evaluation	Years the program has been running ¹²	Evaluation Partnership	Actual Evaluation Expenditure (000's)	Evaluation Status
AHU Coil Cleaning Pilot	Innovative Technologies	Measurement & Verification	2	Vancouver Island Health Authority	\$0	Expected completion of M&V + Final Report by Q2 2014.
Residential High Efficiency Water Heater Pilot - 0.80 Pilot	Innovative Technologies	Measurement & Verification	3	Canadian Gas Association, Natural Gas Technology Centre & other utilities	\$24	Expected completion of M&V + Final Report by Q2 2014.
ENERGY STAR® 0.67 Storage Tank Water Heater Pilot	Innovative Technologies	Measurement & Verification	2	none	\$6	Expected completion of M&V + Final Report by Q3 2014.
Condensing Gas-Fired Ventilation Units	Innovative Technologies	Measurement & Verification	new	none	\$216	Expected completion of M&V + Final Report by Q4 2015.
Ice Rink Resurfacing Efficiency Pilot	Innovative Technologies	Measurement & Verification	new	none	\$17	Expected completion of M&V + Final Report by Q2 2014.
Technology Retrofit Program	Industrial	Measurement & Verification	2	none	\$13	Commissioned 2 projects in 2013. Total of 3 projects requiring M&V. Project 1 - Expected completion Q4 2015 Project 2 - Expected completion Q2 2016 Project 3 - Expected completion Q4 2016
Contractor Program Co-ops Ads Research Project	Efficiency Partners Program	Process	2	none	\$0	Survey- Completed February 2013 by Participant Research Remaining costs will occur in 2014.

Table 12-2 contains a summary of all program evaluation studies completed in 2013 and includes a brief description of the methodologies and key findings. The complete evaluation methodologies and details are available in their respective Final Reports.

Table 12.2: Summary of Key Findings and Methodology for 2013 Completed EEC Program Evaluation Studies

Evaluation Name	Program Area	Type of Evaluation	Methodology	Key Findings
EEC/PowerSense Ad Tracking 2013	EEC Portfolio	Communication	Online Panel	<p>Wave 1 Results from 2013: Similar to the 2012 results, the 2 most effective communication channels are Bill inserts and TV ads. Awareness was higher among FortisBC Electric customers, while home-owners were also more likely to be aware of the programs than renters.</p> <p>Outcome from Key Findings: In the past two campaigns, efforts had been made to simplify communications and make them easier to read. Continue to monitor the consolidated approach.</p>
EEC Collaboration with Municipalities - In-depth Interviews	EEC Portfolio	Communication	<p>In-depth interviews with 11 municipal employees and program consultants engaged in promoting energy efficiency programs. The objective was to assess the importance municipalities place on energy efficiency programs.</p> <p>The interviews were fielded between January 13 to February 28, 2013.</p>	<p>Results: With the exception of the largest municipalities, most municipalities said that residential retrofit programs take lower priority than corporate energy reduction initiatives. Larger municipalities such as Vancouver or Victoria have significantly more resources and provide more residential programs to their citizens.</p> <p>Based on the results, there is no consistency between small municipalities in program delivery</p> <p>Outcome from Key Findings: Based on the findings, the results were used as directional for program design in terms of incorporating community-based marketing approaches and how to scale across the province.</p>
TLC Furnace/Fireplace 2012	Residential	Process	<p>375 telephone interviews were completed between February 20 and 25, 2013 with FortisBC customers who participated in the 2012 TLC program.</p> <p>225 households with Furnace and 150 with Fireplace were surveyed. Households with both serviced, were randomly assigned to one.</p>	<p>Results: 84% of participants are highly satisfied with the TLC program (rating 8, 9 or 10 out of 10) The drivers for program participation were: 1) Timeliness of the program and; 2) \$25 incentive reward.</p> <p>16% of furnace servicing visits included a recommendation from contractor to upgrade/replace the appliance. 10% of fireplace servicing visits were accompanied with the same advice.</p> <p>Outcome from Key Findings: Continue to leverage the TLC Program to promote the Furnace Replacement Pilot Program and encourage the upgrades of furnaces and all natural gas appliances to efficient models.</p>

Table 12-2: Summary of Key Findings and Methodology for 2013 Completed EEC Program Evaluation Studies (continued)

Evaluation Name	Program Area	Type of Evaluation	Methodology	Key Findings
Furnace Replacement Pilot Program - Participant Survey	Residential	Process	Hard copy of the survey was mailed out to 2000 participants along with their rebate cheque. Online option was also provided via a URL link. The survey was in field between October 2012 to January 2013. A total of 808 participants completed the survey.	<p>Results: 91% of participants are highly satisfied with the Furnace Replacement Pilot Program (rating 8, 9 or 10 out of 10)</p> <p>The factor most likely to have motivated participants to sign up for the program is reduced energy bills, with 80% of participants indicating that reduced energy bills had a 'strong effect' on their decision to participate in the program, and almost all participants saying this had at least some effect on their decision.</p> <p>Outcome from Key Findings: The results were used as directional measure to show that the program is influencing early replacement of a functioning furnace. The results were also used to support the Customer and Contractor survey and, the analysis conducted by Jack Habart for the 'Participant and Contractor Survey Results'</p>
Furnace Replacement Pilot Program - Furnace Rebate Levels	Residential	Process	301 telephone interviews were conducted between March 19 and March 25, 2013 with FortisBC customers who took part in the TLC Furnace Servicing Program in 2012. The sample included BC households with low or mid-efficiency gas furnaces.	<p>Results: The current rebate level of \$800 appears to be the most appropriate rebate level. Rebate price points ranging from \$250 to \$1250 were provided to the participants and at the \$800 rebate level, 29% of survey participants would upgrade. Lowering the rebate level to \$500 may result in a steep drop in upgrade intentions and increasing it to \$1000 has a minimal effect.</p> <p>Outcome from Key Findings: Continue to use the \$800 rebate level and increase customer communications initiatives to drive program awareness.</p>
Furnace Replacement Pilot Program - Estimation of Remaining Life of Replaced Furnaces	Residential	Evaluation Study	10 randomly selected furnaces removed from the Furnace Replacement Pilot Program were inspected for indications of remaining life by qualified heating systems professionals.	<p>Results: Based on the results of a 10 furnace sample, it is not possible to provide a definitive estimate of remaining life of the appliance. However, all samples provided evidence that the furnaces were still operational when replaced. The heat exchangers generally showed minimum wear and may well have a significant number of years of lifetime remaining. Only one furnace out of the 10 inspected had a significant defect (small cracks) in the heat exchanger which may have led to shortened future life.</p> <p>Outcome from Key Findings: Due to small sample size, results were used as directional and support for program design. However, the results did confirm that the samples of replaced furnaces were not at end of life.</p>

Table 12-2: Summary of Key Findings and Methodology for 2013 Completed EEC Program Evaluation Studies (continued)

Evaluation Name	Program Area	Type of Evaluation	Methodology	Key Findings
Furnace Replacement Pilot Program - Quality Installation Study for Furnaces	Residential	Evaluation Study	50 high efficiency furnaces installed from the Furnace Replacement Pilot Program were selected based on geographical location, to undergo a series of installation checks and a customer survey. The methodology to evaluate the installations included a combination of visual and empirical data collection. The visual inspection utilized a 14 point "Quality First" standard representing installation best practices from BC's Thermal Environmental Comfort Association (TECA).	<p>Results: A total of 48 furnaces were inspected. (2 boilers were excluded from this study). Based on the fourteen point "TECA Quality First" checklist:</p> <ol style="list-style-type: none"> 1) a total of 672 data points were reviewed from the 48 furnaces and checked against each of the fourteen TECA Quality First installation points. Only 46% of the reviewed data points were observed to be in compliance, indicating that many installers were not following the recommendations laid out by the TECA fourteen point Quality First Checklist. 2) a total of 25% of the sample furnaces appeared to be oversized 3) all the furnaces were double pipe system (combustion air and exhaust). 71% of the furnaces had combustion air pipes drawing air from outside of the home which leads to more controlled combustion. 4) 70% of the furnaces had not purchased a new thermostat with the new furnace. A compatible thermostat allows for better control and efficiency use of the HE furnace. <p>Outcome from Key Findings: The results indicated an inconsistency in the 'Quality First' standards for furnace installation. Results will be presented to contractors to help improve the quality of installations and therefore operating efficiency. Results of the study will be used to help guide utilities, government and industry (TECA) who are in the process of developing standard requirements for quality furnace installations and potentially certification for gas contractors / installers.</p>
Furnace Replacement Pilot Program - Contractor Survey	Residential	Process	50 program contractors were randomly selected based on geographical location for a telephone survey to assess contractor program satisfaction. Interviews were field between May 10 to May 23.	<p>Results: The key findings are:</p> <ol style="list-style-type: none"> 1) Contractors reported a net increase in sales of residential furnaces / boilers in 2012 and; 2) Contractors expressed their concern on the lack of advance notice from FortisBC regarding the Furnace Replacement Pilot program <p>Outcome from Key Findings: Continue to work closely with industry on program design. Determine ways to provide advance notice for contractors in ways that will not be detrimental to the market.</p>
Furnace Replacement Pilot Program - Preliminary Evaluation Year 1 Pilot (Full Data)	Residential	Process	Preliminary evaluation conducted on the pilot program based on the data collected from both the participant homeowners (3,299 forms) and the contractors (2,328 forms) as part of the application process. The results are intended to provide an update to the benefit / cost analysis	<p>Results: 84% of the participants said that they did not know or did not respond when asked how long they would've kept their furnace in absence of this program. The response supports the idea that the program encouraged early replacement. A total of 504 contractors participated in the program. 73% of the installations were done by contractors who are part of the FortisBC Contractor Program. The analysis estimated an average period of advancement of 4.3 years and an MTRC of 1.4</p> <p>Outcome from Key Findings: Results will be used to update the benefit / cost analysis calculation as part of the program design stage.</p>

Table 12-2: Summary of Key Findings and Methodology for 2013 Completed EEC Program Evaluation Studies (continued)

Evaluation Name	Program Area	Type of Evaluation	Methodology	Key Findings
Furnace Replacement Pilot Program - Participant and Contractor Survey Results	Residential	Process	<p>395 telephone interviews were conducted with program participants between June 4 and June 24, 2013. The incentive was a chance to win one of 10 gift cards of \$100 for Home Depot.</p> <p>50 telephone interviews were conducted with program contractors between May 10 and May 23, 2013. The incentive was a chance to win one \$500 gift card.</p> <p>The surveys were conducted to assess program satisfaction, behavioral change and contractor market effects.</p>	<p>Results: 76% of participants are highly satisfied with the program application process. (rating 8, 9 or 10 out of 10)</p> <p>86% of participants rating a high satisfaction for the new furnace based on the following;</p> <ol style="list-style-type: none"> 1) new furnace is more efficient 2) saves money 3) quieter <p>Outcome from Key Findings: The survey results will be incorporated in the Billing Analysis 2014 expected to be completed Q2 of 2014.</p>
LiveSmart BC Program Evaluation	Joint Initiatives	Impact & Process	<p>A combination of a Participant survey and Consumption Analysis was conducted to assess the following;</p> <ol style="list-style-type: none"> 1) Estimate gross and net energy savings and GHG savings attributed from the program and further broken down by heating fuel 2) investigate customer satisfaction with the program and other factors to determine program participation <p>Survey Sample: 8,600 participants + 4,400 non participants</p> <p>Utility billing data: 5,800 participants + 3,100 non participants between April 2008 and March 2011.</p>	<p>Results: 91% of participants are highly satisfied overall, including 55% indicated 'very satisfied' with the LiveSmart Program.</p> <p>Satisfaction with the total value of the rebate cheque is the strongest driver of satisfaction.</p> <p>An average gross savings per participant of 21.6 GJ/Year was determined based on 33,431 Natural Gas participants.</p> <p>Outcome from Key Findings: Results will be reviewed and determined if the results will be incorporated in the update to the benefit / cost analysis.</p>
Occupancy Sensor Ventilation Control Pilot	Innovative Technologies	Measurement & Verification	<p>The M&V Plan: Complies with the International Performance Measurement & Verification Protocol. The selected IPMVP option and measurement boundary used was Option B¹⁸.</p> <p>M&V: 4 schools were selected to participate in the M&V pilot with each school completing a side-by-side comparison between one classroom with occupancy sensor and one classroom without occupancy sensor.</p> <p>The purpose of the M&V is to quantify the energy savings by installing occupancy sensor to the unit ventilator. The M&V was conducted over a 12-month period from April 2012 to March 2013.</p>	<p>Results: Based on the M&V result, the 4 schools showed an average natural gas savings of 3.0 GJ or 32% annually per classroom by controlling the heat in the classrooms with occupancy sensors.</p> <p>Outcome from Key Finding: Results were presented to the EEC Advisory Group November 2013 and included as an eligible measure within the Commercial Custom Design Retrofit Program.</p>

¹⁸ IPMVP Option B - Measurement of all parameters governing energy use to assess consumption. www.evo-world.org

Table 12-2: Summary of Key Findings and Methodology for 2013 Completed EEC Program Evaluation Studies (continued)

Evaluation Name	Program Area	Type of Evaluation	Methodology	Key Findings
Energy Specialist Program Energy Savings Audit- 2014 Update	Commercial	Impact	<p>The methodology remains consistent with the Energy Savings Audit - 2013.</p> <p>A total of 27 completed projects were reviewed by Prism Engineering Ltd. and ClearLead Consulting Ltd. Each Energy Specialist was required to complete a project-specific questionnaire and provide detailed project calculations and information for review. Project savings were verified on a project by project basis.</p> <p>Energy Specialist gas savings projects verified were those that did not take advantage of an existing Fortis BC incentive program.</p>	<p>Results: A total of 27 completed projects for 2013 were reviewed to represent savings in 2013.</p> <p>The total verified savings of these 27 projects is 16,905 GJ/year. NPV gas savings equate to 65,564 GJ which is calculated using a methodology to account for the potential that projects may not persist over the anticipated measure life.</p> <p>Outcome of Key Findings: Continue to provide the Energy Specialists with support where required to properly document estimated energy savings. The preliminary results are showing a close variance between the claimed savings versus the verified savings. This suggests the documentations and energy savings estimates provided by the Energy Specialists are more precise and the FortisBC support has a positive effect.</p>
Efficient Boiler Program (Retrofit) 2013 - Update Previously filed as "Efficient Boiler Program (Retrofit) 2012"	Commercial	Impact & Process	<p>The evaluation is an update of the "Efficient Boiler Program (Retrofit) 2011" study where data from 135 participants were analyzed. The 2013 update study added an additional 180 new participants to the analysis resulting in a total sample size of 236 program participants. (79 outliers excluded)</p> <p>A historical billing analysis was conducted for the 236 program participants where the objective is to quantify the savings associated with the Efficient Boiler Program. The evaluation was conducted for program participants that installed boilers between May 2005 and October 2012.</p>	<p>Results: 236 program sites from Multi-Unit Residential Building (MURB), Office, School and Other indicated a savings of 19.4% average pre-retrofit energy use per participant.</p> <p>The MURB sites showed the highest savings at 20%. School buildings and Offices had a slightly lower savings of 18% and 16% respectively.</p> <p>Sites with high efficiency boilers (90% or higher) achieved savings above the average, whereas sites with mid efficiency boilers showed savings below the average.</p> <p>Outcome from Key Findings: The overall program energy savings achieved from the study (19.4% average pre-retrofit energy use per participant) were higher than the target savings of 15%. The results will be used for marketing and communication purposes to help mitigate the information barriers on boiler efficiency.</p>

Table 12-2: Summary of Key Findings and Methodology for 2013 Completed EEC Program Evaluation Studies (continued)

Evaluation Name	Program Area	Type of Evaluation	Methodology	Key Findings
Radiant Tube Heater Pilot Program	Commercial	Measurement & Verification	<p>The M&V plan: Complies with the International Performance Measurement & Verification Protocol (IPMVP). The selected IPMVP options and measurement boundaries used were Option B¹⁹ and Option C²⁰. The options were selected to assess the pre and post consumption data and the baseline data.</p> <p>M&V: 3 natural gas pulse meters were installed to the new radiant tube heaters, new furnace and existing domestic hot water (DHW) heater serving the old section of the Fire Hall.</p> <p>The M&V was conducted over a 12-month period from January 29th, 2011 to February 8th, 2012.</p>	<p>Results: Based on the M&V results, the new gas-fired radiant tube heater in the truck bay of the old section resulted in approximately 74 GJ of natural gas savings or 37% annually, or equivalent to 0.46 GJ/MBH for an installed system of 160 MBH.</p> <p>The new gas-fired condensing high efficiency furnace serving the old section resulted in approximately 61 GJ of natural gas savings or 42% annually.</p> <p>Outcome from Key Findings: A prefeasibility study was conducted to validate the energy savings from the radiant tube heater. The results from the study were consistent with the M&V results but also indicated there is a high adoption rate in BC for radiant tube heaters. The cost of a radiant tube heater is relatively close to the cost of the baseline unit heater and for these reasons, there isn't a need for an incentive program at this time.</p>
Contractor Program Co-ops Ads Research Project	Efficiency Partners Program	Process	<p>In-depth interviews with 20 contractors from the Contractor Program. The objective of the survey was to understand the contractors' current advertising strategies and identify the barriers to participating in co-op advertising</p> <p>The interviews were fielded between January 8th to 25th, 2013.</p>	<p>Results: With the exception of large-scale contractors, there are no advertising strategies used by contractors. Small and medium sized contractors have a different expectation of advertising. They have the expectation that any advertising will result in increased sales.</p> <p>Based on the research results, some contractors perceive that the process for participating in co-op advertising will be difficult and cumbersome. They also express little expertise in this area, and appreciate assistance in ad design.</p> <p>Outcome from Key Findings: In order to simplify the co-op process, and assist with ad design, simple ad tiles and web banners were created along with usage guidelines. These are made available on the website for contractors to access, along with contact information should the contractor require further assistance.</p>

¹⁹ IPMVP Option B - Measurement of all parameters governing energy use to assess consumption. www.evo-world.org

²⁰ IPMVP Option C - Use of whole facility utility meters or sub-meters to assess energy consumption. www.evo-world.org

12.2 Evaluation Collaboration

The FEU have continued to increase collaboration activities with FortisBC Inc., (the electric utility), BC Hydro, and other entities to conduct program evaluation for EEC programs. Tables 12-1 and 12-2 provide information on program evaluation activities completed in partnership with other organizations. The LiveSmart BC program evaluation is a good example representing the partnership between multiple organizations. The EEC/PowerSense Ad Tracking indicates our efforts to seek collaborative opportunities within the shared services territory.

Collaboration efforts on evaluation have been further enhanced by the Memorandum of Understanding (“MOU”) on collaboration discussed in Section 2.6. The FEU and BC Hydro evaluation staff held update meetings to review the evaluation plans and discuss future evaluation activities. To be consistent with the MOU for program collaboration, the evaluation staff from both parties will continue to hold update meetings and explore opportunities for future program evaluation.

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 Commission Orders and the internal control processes of the Companies in general. In its 2009 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 FEU staff responsible for EEC tracking, evaluation and reporting, continue to report to a different Director than staff responsible for program development and implementation in order to:

- conduct independent evaluation activities,
- maintain an independent library of inputs into cost effectiveness calculations; and,
- centralize reporting processes.

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 effectiveness 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 consultants²¹ to apply the program costs and benefits in each of the four standard cost-effectiveness tests based on the California Standard Practice Manual (Rate Impact Measure ["RIM"], Utility, Participant, and TRC) and the MTRC in accordance with British Columbia Demand-Side Measures Regulation.

²¹ Willis Energy Services Ltd. and The Cadmus Group Inc. provided input into this in-house cost-benefit model.

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

Each year, the FEU engage the Companies' own Internal Audit Services ("IAS") group to review the internal controls associated with the EEC initiative. The IAS utilize the most recently completed year of operation on which to conduct their audit. A copy of the 2013 Audit report, which found that EEC management processes and controls are designed and operating effectively, is included in Appendix A.

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 2013 EEC ANNUAL REPORT SUMMARY

2013 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 operating in compliance with the Companies' own EEC Guiding Principles, as well as meeting provincial requirements for adequacy. The Companies also continue to implement good internal data gathering, monitoring and reporting control practices.

Appendix A

INTERNAL AUDIT SERVICES REPORT

Date: August 19, 2013

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

CC: **Sarah Smith**, Director, Energy Efficiency and Conservation
David Bennett, Vice President, Operational Support & General Counsel

From: **Edward Olson**, 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 2012, the British Columbia Utilities Commission (“BCUC”) granted approval for the Program expenditure of \$29.7 million for 2012 in order G-44-12. 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 for the years 2010 and 2011. This is a follow up to that project as requested by management for 2012.

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; and
- 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. In the previous year’s audit it was noted that there were duplicate applications processed for Residential programs especially the TLC Gift Card Program. A sample review of the applications provided evidence that management has implemented significantly improved processes. This improvement will also continue as EEC programs begin to use the TrakSmart system.

CONCLUSION

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