Q. **Re: IN-NLH-012, p. 1 of 3**

Please provide:

- a copy of Hydro's CDM Report filed with the Board in March 2013, and
- documents describing in detail the Isolated System Community Energy Efficiency Program.

A. Copies of Hydro's CDM Reports filed with the Board in March 2013 and April 2014 are provided in IN-NLH-165 Attachment 1 and IN-NLH-165 Attachment 2, respectively. Please refer to PUB-NLH-313 Attachment 3 for details of the Isolated Systems Community Energy Efficiency Program for 2012, and to IN-NLH-165 Attachment 3 and IN-NLH-165 Attachment 4 for the Isolated Systems Community Energy Efficiency Programs for 2013 and 2014, respectively.

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

2012 Conservation and Demand Management Report

NEWFOUNDLAND AND LABRADOR HYDRO

March 2013

newfoundland labrador hydro
a nalcor energy company

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1 Introduction

This report provides an overview of Newfoundland and Labrador Hydro's (Hydro) activities undertaken in 2012 on Conservation and Demand Management (CDM). The report also provides some information on the future outlook and provides an estimate of the value of CDM from a utility perspective.

While the focus is on CDM information and programs directed at customers, Hydro also places efforts on improving the energy efficiency of its own facilities and there were further successes in that program in 2012.

This report describes the provincial approach towards the CDM initiatives, but focuses on the costs and initiatives for Hydro's portion of program implementation. 2012 was a very active year for Hydro, with significant program expansions in both residential and commercial sectors, targeting the isolated diesel systems. In addition to large scale programming, a smaller program promoting block heater timers was launched for customers in the Labrador Interconnected System. The Five Year Energy Conservation Plan: 2012-2016 (the Plan) was filed with the Board in 2012 and outlines further program expansions for 2013 and 2014 for both commercial and residential customers.

2 Provincial Context

Energy conservation initiatives were a topic of discussion during Hydro's 2006 General Rate Application (GRA). Since that time, a CDM Potential study was completed in 2008. From that, a five-year strategic plan was completed which outlined proposed energy conservation initiatives to be implemented jointly by Newfoundland Power and Hydro.

The focus of the Plan was and is on energy savings through the development of a culture of conservation. The activities in the Plan include rebate programs for each sector – residential, commercial and industrial – and supporting activities for awareness, education and community engagement to stimulate attitude change. Since that Plan, Hydro has also offered programs directly to their customers: the Coupon Pilot Program in 2010-2011, the Isolated Systems[1] Community Energy Efficiency Program, Isolated Systems Business Efficiency Program (ISBEP)[2] and a Block Heater Timer program, all launched in 2012. An overview of the programs offered during 2012 is included in Appendix A: CDM Programs and includes current programs offered both through a joint utility partnership or directly targeting Hydro's customers.

Through Order No. P.U. 14 (2009), the Board approved the definition and establishment of a Conservation Deferral Account. A definition for this deferral account was submitted to the Board on April 22, 2009 and is attached as Appendix B to this report.

The takeCHARGE brand was launched in 2008 as a joint utility effort and the first rebate programs were launched through takeCHARGE in 2009. Those same programs continue to be offered.

Hydro continues to have a positive working relationship with the Provincial Climate Change, Energy Efficiency and Emissions Trading Secretariat (CCEEET). In 2012, the takeCHARGE team provided support and feedback on the development of the energy efficiency portion of the Turn Back the Tide[3] website and social media activities regarding climate change and energy efficiency.

[1] These programs target isolated diesel systems as well as the L'anse au Loup System covering the south coast of Labrador.
[2] Board Order No. P.U. 3(2012) approved the deferral of 2012 costs related to the Conservation program.
[3] The Government of Newfoundland and Labrador's "Turn Back the Tide" campaign is being delivered by the Office of Climate Change, Energy Efficiency and Emissions Trading, and is a public awareness campaign on climate change and energy efficiency. The website address is www.turnbackthetide.ca.

3 Five Year Plan Activities

The Five Year Energy Conservation Plan: 2012-2016 was filed with the Board in 2012 and outlines further program expansions for 2013 and 2014 for both commercial and residential customers and provides for an evaluation and assessment of next steps for the industrial sector. In addition to the joint utility programs offered provincially, there are three programs offered by Hydro that directly target their customers in isolated and Labrador Interconnected systems. These are also offered through the takeCHARGE brand to maintain consistency for all utility offered energy conservation programs.

The takeCHARGE Energy Savers Rebate programs launched in June 2009 were offered through 2012. These programs have delivered energy savings and continue to prompt consumers to consider energy efficiency in their purchases. These programs target the highest end uses for the residential and commercial markets of heating and lighting, respectively. These programs are:

- Residential Windows;
- Residential Thermostats;
- Residential Insulation; and
- Commercial Lighting.

The Industrial Energy Efficiency Program (IEEP) launched in 2010 with the first project cash incentives approved in 2011 and additional projects completed in 2012. This program provides financial support for engineering feasibility studies of efficiency opportunities and capital projects.

In addition to these provincial rebate programs, Hydro launched programs for both residential and commercial customers. The Isolated System Energy Efficiency Program provided for direct install of a kit of technologies in a participating customer's home. The kit included items for water savings, draft proofing, lighting and other measures. Homeowners received education on energy efficiency and information on the existing takeCHARGE rebate programs. There were community events, social media promotions and exchanges held to promote the program and energy efficiency awareness. More than 85%[4] of homes received a direct install visit in the communities targeted in 2012.

In addition to the residential component of the program, commercial customers also received a direct install with lighting, draft sealing and water conservation measures. As well as the direct install visit, customers were made aware of the newly launched Isolated Systems Business Efficiency Program (ISBEP) that provides a custom approach towards finding energy efficiency solutions for the business community. Similar to the

[4] Final report from Summerhill Group indicates an 87.6% install rate for 2012.

IEEP, the program provides assessment of the opportunities at the customers' site and provides an incentive for capital work based on the predicted energy savings.

A smaller program was launched in the Labrador Interconnected System to promote and provide incentives for Block Heater Timers. Timers are rarely used in this region, although the penetration of block heaters is very high. This program was launched in partnership with corporate partners Iron Ore Company of Canada (IOC) and Cliffs (Wabush Mines) to provide giveaways, promotions and retail coupons on this technology. Our corporate partners are increasing the incentive amount and providing additional promotions and outreach for the program to customers in the Labrador West area.

Table 1: Hydro CDM Portfolio Costs and Table 2: Hydro Annual Energy Savings, describe Hydro's total CDM expenses and energy savings from 2009 to 2012 across all of Hydro's systems including the Labrador Interconnected System. This report will provide further detail and breakdown of those costs that will be recovered through the deferral account and the associated energy reductions.

Table 1: Hydro CDM Portfolio Costs ($000)

	2009	2010	2011[5]	2012
Windows	44	48	80	117
Insulation	40	60	140	126
Thermostats	13	19	31	47
Coupon Program	-	140	135	-
Commercial Lighting	13	12	59	20
Industrial	57	221	103	173
Block Heater Timer				31
Isolated Systems Community				858
ISBEP				93
Heat Recovery Ventilator				-
Business Efficiency Program				-
Small Technologies				-
Total Portfolio	**167**	**500**	**548**	**1,465**

[5] In the 2011 Conservation and Demand Management Report, the costs for Windows and Insulation were reversed in the 2011 column. This table provides a correction of that error.

Table 2: Hydro Annual Energy Savings (MWh)

	2009	2010	2011	2012
Windows	12	27	61	136
Insulation	31	84	407	383
Thermostats	6	25	27	43
Coupon Program	-	64	256	-
Commercial Lighting	3	10	227	95
Industrial	0	0	165	3,172
Block Heater Timer				0
Isolated Systems Community				1,673
ISBEP				3
Heat Recovery Ventilator				-
Business Efficiency Program				-
Small Technologies				-
Total	**52**	**210**	**1,143**	**5,505**

There are two components of the costs associated with the conservation and efficiency function. In addition to direct program costs which are charged to the Deferral Account, there are costs associated with general energy efficiency awareness and education, strategic planning and program development. These costs remain relatively stable regardless of the number of rebate programs currently offered in the portfolio.

These costs are outlined in Table 3: Hydro Support Costs, below.

Table 3: Hydro Support Costs 2009-2013 ($000)

	2009	2010	2011	2012
Education	262	106	212	200
Support	53	48	43	53
Planning	176	180	304	127
Total	**491**	**334**	**559**	**380**

4 2012 Program Highlights

takeCHARGE is a joint utility effort to provincial CDM programming that allows for economies of scale to be achieved in areas such as marketing and outreach efforts. The technologies selected for rebate programs address large energy use opportunities and have been verified as cost effective through standard utility economic screening. In addition, a range of education efforts around general energy efficiency messaging have also been implemented to develop a culture of conservation.

Participation continues to increase in Hydro's service area. Retailers continue to be key partners in reaching customers, and a pilot project undertaken in 2011-2012 with retailers to promote Energy Star Window purchases and rebate submission demonstrated this role. Select retailers completed applications on behalf of customers and received a small financial incentive for every eligible rebate submitted. This effort was both to increase the sales for Energy Star Windows but also to reduce the barriers of the application process for the customer. Hydro rebate participation numbers are typically low, so it is challenging to determine the exact impact of such an initiative, but it does seem to have had an impact. The lessons learned from this report will be used to determine further opportunities for retailer engagement on a provincial scale.

In the residential sector, there was growth in both the windows and thermostat programs. The decrease from 2011 savings in the insulation program is a result of the very strong activity around an aggressive insulation promotion and increased rebate that was held in 2011 that was not repeated in 2012.

Participation in the commercial lighting program has been a challenge in 2012 due to an increase in the cost of the more efficient lighting that is eligible for incentive. While the price has levelled out and even returned to previous cost levels, the local lighting suppliers are not yet following suit. The utilities continue to work with distributors to gain insight into the impacts this is having on the market.

Industrial Customer participation continues to be a challenge as customers focus on their own operation and processing, and energy efficiency does not appear to be a primary driver for resource allocation. There is still a great need for strong, hands-on support to enable customers to manage their daily operational priorities while examining energy efficiency and developing efficiency plans.

During 2012, takeCHARGE promotions continued through mass market media approaches, as well as through an increasing presence in social media with an active Facebook page and website. Using contests and engagement in discussions on energy efficiency, customers were able to learn about ways to conserve as well as hear about takeCHARGE programs. Social media continues to be an effective way to engage customers in discussing ways to conserve energy and the customer engagement has directed people to the website for additional detailed rebate program information.

5 Sector Highlights

In the residential sector, outreach and non-traditional promotions and awareness building continue to demonstrate strong results in reaching a diverse market. For example, the takeCHARGE program has been represented through community events, product exchanges and giveaways to reach customers in a variety of ways. The Isolated Systems Energy Efficiency Program in isolated communities provided events and open community dialogue, opportunities to participate in lighting exchanges as well as providing coupons for small technologies such as lighting at local retailers and the opportunity to have a number of items installed free of charge in the customer's home. The Program is administered by Summerhill Group on behalf of Hydro and through Summerhill, local people were hired and trained to deliver the program. The very high participation rate of more than 85% of homes is in large part due to the program having a local presence and engaging people on a personal level with regards to energy decisions at home.

The commercial market requires additional understanding and support of a different nature. In the summer of 2012, the ISBEP was launched, providing rebates and technical assistance for commercial customers in the isolated diesel communities and L'Anse au Loup area. This custom approach is similar to the IEEP and Hydro technical staff work with customers one on one to address their energy efficiency needs. Hydro had already learned from the IEEP that business customers require technical support in identifying the opportunities but also significant support in moving the project forward while they manage immediate business concerns.

In 2012, the IEEP had successes with continued participation in capital retrofits with one Industrial Customer on the Island Interconnected System. Additional projects were discussed and explored with other customers but were not completed. The challenges of keeping sustained interest in efficiency projects with competing business concerns has resulted in continued low numbers of projects and savings, despite the identification of cost effective projects.

Hydro will also continue to work with Newfoundland Power and other partners to determine emerging opportunities for CDM programming and develop appropriate strategies for developing a conservation culture in the province. The 2012 activities included filing the updated Plan, commencing discussions with CCEEET on changing codes in both commercial and residential sectors and new program launches for both sectors.

6 Regulated Program Energy Savings and Program Costs

Table 4 below illustrates the energy savings from Hydro customers in relation to programming associated with the annual regulated deferral request. In 2012, there was growth on the windows and thermostat programs and an increase in uptake on insulation. The commercial lighting challenges with market prices of the eligible technologies are reflected in this year's savings. The strong successes in the IEEP and the Isolated System Community Energy Efficiency Program reflect efforts to offer a program model that responds to the needs of the customers being targeted. Strong facilitation and support was provided for the IEEP participants and one-on-one community level participation opportunities provided through the Isolated System Community Energy Efficiency Program. A small energy savings in 2012 resulted from the completion of the first project through the ISBEP program.

Table 4: Energy Savings from Deferral Account Activity (MWh)

	2009	2010[6]	2011	2012
Windows	12	16	38	50
Insulation	31	63	229	126
Thermostats	6	15	16	28
Coupon Program	0	47	166	-
Commercial Lighting	3	0	92	25
Industrial	0	0	165	3,172
Block Heater Timer				0
Isolated Systems Community				1,673
ISBEP				3
Heat Recovery Ventilator				-
Business Efficiency Program				-
Small Technologies				-
Total	**52**	**141**	**706**	**5,077**

The costs associated with the delivery of the CDM program portfolio include direct costs for advertising, salaries, rebates and other expenses directly associated with a specific rebate program. These costs vary depending on the uptake of the program and the number of programs offered. Table 5: Program Costs from Deferral Account Activity provides a program level breakdown.

[6] In the 2011 Conservation and Demand Management Report, the energy savings for Windows and Insulation were reversed in the 2009 and 2010 columns. This table provides a correction of that error. Review of the savings information for 2010 showed that the Insulation savings reported (50 MWh/yr) were actual savings assumed from time of rebate submission and had not been annualized. This correction has been made, to ensure consistency with other programs and resulted in an increase in the savings to 63 MWh/yr.

Table 5: Program Costs from Deferral Account Activity ($000)

	2009	2010	2011[7]	2012
Windows	44	41	69	102
Insulation	40	53	116	108
Thermostats	13	18	25	43
Coupon Program	-	113	123	-
Commercial Lighting	13	-	43	10
Industrial	57	190	98	170
Block Heater Timer				-
Isolated Systems Community				858
ISBEP				93
Heat Recovery Ventilator				-
Business Efficiency Program				-
Small Technologies				-
Total Portfolio	**167**	**415**	**474**	**1,384**

[7] In the 2011 Conservation and Demand Management Report, the costs for Windows and Insulation were reversed in the 2011 column.

7 Program Participation and Savings

The following provides the breakdown of rebate transactions and savings for each of the programs in the Five Year Plan and the Coupon Pilot Program. These numbers reflect costs and savings associated with activity recorded in the Deferral Account.

The estimated energy savings represent savings from participants in that year. These savings will occur each year for the life of the measures installed.

Table 6: Life to Date Program Participation

	Number of Rebates				
Program	**2009**	**2010**	**2011**	**2012**	**Life to Date**
Energy Star Window Rebate Program	11	19	41	61	132
Insulation Rebate Program	14	24	104	50	192
Thermostat Rebate Program	4	28	32	45	109
Coupon Pilot Program	-	N/A	N/A	N/A	0
Commercial Lighting Rebate Program[8]	0	0	6,996	1,321	8,317
Industrial Energy Efficiency Program	0	0	1	1	2
Block Heater Timer				0	0
Isolated System Community				N/A	0
ISBEP				1	1
Heat Recovery Ventilator				-	0
Business Efficiency Program				-	0
Small Technologies				-	0

[8] For the Commercial Lighting Program, rebates can range from 10 efficient bulbs to hundreds of bulbs, and ballasts. For that reason, the numbers listed in this table are numbers of technologies rebated, rather than the actual number of rebates.

Table 7: Life to Date Energy Savings

	Estimated Energy Savings MWh/yr				
Program	**2009**	**2010**[9]	**2011**	**2012**	**Life to Date**
Energy Star Window Rebate Program	12	16	38	50	116
Insulation Rebate Program	31	63	229	126	449
Thermostat Rebate Program	6	15	16	28	65
Coupon Pilot Program	0	47	166	0	213
Commercial Lighting Rebate Program	0	0	92	25	117
Industrial Energy Efficiency Program	0	0	165	3,172	3,337
Block Heater Timer				0	0
Isolated System Community				1,673	1,673
ISBEP				3	3
Heat Recovery Ventilator					0
Business Efficiency Program					0
Small Technologies					0

[9] In the 2011 Conservation and Demand Management Report, the energy savings for Windows and Insulation were reversed in the 2009 and 2010 columns.

8 Life to Date Value of Program Energy Savings

The value of energy and demand savings has been estimated from a utility perspective based on overall cost reductions associated with the program costs recorded in the Deferral Account. It includes Holyrood fuel savings and impacts on transmission and distribution costs including losses. No losses are included for the Industrial Energy Efficiency Program as they are transmission level customers. Estimated energy and demand savings are based on when the customer completed installation of energy saving measures during the year, and allow for reductions due to free ridership. This estimate is less than that based on savings accrued to participants on an annual basis, as presented elsewhere in this report. The value of energy savings changes each year due primarily to the change in avoided fuel prices and an update from using 2009 dollars to 2012 dollars.

Table 8: Life to Date Value of Energy Savings ($)

	Estimated Energy Savings MWh/yr				
Program	**2009**	**2010**	**2011**	**2012**	**Life to Date**
Energy Star Window Rebate Program	233	1,197	4,084	10,477	15,991
Insulation Rebate Program	1,078	6,037	25,469	57,650	90,234
Thermostat Rebate Program	61	893	2,879	6,635	10,468
Coupon Pilot Program	-	4,712	26,608	54,307	85,627
Commercial Lighting Rebate Program	-	-	7,972	21,582	29,554
Industrial Energy Efficiency Program	-	-	961	291,564	292,525
Block Heater Timer	-	-	-	0	0
Isolated System Community	-	-	-	167,906	167,906
ISBEP	-	-	-	221	221
Heat Recovery Ventilator	-	-	-	-	-
Business Efficiency Program	-	-	-	-	-
Small Technologies	-	-	-	-	-

Appendix A

CDM Program Concepts

Residential Windows

Program Description

The objective of this program is to increase the installation of *Energy Star* qualified windows, resulting in savings in space heating energy. The program components include rebates and financing, and a variety of education and marketing tools.

Target Market: Residential

This program targets residential customers, including new construction and replacement of existing windows at end of life. Eligibility is limited to electrically heated homes.

Eligible Measures

Eligible measures in this program are *Energy Star* qualified windows.

Delivery Strategy

Delivery of this program will be integrated with the revised *Wrap Up for Savings* insulation and thermostat programs.

Marketing initiatives will include partnering with retailers and trade allies in the home building and renovation industry, to target both do-it-yourself and professional installers. Communications will incorporate the *Energy Star* brand and related marketing support, as well as cross-promotion of the EcoEnergy Retrofit program from Natural Resources Canada. Tools and tactics will include retail and model home point-of-sale materials, advertising, tradeshows, community outreach and trade ally activities. Rebates and financing will be processed through customer application.

Residential Windows

Market Considerations

Energy Star qualified windows make up approximately 10% to 15% of window sales in the province, and understanding of the product is generally poor among customers and retailers. Initial cost is also a barrier to increased market penetration, due to a 10% to 15% price premium. Eligible windows are widely available. Local manufacturers produce approximately 50% of the provincial window sales, and most manufacturers offer *Energy Star* qualified products.

Incentive Strategy

Incentives for this program include rebates and financing. The rebate value will be based on the incremental cost of *Energy Star* qualified windows over the standard type.

Program Monitoring & Evaluation

The program will be monitored for participation level, service quality, and cost effectiveness, and a representative sample of installations will be inspected. Formal evaluations will be conducted within the first year of implementation, and biannually during operation.

Estimated Costs & Energy Savings

	2008	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	40	420	400	500	510	610	2,480
Estimated Cumulative Energy Savings (MWh)	-	230	570	1,020	1,700	2,610	
Total Resource Cost (TRC)	2.4						

Residential Thermostats

Program Description

The existing thermostat rebate program will be revised based on the CDM Potential Study and market research. The continuing objective of this program is to increase the use of both programmable thermostats, which automatically set back room temperature, and high performance thermostats, which control room temperature very accurately, in order to save space heating energy. The program components include rebates and financing, and a variety of education and marketing tools.

Target Market: Residential

This program targets residential customers, including home retrofit and new construction. Eligibility is limited to electrically heated homes.

Eligible Measures

Eligible measures in this program include both programmable and high performance thermostats (for example, those which control within +/- 0.5C.)

Delivery Strategy

Delivery of this program will be integrated with the new residential windows and revised *Wrap Up for Savings* insulation programs.

Marketing initiatives will include partnering with manufacturers, retailers, electrical contractors, as well as homebuilders and real estate professionals to educate consumers regarding the energy savings and comfort benefits of programmable and high performance thermostats. Communications will incorporate cross-promotion of the EcoEnergy Retrofit program from Natural Resources Canada. Tools and tactics will include retail and model home point-of-sale materials, advertising, tradeshows, community outreach and trade ally activities. Rebates will be processed directly by authorized retailers and through customer-submitted coupons.

Residential Thermostats

Market Considerations

Sales of programmable and high performance thermostat types make up less than 10% of total thermostat sales provincially. Customer awareness of the important role of thermostats in heating system efficiency is low**.** Initial cost is a barrier to increased market penetration, particularly for new home construction where continued use of minimum quality thermostats represents significant lost opportunity. Availability of electronic high performance thermostats is currently limited in most areas, though programmable types are widely available.

Incentive Strategy

Incentives for this program include rebates and financing. The rebate value will be based on the incremental cost of the targeted thermostat types over the standard type.

Program Monitoring & Evaluation

The program will be monitored for participation level, service quality, and cost effectiveness, and a representative sample of installations will be inspected. Formal evaluations will be conducted within the first year of implementation, and biannually during operation.

Estimated Costs & Energy Savings [1]

	2008	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	-	300	220	280	230	270	1,300
Estimated Cumulative Energy Savings (MWh)	-	270	650	1,210	1,910	2,650	
Total Resource Cost 2.4							

[1] Includes the cost of revising the existing program and the resulting energy savings. Excludes the cost and energy savings of existing program.

Residential Insulation

Program Description

The existing *Wrap Up for Savings* program will be revised based on the CDM Potential Study and market research. The continuing objective of this program is to increase the insulation level in basements, crawl spaces, walls and attics, resulting in savings in space heating energy. The program components include rebates and financing, and a variety of education and marketing tools.

Target Market: Residential

This program targets residential customers, including home retrofit and new construction. Eligibility is limited to electrically heated homes.

Eligible Measures

Eligible measures in this program include insulation upgrades to basements, crawl spaces, walls and attics. Rebates for new homes are limited to basement insulation beyond building code compliance. Technical requirements for each upgrade type will be reviewed during program detailed design.

Delivery Strategy

Delivery of this program will be integrated with the new residential windows and revised thermostat programs.

Marketing initiatives will include partnering with retailers and trade allies in the home building and renovation industry, to target both do-it-yourself and professional installers. Communications will incorporate cross-promotion of the EcoEnergy Retrofit program from Natural Resources Canada. Tools and tactics will include retail and model home point-of-sale materials, advertising, tradeshows, community outreach and trade ally activities. Rebates and financing will be processed through customer application.

Residential Insulation

Market Considerations

Older homes and small homes often have inadequate insulation levels. For example, over 45% of homes in the province built before 1950 have uninsulated basements. Most new homes constructed in the province still have no insulation on the concrete portion of basement walls. Initial cost is a barrier to increased market penetration, as is awareness of the impact on space heating energy, and the practical difficulties of renovating an existing living space. Recent experience with the *Wrap Up for Savings* program has shown participation to be responsive to awareness-building marketing activities.

Incentive Strategy

Incentives for this program include rebates and financing. The rebate value will be reviewed and will be restructured based on insulating value (R-value) rather than a prescriptive product list as currently offered.

Program Monitoring & Evaluation

The program will be monitored for participation level, service quality, and cost effectiveness and a representative sample of installations will be inspected. Formal evaluations will be conducted within the first year of implementation, and biannually during operation.

Estimated Costs & Energy Savings [1]

	2008	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	40	1,210	1,210	1,400	1,430	1,590	6,880
Estimated Cumulative Energy Savings (MWh)	-	4,130	8,670	13,660	19,160	25,200	
Total Resource Cost 2.6							

[1] Includes the cost of revising the existing program and the resulting energy savings. Excludes the cost and energy savings of existing program.

Commercial Lighting

Program Description

The objective of this program is to increase the installation of more efficient lighting technologies in commercial buildings. The program components include rebates on a specific list of qualifying technologies, and a variety of education and marketing tools.

Target Market: Commercial

This program targets retrofit of commercial building lighting, encouraging customers to replace existing lighting equipment.

Eligible Measures

The list of eligible measures in this program is based on the technologies identified as eligible for rebate under existing programs offered by other Canadian utilities (for example Ottawa Hydro and BC Hydro). These include T8 fluorescent electronic ballasts or fixtures, compact fluorescent lights (CFLs), and *Energy Star LED* exit signs.

Delivery Strategy

This program is expected to be operational for three years. Delivery will be integrated with future commercial sector programming, which is expected to include a custom project-based incentive program similar to the industrial custom program.

Marketing initiatives will include partnering with lighting manufacturers, distributors, and electrical contractors who will carry the program to potential customers. The program will create business opportunities for trade allies to sell more efficient lighting products. This approach has proven effective in other jurisdictions and in previous Newfoundland Power experience. Tools and tactics will include trade ally and business association activities, such as workshops for contractors and distributors, retail point-of-sale materials, and advertising in trade publications. Demonstration projects will be selected from early participants. Rebates will be processed through customer application.

Commercial Lighting

Market Considerations

The largest portion of the market opportunity in commercial lighting is with standard T12 fluorescent tube lighting with electromagnetic ballasts. This technology is used in approximately 60% of existing commercial building interior lighting in the province, though new construction is almost exclusively using the more efficient T8 fluorescents with electronic ballasts. Federal regulations will remove the electromagnetic ballast from new sales starting in 2010. However, there is a significant opportunity for replacement of existing T12 installations prior to their normal end of life (average lifespan 17 years). Primary barriers to increased use of the more efficient products include the higher initial capital cost, and lack of understanding of the opportunity for energy and cost savings.

Incentive Strategy

Incentives for this program include rebates for a prescriptive list of eligible technologies. The list will be based on the technologies identified as eligible for rebate under existing programs offered by other Canadian utilities (for example Ottawa Hydro and BC Hydro).

Program Monitoring & Evaluation

The program will be monitored for participation level, service quality, and cost effectiveness and a representative sample of installations will be inspected. Formal evaluations will be conducted within the first year of implementation, and biannually during operation.

Estimated Costs & Energy Savings

	2008	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	-	290	310	340	-	-	940
Estimated Cumulative Energy Savings (MWh)	-	590	1,760	2,930	2,930	2,930	

Total Resource Cost 1.1

Industrial Custom Program

Program Description

The objective of this program is to improve electrical energy efficiency in a variety of industrial processes. The program components include financial incentives based on energy savings, and other supports to enable industrial facilities to identify and implement efficiency and conservation opportunities. This program is a custom program to respond to the unique needs of the industrial market, rather than a prescriptive technology approach.

Target Market: Industrial

This program targets retrofit of industrial process equipment in the transmission level customers served by Newfoundland and Labrador Hydro.

Eligible Measures

Eligibility of projects is based on engineering review and confirmation of estimated energy savings impact. Technologies include, but are not limited to, compressed air, pump systems, process equipment and process controls.

Delivery Strategy

This program will be delivered through a call for proposals to Industrial Customers (IC) for energy saving projects that meet set financial criteria. These proposals will undergo engineering review for approval. Selected projects will be eligible for rebates based on savings and payback period reductions, as well as enabling supports including facility education, energy audits and other customized offerings.

The program will be managed internally with external engineering verification of projects and monitoring and evaluation of energy savings. The utility will take the role of facilitator and consultant in providing methods for ICs to complete project proposals and implement approved projects.

This program model has been used successfully in other jurisdictions. To ensure the cost effectiveness of this model with the unique nature and size of the industrial market in Newfoundland and Labrador, this program will launch as a three-year program using a single call for proposals and full evaluation cycle.

Industrial Custom Program

Market Considerations

This market requires a one-on-one approach to project design and delivery. The program builds on the work already completed by the ICs, and addresses their unique barriers to improved efficiency, which include, but are not limited to, access to capital and human resources.

The lifecycle for each program transaction will be measured in months rather than weeks because of the need for review, contract development, implementation timelines and post-installation monitoring and evaluation. This type of program requires that facilities have financial and business stability to continue operations for a time period appropriate to achieve cost effective savings.

Incentive Strategy

Incentives for this program include rebates based on energy savings, as well as funding assistance for additional enabling mechanisms. Rebate levels, maximum rebate amounts and payment schedules will be determined in the program detailed design phase. Rebates for each approved project will be determined through the call for proposals process, based on the engineering proposal and following a schedule agreed upon by the customer and utility.

Program Monitoring & Evaluation

The program will be monitored for participation level, service quality, and cost effectiveness, including engineering review and inspection of all projects and assessment of long-term impact on customer processes. Formal program evaluations will be conducted within the first year of implementation, and biannually during operation.

Estimated Costs & Energy Savings

	2008	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	100	1,470	2,640	4,270	-	-	8,480
Estimated Energy Savings (MWh)	-	-	-	20,000	45,000	45,000	
Total Resource Cost 2.9							

Residential Coupon Based Energy Efficiency Program

Program Description

This project is a coupon based energy efficiency program targeting Hydro's 31,000 residential customers located across the province in 220 communities. The program provides both at-the-cash coupon promotion for smaller efficiency technologies and mail in rebates for larger Energy Star appliances. This range allows customers to engage in energy efficiency with a wide range of purchase decisions. The program also provides necessary supports, awareness and mechanisms to allow small community retailers to participate and promote their products. All partners are supported by a local program representatives working in the field.

Target Market: Residential

This program targeted residential customers across a range of technology purchases.

Eligible Measures

Eligible measures include smaller items such as CFLs and LED holiday lights, but also some larger items such as Energy Star lighting fixtures, hot water tank wraps and Energy Star clothes washers. The program includes measures with savings resulting from primarily plug load and water heating savings.

Delivery Strategy

At launch the program has ten partner retailers. Local retailers in targeted communities were approached to procure products and offer the coupons for the duration of the program. The rebates on the ENERGY STAR® qualified dishwasher and refrigerator were made available more widely to the entire Hydro customer base through promotions online, info available through the call centre and bill inserts.

Residential Coupon Based Energy Efficiency Program

Market Considerations

This project was designed to:

- Deliver a new, accessible, TRC positive instant coupon-based energy efficiency program in Hydro communities and gain knowledge on the challenges of using this type of approach in communities of different sizes.
- Generate knowledge of energy conservation measures and awareness of the takeCHARGE program offerings.
- Establish new partnerships in the retail sector and engage them in an ongoing wider product offering program and gain a better understanding of Hydro's customer base on the interest in smaller energy efficiency technologies.
- Increase the market penetration of energy saving products and overall energy efficiency awareness.

Incentive Strategy

Incentives for this program include at-the-cash coupons which reduced the cost of the efficient products for the customer at purchase and two additional ENERGY STAR® appliance products with a mail-in rebate similar to the traditional takeCHARGE Energy Savers Rebate programs.

Program Monitoring & Evaluation

Evaluation components include examining the participation, the administration processes, and attitudes of the partners. These included:

- Coupon uptake: number of coupons distributed and number of coupons redeemed;
- Event participation: number of participants; and
- Retailer and participant experiences: number of participants who learned more about energy conservation, takeCHARGE and energy saving products based on interactions with the program.

Estimated Costs & Energy Savings

Costs ($000s)	$240,000-$265,000
Energy Savings (MWh)	473
TRC	2.05

Appendix B

Definition of Deferral Account

Newfoundland and Labrador Hydro
April 22, 2009

Conservation and Demand Management (CDM) Cost Deferral Account
Definition

The account shall be charged with the costs incurred in implementing the CDM Program Portfolio. The costs will include such items as detailed program development, promotional materials, advertising, pre and post customer installation checks, application and incentive processing, incentives, trade ally training, employee training, and program evaluation costs associated with programs in the CDM Program Portfolio.

The account will exclude any expenditure properly chargeable to plant accounts. The account shall also exclude conservation expenditures that are general in nature, such as costs associated with providing energy conservation awareness, responding to customer inquiries, planning, research and general supervision that are not associated with a specific program in the CDM Program Portfolio.

The account will exclude any expenditure related to programs or incentives that are fully recoverable from other parties, including government. Where a program or initiative is partially funded by other parties, the amount funded will be used to reduce the appropriate expenditures.

Costs associated with Labrador Interconnected customers will be tracked separately from costs associated with the other customers, as programs for the latter are based upon a cost structure which is significantly different from the Labrador Interconnected System and future disposition may be treated separately.

Transfers to, and from, the proposed account will be tax effected.

The disposition of any balance in this account will be subject to a future Order of the Board.

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

2013 Conservation and Demand Management Report

NEWFOUNDLAND AND LABRADOR HYDRO

April 2014

newfoundland labrador hydro
a nalcor energy company

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1 Introduction

This report provides an overview of Conservation and Demand Management (CDM) activities undertaken by Newfoundland and Labrador Hydro (Hydro) in 2013. The report also provides information on major activities planned for 2014 and provides an estimate of the value of CDM from a utility perspective.

The programming described in this report includes the joint utility programs offered through *takeCHARGE* but focuses on the costs and initiatives for Hydro's portion of program implementation. Hydro also offers programs under the *takeCHARGE* banner targeting only Hydro customers.

The initial takeCHARGE programs were launched in 2009 and while those programs remain in market, a wide range of programs have been added in subsequent years and available through 2013. Programs have also seen changes in offerings and eligibility requirements. Evaluations and program reviews are underway for long-standing programs as well.

2 Coordination and Context

2.1 Utility Planning

Energy conservation initiative was a topic of interest during Hydro's 2006 General Rate Application (GRA). Since that time, a CDM Potential Study was completed in 2008. From that, a five-year strategic plan[1] was completed which outlined proposed energy conservation initiatives to be implemented jointly by Newfoundland Power and Hydro (the Utilities). The Utilities have since designed and implemented a robust joint utility portfolio of programs. Current programs offered through the joint utility model are available for residential and commercial customer classes and provide rebate options to address energy savings for the larger energy consumers for each class.

The updated strategic plan[2] continued the focus on joint utility programs but also outlined additional program opportunities identified and implemented by Hydro to address additional opportunities in higher avoided cost isolated diesel systems in addition to a program for block heater timers in the Labrador Interconnected System. Hydro launched the Isolated Systems Business Efficiency Program (ISBEP) in the Isolated and L'Anse au Loup Systems in 2012 and an expansion of this program model was launched through the joint utility partnership late in 2013. Hydro has been developing programs and approaches outside the joint utility approach to engage customers with additional ways to conserve and to provide learnings for potential expanded offerings through joint utility programs. In this way, Hydro's retailer coupon program

[1] Five Year Energy Conservation Plan: 2008-2012
[2] Five Year Energy Conservation Plan: 2012-2016

offered in 2010-2011 has created the impetus for the Small Technology program to be launched provincially in 2014 which provides the same at-cash and mail-in coupons for a range of technologies including lighting and appliances. The ISBEP, launched in 2012, is the predecessor of the Business Efficiency Program, launched provincially in 2013 for commercial customers.

In 2012 Hydro launched a program to promote the use of block heater timers. This program is unique to the Labrador Interconnected System because of its extremely cold climate which presents a significant conservation opportunity for Hydro. The program launch event was a giveaway of block heater timers to provide awareness in the market of the technology and was then followed up with a coupon in store for purchase discount. The program was set to run two winter seasons (2012-2013 and 2013-2014). An evaluation report will be completed in the fourth quarter of 2014.

The focus of both joint utility CDM plans was on energy savings through the longer-term goal of the development of a culture of conservation and has not included a demand management component. Hydro is currently working to complete an updated marginal cost study to gauge the need for and potentially guide future initiatives around demand management.

The activities in the plan include rebate programs for each sector – residential, commercial and industrial – and supporting activities for awareness, education and community engagement to stimulate attitude change. An overview of the programs offered during 2013 is included in Appendix A: CDM Program Descriptions and includes current programs offered both through a joint utility partnership and those directly targeting Hydro's customers.

The Utilities have begun third party formal program evaluations. In 2013 work began with DNV GL-Energy[3] to complete a market and process evaluation of the residential joint utility programs. This work will be completed in 2014 and the Utilities will develop a plan to address recommendations from the evaluation. The Utilities will be working to conduct joint utility program reviews and evaluation in the future on an annual basis. As well in 2014, Hydro will be reviewing the two Isolated Systems' programs to assess the next steps for each program offering as they were outlined as three-year programs in the current Five-Year CDM plan. Hydro will also be conducting an evaluation of the block heater timer program in 2014.

2.2 Government Engagement

Hydro continues to have a positive working relationship with the Provincial Climate Change Energy Efficiency and Emissions Trading Secretariat (CCEEET) and remains engaged in dialogue on potential programming, policy, and partnership opportunities. In 2013, Hydro worked with CCEEET on the development of tools for educating the public and builders on changes to the National Building Code of Canada impacting new residential builds. Hydro has been engaged in discussions regarding updates to national energy codes for commercial buildings and their

[3] DNV-GL Energy is recognized within the energy efficiency sector, providing program evaluation and assessments.

energy efficiency impacts in the Province. As well, Hydro was involved in the development of tools to engage provincial departments and agencies in the continued roll out of the Building Better Buildings Policy[4].

Public outreach continues on climate change through the Province's Turn Back the Tide program. Hydro works with CCEEET staff on the coordination of messaging on the energy efficiency component of that campaign, primarily through social media.

3 CDM Programs

3.1 Portfolio Level Program Costs and Energy Savings

Table 1: Hydro CDM Portfolio Costs, and Table 2: Hydro Annual Energy Savings, describe Hydro's total CDM expenses and energy savings from 2009 to 2013 across all of Hydro's systems including the Labrador Interconnected System. This report will provide further detail and breakdown of those costs that will be recovered through the CDM Deferral Account[5] and the associated energy reductions in section 6 Regulated Program Energy Savings and Program Costs.

Table 1: Hydro's CDM Portfolio Spending ($000s)

	2009	2010	2011	2012	2013
Windows	44	48	80	117	169
Insulation	40	60	140	126	157
Thermostats	13	19	31	47	51
Coupon Program	-	140	135	-	-
Commercial Lighting	13	12	59	20	29
Industrial	57	221	103	173	89
Block Heater Timer	-	-	-	31	8
Isolated Systems Community	-	-	-	858	871
ISBEP	-	-	-	93	115
Heat Recovery Ventilator	-	-	-	-	11
Business Efficiency Program	-	-	-	-	45
Small Technologies	-	-	-	-	1
Total	**167**	**500**	**548**	**1,465**	**1,546**

[4] Build Better Buildings Policy was established by the Province to establish guidelines for environmental sustainability and energy efficiency for government funded buildings. Additional information can be found at www.gov.nl.ca/nr/publications/energy/betterbuildingspolicy.pdf

[5] The CDM Cost Deferral Account is meant to defer the program costs for regulated Hydro (excludes program costs for the Labrador Interconnected System). The Board approved the deferral of Hydro's 2013 program costs in Board Order No. P.U. 35(2013).

Table 2: Hydro's Annual Energy Savings (MWh)					
	2009	**2010**	**2011**	**2012**	**2013**
Windows	13	37	61	136	99
Insulation	35	126	404	382	545
Thermostats	9	35	30	53	24
Coupon Program	-	64	256	-	-
Commercial Lighting	3	10	227	95	99
Industrial	-	-	165	3,172	-
Block Heater Timer	-	-	-	-	288
Isolated Systems Community	-	-	-	1,673	1,096
ISBEP	-	-	-	3	26
Heat Recovery Ventilator	-	-	-	-	-
Business Efficiency Program	-	-	-	-	-
Total	**60**	**272**	**1,143**	**5,514**	**2,177**

3.2 Residential Programs

Hydro's residential portfolio includes four programs offered jointly by the Utilities and two solely by Hydro. The joint utility programs launched in 2009 of ENERGY STAR® windows, Insulation and Thermostats continue to be offered through 2013 with insulation having a very successful year. This is primarily due to the participation of builders insulating basements in new builds.

During 2013, Hydro had an increased presence in local retailer flyers to promote these technologies. This will continue to be a focus moving forward to provide additional local advertising and to create a stronger partnership with retailers in promoting the rebates.

As of January 1, 2014 both insulation and Energy Star windows were no longer eligible for new builds. This is due to updated building codes for the Province that requires insulated basements and windows with specifications in line with current Energy Star standard. The thermostat program will remain unaffected. With these changes in eligibility, the focus will be to reach the existing home retrofit market.

The High Efficiency Heat Recovery Ventilation (HRV) program was launched in the fall of 2013, providing a $175 rebate for HRVs with a Sensible Recovery Efficiency (SRE) of 70% or greater that is installed by an HRAI[6]certified installer. This rebate is eligible for new and existing homes, regardless of heating source as the savings come primarily from savings in the equipment's operation. Hydro has been working with installers to ensure they are aware of the specifications for eligible models and are promoting high efficiency products.

[6] Heating Refrigeration and Air Conditioning Institute

The Isolated Systems Community Energy Efficiency Program is a program engaging residential and commercial customers in the Isolated and L'Anse Au Loup systems. It is administered by Summerhill Group[7], and involves a number of interventions. In 2013, there were six components implemented:

- 1,153 customers (1,073 residential and 80 commercial) received a direct install of items including lighting and water conservation tools and education and information on other ways to conserve. This represented a 94.5% installation rate for the target geography in 2013;
- Drain Water Heat Recovery[8] Pilot (DWHR) - Thirty-three customers across Labrador received a Power Pipe® installation, achieving energy savings of 22.98 MWh. Installations were completed in Cartwright, Charlottetown, Makkovik, Mary's Harbour, Port Hope Simpson, and the Labrador Straits and evaluation of these participants will inform next steps for this technology;
- Retail Discount Coupons continue to be in place but are receiving low uptake. Coupons are available for smaller items including low flow showerheads, CFLs and timers;
- Appliance Mail-in Rebates provide discounts for larger items in the home and encourage the purchase of high efficiency models;
- Pop-up Shop Pilots were hosted to assist in bringing smaller technologies to customers as participation in the retailer coupons remains low; and
- Seasonal LED Light String Exchange (SLED) was held in five communities.

The Block Heater Timer program was launched in 2012 but no savings were reported until 2013 due to the need to validate savings through surveys. Participation in 2012 was through the product giveaway events held in Labrador City and Goose Bay. Participants agreed to be contacted with a survey on their use of the product and attitudes towards the product. These surveys were conducted near the end of the block heater season and determined that there was a 63% installation rate which Hydro views as a positive result. The giveaway was intended to get the technology into the community and generate positive experiences and attitudes towards the timers which was followed up by discount coupons for later purchase at local partnering retailers. Participation was minimal through the coupon program for the first year, ending spring 2013, but promotions in the fall have increased uptake.

3.3 Commercial Programs

The uptake of the HP T-8 lighting systems has continued to be a challenge through 2013. Hydro's customer base for T-8 commercial lighting has a significant amount of government

[7] Summerhill Group is an energy efficiency services company specializing in consumer engagement program delivery with offices in Toronto and Halifax.

[8] Drain-water (or greywater) heat recovery systems capture this energy from water already used (for example, to shower, wash dishes, or wash clothing) to preheat cold water entering the water heater or going to other water fixtures. This reduces the amount of energy needed for water heating.

facilities that use specific tendering processes making changing product specifications from standard fixtures to more efficient models challenging. Hydro continues to work with the Province to secure the purchase of eligible lighting. In 2013 the list of eligible technologies was expanded to include lighting for medium and high bay options such as warehouses and arenas. The initial HP T-8 lighting systems were provided as a buy down of the incremental cost[9]. This program design resulted in savings, but many customers purchasing eligible products were unaware of the programs existence. The expanded technologies for medium and high bay are available to customers through mail-in rebates. To inform customers of the new mail-in rebates, there will be an increase in the promotion of the Commercial Lighting program in 2014 including trade publications, mail outs and other methods.

There were more than 40 walkthrough audits conducted by Hydro technical staff in the Island and Labrador Isolates Systems, to identify opportunities and assist customers to progress through the ISBEP from opportunity identification to technical analysis and project completion with the goal of completed retrofits in 2014. The ISBEP saw two retrofit projects fully completed in 2013, involving upgrades to lighting in a retail location and the addition of variable frequency drives to a processing system in a fish plant. Together these projects resulted in approximately $10,000 of incentives paid by Hydro and annual savings of 26 MWh. Commercial retrofits can have a significant delay due to planning and budget cycles, however, activity is expected to be strong in 2014.

The launch of the Business Efficiency Program in November of 2013 enabled Hydro staff to conduct walkthrough audits on the Labrador Interconnected System and the Great Northern Peninsula and will be expanded to other regions. This program is designed with the same model as the ISBEP, providing walkthrough audits, technical support, financial support of feasibility studies and capital retrofits. This program had a lower incentive level as the Island Interconnected and Labrador Interconnected Systems have lower avoided costs than those of the Isolated Systems, and Hydro anticipates the first projects to be completed in 2014.

3.4 Industrial Program

The Industrial Energy Efficiency Program (IEEP) was launched in 2010 as a three-year pilot and was closed to new applicants in the fall of 2013. This program provides financial support for engineering feasibility studies of efficiency opportunities and capital projects. While positive discussions took place with all Industrial Customers, only Corner Brook Pulp & Paper fully participated from the initial facility end use profile through to completed capital projects. CLEAResult has been engaged to conduct a review of the pilot and assess opportunities for moving forward, which was completed in first quarter 2014. Initial findings indicate there continues to be a strong interest among Industrial Customers in participating but challenges with competing business priorities have hampered uptake of the program. CLEAResults

[9] Incremental buy down programs provide a more efficient product for the same price as the less efficient model because the utility subsidizes the increased cost for the customer.

recommendations will be used to develop a continued plan to ensure relevant programming is available to the industrial sector.

There were no Industrial Customer projects completed in 2013 but there were three significant projects approved just before the close of the pilot. These three projects, which are all with Corner Brook Pulp & Paper, will result in annual savings of 15 GWh. They have a total project cost of $2.4M, with Hydro's incentive covering 50% of those costs at $1.2M. The projects are all expected to be completed in 2014.

4 Planning and Evaluation

As the CDM portfolio continues to expand in programs and complexity, the evaluation processes for programs have also progressed. In 2013, the Utilities engaged DNV-GL Energy to conduct a market and process evaluation of the Energy Star windows, insulation and thermostat programs. The evaluation will explore changes in the market place, the impacts of the programs on consumers and provide recommendations on next step program improvements. The research is being conducted by means of extensive surveys and analysis of retailers, participants and non-participants and will conclude in 2014. Initial results show that participants were very satisfied with the programs[10]. Home visits continue to happen for at least 5% of all participants to verify the install of the technology but also to promote other rebates and engage in energy efficiency.

In 2013, the Utilities began an "End Use Survey" of commercial buildings completed by CBCL Limited[11]. The survey will provide a set of in-depth profiles of energy end use in more than 50 buildings across a number of sectors to provide additional information on the local commercial market and provide a key input to the update of the CDM Potential Study to be started by the Utilities in 2014. The data collection was primarily conducted in 2013 with the final summary report and database tools to be completed in 2014.

Hydro is also conducting reviews and evaluations of programs offered directly to its customers. The IEEP is undergoing a review at the end of the three-year pilot. CLEAResult has been engaged to complete a process review of the pilot and provide recommendations for improvements in approach. The bulk of interviews with program staff and customers were completed in 2013 with the final report being completed in 2014. Initial indications are that customer interest in energy efficiency programs is high and the program has provided value to those who have participated. Hydro will be preparing a plan to offer energy efficiency programming to Industrial Customers on an ongoing basis and will seek Board approval of a longer-term approach.

[10] 76% to 93% indicated a very satisfied rating of participants surveyed.
[11] CBCL Limited is a multi-disciplinary consulting engineering firm that provides expertise in energy modeling, end use profiling and energy efficiency auditing.

5 Outreach and Support

During 2013, Hydro continued its customer education and conservation awareness activities primarily through promotion of its *takeCHARGE* rebate programs and outreach activities. Residential and Business programs are promoted through activities including mass media marketing, targeted promotions, community outreach, school programming, and trade ally development and partnerships.

The new "Saving Energy – There's money in that!" advertising campaign was launched in September 2013, with three new *takeCHARGE* television ads featuring the insulation, thermostat and Energy Star Windows rebate programs. The advertising campaign, which included newspaper, radio, online and social media advertisements, also highlighted the new HRV rebate program. A direct mail to qualifying customers of the thermostat rebate was done during 2013 to increase customer awareness.

takeCHARGE is also active in social media through a joint utility Facebook fan page, YouTube channel and Twitter account. To date, approximately 11,000 Facebook users have "liked" the *takeCHARGE* Facebook fan page, and YouTube views are continuing to increase. *takeCHARGE* has also gained almost 200 Twitter followers since initiating a Twitter presence in September 2013.

Hydro engages with retailers, suppliers and other groups through presentations, and interactive booth displays to promote programs, answer questions and promote energy conservation. In addition, *takeCHARGE* launched the K-I-C (Kids in Charge) school program as a way to develop energy efficiency awareness in children from kindergarten to grade six. The program involves in-class presentations and contests designed to raise awareness of the importance of conserving energy at home and school. Since the beginning of the 2013/2014 school year, Hydro's *takeCHARGE team* has presented to approximately 150 students.

In 2013, *takeCHARGE* held the 5th annual Energy Efficiency Week from October 19 to October 25, 2013. Energy Efficiency Week is a way to promote general energy efficiency and engage in more participative methods of promotions. The main initiatives in 2013 were a Facebook Contest asking people "Are you an Energy Efficiency Super Saver?" Customers participated in the contest by posting pictures to Facebook illustrating the ways they conserve energy. A contest for grade K-6 classes was launched provincially asking students to explain how and why energy efficiency is important to them. Hydro areas accounted for 13 of the 34 entries. Again the Utilities offered the "*takeCHARGE* of Your Town Challenge" to increase energy efficiency in residents' homes, businesses and municipal facilities. Participating towns were awarded points for their involvement in specific energy efficiency milestones and events. The Town of Placentia won the 2013 challenge, receiving $7,500 towards an energy efficiency/environmental improvement in the community. Hydro municipalities accounted for three out of the 13 who signed up, to participate in this year's Challenge.

Table 3: Hydro's Support Costs 2009-2013 ($000s)					
	2009	**2010**	**2011**	**2012**	**2013**
Education	262	106	212	200	192
Support	53	48	43	53	66
Planning	176	180	304	127	56
Total	**491**	**334**	**559**	**380**	**314**

6 Regulated Program Energy Savings and Program Costs

Table 4 below illustrates the energy savings from Hydro customers in relation to programming associated with the annual regulated deferral request. In 2012, there was growth in the windows and thermostat programs and an increase in uptake on insulation. The strong successes in the IEEP and the Isolated System Community Energy Efficiency Program reflect efforts to offer a program model that responds to the needs of the customers being targeted. Strong facilitation and support was provided for the IEEP participants and one-on-one community level participation opportunities provided through the Isolated System Community Energy Efficiency Program. A small energy savings in 2012 resulted from the completion of the first project through the ISBEP program.

Table 4: Energy Savings from Deferral Account Activity (MWh)					
	2009	**2010**	**2011**	**2012**	**2013**
Windows	8	14	38	50	43
Insulation	29	63	229	126	123
Thermostats	2	16	16	28	14
Coupon Program	-	47	166	-	-
Commercial Lighting	3	-	92	25	19
Industrial	-	-	165	3,172	-
Isolated Systems Community	-	-	-	1,673	1,096
ISBEP	-	-	-	3	26
Heat Recovery Ventilator	-	-	-	-	1
Business Efficiency Program	-	-	-	-	-
Total	**42**	**140**	**706**	**5,077**	**1,322**

The costs associated with the delivery of the CDM program portfolio include direct costs for advertising, salaries, rebates and other expenses directly associated with a specific rebate program. These costs vary depending on the uptake of the program and the number of programs offered. Table 5: Program Costs from Deferral Account Activity provides a program level breakdown.

Table 5: Program Costs from Deferral Account Activity ($000s)					
	2009	**2010**	**2011**	**2012**	**2013**
Windows	44	41	69	102	150
Insulation	40	53	116	108	112
Thermostats	13	18	25	43	47
Coupon Program	-	113	123	-	-
Commercial Lighting	13	-	43	10	17
Industrial	57	190	98	170	88
Isolated Systems Community	-	-	-	858	871
ISBEP	-	-	-	93	115
Heat Recovery Ventilator	-	-	-	-	8
Business Efficiency Program	-	-	-	-	40
Small Technologies	-	-	-	-	1
Total	**167**	**415**	**474**	**1,384**	**1,449**

7 Program Participation and Savings

Table 6 provides the breakdown of rebate transactions and savings for each of the programs in the Five-Year Plan and the Coupon Pilot Program. The transaction units are specific to each program. The Residential Energy Star Window, Insulation, Thermostat and HRV programs reflect approved rebates. The Coupon Program reflects numbers of coupons redeemed. The Commercial Lighting Program reflects the number of technologies rebated through the program. The Block Heater Timer Program reflects the number of timers determined to be installed through post-giveaway surveys or coupon redemption. The ISBEP, Industrial and Business Efficiency Programs reflect the number of completed retrofit projects. Finally, the Isolated Systems Program denotes the number of direct installs completed for both residential and commercial customers.

Table 6: Life to Date Program Participation						
Program	**2009**	**2010**	**2011**	**2012**	**2013**	**2013 Life to Date**
Windows	11	19	41	61	48	180
Insulation	14	24	104	50	53	245
Thermostat	4	28	32	45	23	132
Coupon Program	-	3,178	5,832	-	-	-
Commercial Lighting	-	-	6,996	1,321	1,078	9,395
Industrial	-	-	1	1	-	2
Isolated Systems Community	-	-	-	1,355	1,153	2,508
ISBEP	-	-	-	1	1	2
Heat Recovery Ventilator	-	-	-	-	1	1
Business Efficiency Program	-	-	-	-	-	-

The estimated energy savings represent savings from participants in that year through the Deferral Account activity. These savings will occur each year for the life of the measures installed.

Table 7: Life to Date Energy Savings						
Program	**Estimated energy savings (MWh)**					
	2009	**2010**	**2011**	**2012**	**2013**	**2013 Life to Date**
Windows	8	14	38	50	43	153
Insulation	29	63	229	126	123	570
Thermostat	2	16	16	28	14	76
Coupon Program	-	47	166	-	-	213
Commercial Lighting	3	-	92	25	19	139
Industrial	-	-	165	3,172	-	3,337
Isolated Systems Community	-	-	-	1,673	1,096	2,769
ISBEP	-	-	-	3	26	29
Heat Recovery Ventilator	-	-	-	-	1	1
Business Efficiency Program	-	-	-	-	-	-
Total	**42**	**140**	**706**	**5,077**	**1,322**	**7,287**

8 2014 Summary

The portfolio of programs continues to expand for Hydro with the launch of the Small Technologies program in June 2014. This program will provide redeemable coupons for small technologies and provide additional ways for customers to save energy.

Work will conclude with DNV-GL Energy on residential programs, with CLEAResult's work on the IEEP and with internal review of the Block Heater Timer Program. In addition, Summerhill will be providing support in determining next steps in engaging Isolated Systems in energy efficiency beyond 2014.

In addition to evaluating and reviewing existing programs and launching new programs, Hydro will also be engaged in planning work for the next iteration of CDM programs for Hydro customers and through the joint utility process.

9 Life to Date Value of Program Energy Savings

The value of energy and demand savings has been estimated from a utility perspective based on overall cost reductions associated with the program costs recorded in the Deferral Account. It includes Holyrood fuel savings and impacts on transmission and distribution costs including losses. No losses are included for the Industrial Energy Efficiency Program as they are transmission level customers. Estimated energy and demand savings are based on when the customer completed installation of energy saving measures during the year, and allow for reductions due to free ridership. This estimate is less than that based on savings accrued to participants on an annual basis, as presented elsewhere in this report. The value of energy savings changes each year primarily due to the change in avoided fuel prices and an update from using 2009 dollars to 2013 dollars.

Table 8: Life to Date Value of Energy Savings (2013 $s)

Program	2009	2010	2011	2012	2013	2013 Life to Date
Windows	237	982	2,942	6,518	5,974	16,653
Insulation	1,098	5,053	19,803	32,815	19,044	77,813
Thermostat	62	847	2,025	3,830	2,945	9,708
Coupon Program	-	2,403	14,147	34,362	-	50,912
Commercial Lighting	-	-	8,118	13,880	5,083	27,082
Industrial	-	-	980	296,302	-	297,282
Isolated Systems Community	-	-	-	175,232	387,034	562,265
ISBEP	-	-	-	336	1,863	2,200
Heat Recovery Ventilator	-	-	-	-	-	-
Business Efficiency Program	-	-	-	-	-	-
Total	**1,397**	**9,286**	**48,016**	**563,275**	**421,944**	**1,043,916**

Appendix A

CDM Program Descriptions

Residential *takeCHARGE* Rebate Programs

Program applications are processed primarily through customer applications. The programs are promoted in partnership with trade allies in the retail, home building and renovation industries.

Insulation Rebate Program

The objective of this program is to provide incentives to increase the insulation R-value in residential basements, crawl spaces and attics, thereby increasing the efficiency of the home's building envelope. Eligibility for the programs is limited to electrically heated homes, determined on the basis of annual energy usage. Home retrofit projects are eligible. Customers can receive an incentive of one cent per R-value per square foot of insulation added to their attics and two cents per R-value per square foot of insulation added to basement walls or ceilings.

Thermostat Rebate Program

This program encourages installation of programmable and electronic thermostats to allow customers better control of the temperature in their home and to save energy. These high performance thermostats allow customers to set back the temperature during the night or when they are away. Eligibility for the programs is limited to electrically heated homes, determined on the basis of annual energy usage. Home retrofit projects and new home developments are eligible. Incentives of $10 for each programmable thermostat and $5 for each electronic high performance thermostat are offered.

ENERGY STAR Window Rebate Program

This program encourages customers to purchase ENERGY STAR rated windows over standard windows to improve the efficiency of their home's building envelope and reduce space heating energy. Eligibility for the programs is limited to electrically heated homes, determined on the basis of annual energy usage. Home retrofit projects are eligible. Customers who purchase ENERGY STAR windows can receive a rebate of $2 per square foot of window installed.

HRV Rebate Program

This program encourages customers to purchase a high efficiency HRV to improve the efficiency of their home. Eligible measures in this program include all HRV models that have a Sensible Recovery Efficiency of 70% or more. Customers who purchase a high efficiency HRV can receive a rebate of $175. All customers are eligible for this program regards of age of home or heat source.

Isolated System Community Energy Efficiency Program – Hydro Program

This program provided both residential and commercial components targeting customers in Isolated and L'Anse au Loup Systems. The focus is on residential customers through the direct install of a kit of technologies, at-cash coupons on

small technologies and mail-in rebates on energy efficient appliances. Commercial customers also receive a direct install of a kit of technologies. The kit includes items for water savings, draft proofing, lighting and other measures.

Homeowners received education on energy efficiency and information on the existing takeCHARGE rebate programs. There were community events, social media promotions and exchanges held to promote the program and energy efficiency awareness.

Through this program Hydro has piloted a number of approaches and technologies to assess their validity for the rural market including pop up retail shops, drain water heat recovery, and in 2014, Hydro will be exploring residential air sealing and online sales opportunities for energy efficient products.

Block Heater Timer Program – Hydro Program
Targeting customers in the Labrador Interconnected System this program encouraged the purchase of energy saving Block Heater Timers through in-store discounts offered at partnering retailers. The program launched with a giveaway of the technology to create awareness of the product as there was little or no use of the technology before the program. The incentive was offered over two winter seasons (2012-2013 and 2013-2014) and will end in spring 2014.

Commercial *takeCHARGE* Rebate Programs

Commercial Lighting Incentive Program
The Commercial Lighting Program targets energy reductions through more efficient lighting technologies in commercial buildings. The Commercial Lighting Program offers incentives for lamps and ballasts to commercial customers in an effort to reduce the cost differential for upgrading to the higher efficiency lighting systems and provide a sales incentive for the lighting distributor.

The Commercial Lighting Program also includes incentives for LED exit signs for retrofit applications. High bay fluorescent lighting, including T8 and T5 fluorescent fixtures used in areas with high ceilings, such as warehouses, gymnasiums, arenas and garages are also eligible for incentives.

These lighting technologies offer energy savings of 25% to 90% compared to standard lighting systems. The program is primarily promoted through local lighting distributors. It is a requirement of the program that the lighting distributors provide the Company with sales and customer data for program tracking.

Business Efficiency Program

Launched in 2013, the objective of this program is to improve electrical energy efficiency in a variety of commercial facilities and equipment types. The program components include financial incentives based on energy savings, and other financial and educational supports to enable commercial facility owners to identify and implement energy efficiency projects.

This program is available for existing commercial facilities that can save energy by installing more efficient equipment and systems. The program includes custom projects and rebates for specific measures on a per unit basis.

Isolated Systems Business Efficiency Program (ISBEP) – Hydro Program

The ISBEP was launched in 2012 and targets commercial customers in the Isolated and L'Anse au Loup Systems. The program provides a custom approach to finding energy efficiency solutions and provides free energy walkthroughs as well as financial assistance for feasibility studies and for retrofit projects. It has the same program design and offerings as the joint utility Business Efficiency Program, but has higher incentive levels for retrofit work because of the higher avoided cost of generation in these systems.

Industrial Energy Efficiency Program (IEEP)

The objective of this program is to improve electrical energy efficiency in a variety of industrial processes. The program components include financial incentives based on energy savings, and other supports to enable industrial facilities to identify and implement efficiency and conservation opportunities. This program is a custom program to respond to the unique needs of the industrial market, rather than a prescriptive technology approach. It was launched as a three-year pilot program in 2010 and was closed to new projects in 2013. It is currently under an external consultant review and Hydro will be developing a longer-term strategy for energy efficiency in the industrial sector.

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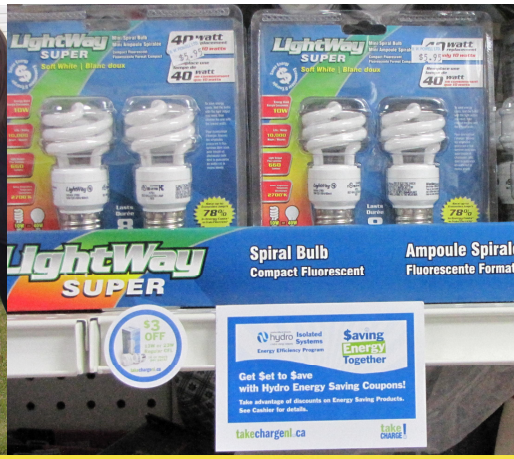
Isolated Systems Energy Efficiency Program



2013 Isolated Systems Energy Efficiency Program Final Report

December 17, 2013

Summerhill
Engaging consumers. Making an impact.

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Table of Contents

1.0 Executive Summary

Newfoundland and Labrador Hydro's Isolated Systems Energy Efficiency Program (the Program) is a Demand Side Management (DSM) program managed by Summerhill. Year Two of the Program ran from July 1st to December 20th, 2013 and is summarized in this report.

There were six components implemented in Year Two of the Program, including:

- Direct Install (DI) – Residential and Commercial
- Drain Water Heat Recovery Pilot (DWHR)
- Retail Discount Coupons
- Appliance Mail-in Rebates
- Pop-up Shop Pilot
- Seasonal LED Light string Exchange (SLED)

Achieved savings and targets for all components are shown in Table 1.1. Newfoundland and Labrador Hydro (NLH) approved a Medium target of 65% installation for the Direct Install component. This target was determined using housing counts provided by town contacts and 2011 Census information. The target was updated in June to reflect the revised DWHR installation target.

The total net energy savings achieved during Year Two was 1,100.41 MWh and is broken down in Table 1.1 by program component. The net energy savings are based on free-ridership, installation rate, and net electric savings rate per unit. *Appendix B: Direct Install Results by Product Type* provides a breakdown of products by component.

Table 1.1, Total Net Energy Savings by Component

Component	Total Net Energy Savings (MWh)	Target Energy Savings (MWh)	Difference	Total Installs/ Participants
Direct Install – Residential	961.85	1007.43	-45.58	1,073
Direct Install – Commercial	94.86	176.72	-81.86	80
Direct Install – Nain (Installed 2011 kits)	1.71	0.00	1.71	3
Subtotal	1058.42	1184.15	-125.73	1156
Drain Water Heat Recovery Pilot	22.98	16.32*	6.66	33
Retail Discount Coupons	0.00	9.10	-9.10	0
Appliance Mail-in Rebates	0.88	2.68	-1.80	8
Pop-up Shop Pilot	2.26	0.00	1.76	31
Seasonal LED Lightstring Exchange	16.32	29.30	-12.98	354
Total	**1100.41**	**1241.55**	**-141.14**	**1572**

*Revised June 2013 to 20 units.

The Direct Install component was conducted in ten isolated diesel systems across eleven communities in Labrador and the Island. 1,153 customers (1,073 residential and 80 commercial) received an installation, representing a 94.5% installation rate. Thirty-one customers (28 residential and 3 commercial) had a kit left behind. Kits were offered to nearly 100% of eligible customers, of which there are approximately 1,220. Post-installation audits were completed with 348 customers to verify installed products. In Nain, representatives offered to install the 2011 program kit to those customers who had received but not had theirs installed. Three customers accepted the offer.

Thirty-three customers across Labrador received a Power Pipe® installation through the Drain Water Heat Recovery Pilot, achieving energy savings of 22.98 MWh. Installations were completed in Cartwright, Charlottetown, Makkovik, Mary's Harbour, Port Hope Simpson, and the Straits. Pipe sizes varied to accommodate factors such as basement height and plumbing system connections.

Fifteen retailers are participating in the Retail Discount Coupon component, including two appliance vendors. Three customer awareness events were conducted in the fall to educate customers on the discounted products and appliance rebates. No retail rebate claims have been submitted at this time for the 2013 program year. Eight appliance rebates were approved. To boost retail savings, Pop-up Shops were developed and piloted in two Island communities. Two additional communities were targeted for shops, but four weeks of weather delays resulted in these areas being put on hold until next year. At the Pop-up Shop one day sales, LED bulbs and smart power strips were made available at discounted prices to customers; these products were selected based on feedback from Direct Install participants. In total, 19 LED light bulbs and 40 smart power strips were sold through this pilot.

The Seasonal LED Lightstring Exchange took place in five Island communities and two northern Labrador communities in the fall. The events engaged 354 participants and achieved 16.32 MWh savings as of December 31st. LED light strings were offered as a one-for-one exchange, with up to three LED light strings allotted per household.

1.1 Delivering on Success Factors

The following table summarizes key areas of success across the program year.

Table 1.2, Achieved Success

Approach	Achieved Success
Strong education to homeowners and retailers on energy efficiency	• Quality control audit respondents reported learning from representatives about: energy and lighting (84.8%); energy and water conservation (83.9%); and energy and heating (81.3%). • 94.3% of audit respondents indicated that representatives were knowledgeable about energy efficiency.
Strong engagement with homeowners and retailers through community outreach activities, including advertising and launch events	• Launch events, door-to-door, phone calls, posters, magnets, bag stuffers, and direct mail flyers were used in Direct Install systems. • TV and $200 Visa card prizes to encourage early DI sign-ups. • Canada Day Launch Events were conducted in all 2013 DI Systems to introduce the program and encourage Direct Install sign-ups. • Representatives reached out to their networks, including Facebook. • Customer education events were completed in 2 Straits hardware

Approach	Achieved Success
	stores to encourage retail sales.
Maximize program participation	• Offered kits to nearly 100% of potential customers. • An estimated 36 eligible customers refused to participate. • 94.5% of potential customers had installations completed (excluding Norman Bay where ferry schedules prohibited representative travel).
Develop retail partners for and encourage customer participation in Retail Discount Coupon	• Added 2 new appliance retailers and 1 regular retail partner. • Potential Island retailers were contacted but were prevented by store capacity from participating. • Added Pop-up Shop one-day sales in 2 Island communities to address lack of Island retailers and increase customer access to select products.
Hire and train local representatives to complete direct installs and promote all components	• Hired 12 installers, 1 area coordinator/installer, 1 DWHR installer, and 1 customer engagement staffperson. • Completed 3 in-person, 2-day Direct Install training sessions in June, 1 in-person DWHR training in July, 2 SLED webinars, 2 Pop-up Shop phone training sessions, and 1 customer engagement training session.
High satisfaction among all customers with installation and program experience	• Averaged 4.79/5 for program satisfaction and 4.82 for representative satisfaction, according to audit calls. The overall program satisfaction for all customers was 4.43/5, according to the install visit surveys. • Anecdotal feedback was very positive. • Program Managers followed up all reports of faulty smart power strips and worked with NLH, the supplier, and manufacturer to respond to customers.
Move customers along the sustainability continuum	• On average, 4 out of every 5 audit respondents confirmed they learned something new from their representative about saving energy through lighting, water conservation, and heating.

1.2 Program Challenges

There were three main challenges during the 2013 Program year:

- Customer Opportunities:
  - Customer counts: despite surveying town contacts and reviewing 2011 Census data prior to ordering product, the total customer opportunities were lower than projected, which resulted in below-target savings and some product overages.
  - Additional measures:
    - Insulation installation: the Drain Water Heat Recovery selection process provided key insights into the opportunity to install insulation in Labrador homes. Significant problems with mold, moisture, air-flow, and use of space were identified as barriers to this option.
    - Appliance recycling: while there is some infrastructure in the Straits to support this option, it would require a significant investment of labour and shipping and achieve low overall savings.

- Island retailers: stores in Island communities had low-to-no capacity to support the Retail Coupon Discount component. Most stores act as tuck shops for their towns and cannot afford to commit the time and investment necessary to participate in the Retail component. The Pop-up Shop Pilot was developed to address this gap and provide more popular and less readily available products to the pilot communities.

- Drain Water Heat Recovery: the participant target for this component was reduced to reflect the lower-than-anticipated eligible opportunities and customer interest rates. While the revised participant target was met, it was a challenging process due to:
  - The higher level of customer paperwork required (participant agreements, warranty transfer, etc.);
  - Skill set required of the installer;
  - Need for different pipe sizes than estimated;
  - Geographic spread of participants; and
  - The in-home realities preventing certain installations from being completed.

- Product Quality: despite quality control and risk management planning, it is difficult to predict product issues. The CyberPower smart power strip was successfully used in the 2012 Direct Install, but had several faults reported in 2013. Replacement exchanges were required in 5 systems to address the reported faults and customer perception about the product.

1.3 Resource Use

Summerhill managed all Year Two resources except for marketing design and rebate processing. Billed expenses for the January 1st to December 16th, 2013 period are:

Table 1.3, Resource Use

Category	Expenses to Date ($)	2013 Budget Estimate ($)	Difference ($)
Program Management	$348,550	$348,550	$0.00
Marketing & Communications	$11,117.17	$16,100	- $4,982.83
Program Incentives	$157,753.87	$228,820.40	-$71,066.53
Program Representatives	$152,321.78	$180,285.54	-$27,963.76
Program Delivery Expenses	$146,769.84	$164,005.04	-$17,235.20
TOTAL	**$816,512.66**	**$937,760.97**	**-$121,248.31**

The overall 2013 expenses were under the budget estimate. The lower-than-projected DWHR opportunity was a key factor in keeping incentive, staffing, and delivery expenses down. Competitive supplier pricing, better than projected participation in Nain and Hopedale, and shorter distances between houses (especially in Island towns) also contributed.

The smart power strip replacement was not billed to NLH. The labour, printing, admail, and miscellaneous expenses associated with the smart power strip replacement exchanges were absorbed by Summerhill, and the replacement units and shipping were covered by the supplier.

1.4 Total Resource Cost

The Total Resource Cost (TRC) is positive at 2.27 for the 2013 program year. Electric heat and electric water heating customers are factored into product install numbers. The TRC includes:

- Fixed management costs to December 31st;
- Estimated recycling costs based on shipping weights; and
- Estimated payroll and delivery costs to end of the 2013 program year.

The Appliance Mail-in Rebate and Retail Discount Coupon components are not included in the reported TRC since they are processed and paid out by NLH.

Table 1.4, Summary and TRC Results – Estimated to December 31st

Summary and TRC Results	2013
Benefits	$1,671,238.75
Measures TRC Costs	$124,129.53
Program Costs	$613,678.84
Program TRC (Net Present Value)	**$933,430.37**
Program TRC (Ratio)	**2.27**

2.0 Detailed Results by Component

2.1 Direct Install

Direct installation of energy efficient products is an effective method for achieving savings, ensuring products are installed, and maximizing customer education. In 2013, all remaining communities were offered installations, except Norman Bay. Lack of staff and accommodation and inconvenient ferry schedules prevented installations from being conducted in Norman Bay. Kits were distributed there by a local town contact. The achieved energy savings and participation are summarized below:

Table 2.1, Direct Install Achieved Energy Savings and Participants

Component	Total Net Energy Savings (MWh)	Target Energy Savings (MWh)	Difference	Total Installs/ Participants*
Direct Install – Residential	961.85	1007.43	-45.58	1073
Direct Install – Commercial	94.86	176.72	-81.86	80
Direct Install – Nain (Installed 2011 kits)	1.71	0.00	1.71	3
Total	1058.42	1184.15	-125.73	1156

*Excluding customers who had a kit left behind in the Direct Install component.

For detailed breakdowns of installations by community and by product types, refer to *Appendix A: Direct Install Results by Community* and *Appendix B: Direct Install Results by Product Type.*

Two different kit sizes were provided. A "Full" kit was distributed in communities that had not previously had kits offered, and a "Small" kit was provided in the Mary's Harbour system to build on the products provided in the 2011 pilot there. Both sizes were offered in Nain to accommodate the relatively large number of customers who did not participate in 2011. Hopedale and Port Hope Simpson were offered Full kits since it had been four years since those customers had participated in the 2009 program. The kits were comprised of:

Table 2.2, Direct Install Products by Kit Size

Product	Full Kit	Small Kit
13W Regular CFL	2	0
12.5W LED A-19	2	1
23W Regular CFL	1	0
23W Dimmable CFL	2	2
Pipe Insulation	1	0
Low Flow Showerhead	1	0
Faucet Aerator	2	0
Electric Hot Water Heater Tank Wrap	1	1
Weatherstripping	1	0
Smart Power Strip*	1 residential 2 commercial	1 residential 2 commercial
LED Exit Sign	2 commercial	2 commercial
Shrink Wrap Window Kit	2	1

*2 Smart Power Strips were offered to all commercial customers.

The interest in and need for products can be determined by the percent of each product installed. Factoring in the quantity installed by kit type, the interest levels are:

Table 2.3, Direct Install Product Interest

Product	Residential Interest (%)		Commercial Interest (%)	
	High	Low	High	Low
13W Regular CFL	93.4		61.5	
12.5W LED A-19	92.9		69.7	
23W Regular CFL	92.6		63.5	
23W Dimmable CFL	86.8		61.9	
Pipe Insulation	65.8			28.9
Low Flow Showerhead	76.9			23.1
Faucet Aerator	80.9		61.5	
Electric Hot Water Heater Tank Wrap		3		9.6
Weatherstripping		15.4		17.3
Smart Power Strip	91.7		70.6	
LED Exit Sign	N/A	N/A		29.4
Shrink Wrap Window Kit		15.8		28.9

Overall, customers were very satisfied with this component and with the products. Quality issues are discussed in section *4.0 Quality Assurance*.

2.2 Drain Water Heat Recovery Pilot

As part of the 2013 program year, Newfoundland and Labrador Hydro offered a free energy-saving water-heating product for up to 50 eligible homes in Labrador. This offer included the free Power Pipe® water-heating product, worth up to $1,000, and free installation by a trained representative. The main benefits of this product include:

- Saves up to 35% on annual electric water-heating energy costs;
- Requires no maintenance;
- Reduces the home's greenhouse gas emissions by up to 1 tonne per year;
- Extends the life of the home's water heater;
- Increases the availability of hot water in the home; and
- Lasts up to 50 years.

The 2012 Direct Install survey data was used to determine the 210 initial candidates for this pilot. The highest number of candidates was based in the Straits, and the lowest was in the northern communities. Customers from Black Tickle were not included due to a lack of regular transportation to the community.

In March, letters explaining the offer and product benefits were mailed to the initial 211 candidates. Starting in April, the candidates were called and invited to complete a secondary survey, including sending in photographs of their drain stack.

The installation target was revised from 50 to 20 in June in response to the lower-than-expected number of eligible survey respondents and participation agreements (24 and 14 respectively).

Efforts continued until August 10th to secure participants. Local representatives in Cartwright and the Straits sent photographs for customers who had no means to do so and helped collect surveys as

needed. In addition, data from 2013 Direct Install customers was reviewed up to July 31st, with approximately 10 candidates from Mary's Harbour and Port Hope Simpson identified as eligible. In total, 107 customers completed the survey, either by phone or in-person with a local representative.

The photographs and data from this group were reviewed by the program manager and the Power Pipe® manufacturer, RenewAbility Energy Inc. on an ongoing basis. Key factors in approval included:

- Accessibility;
- Pipe length (customer reported versus photograph);
- Pipe angle;
- Number of connections;
- Sump-pump and laundry feeds;
- Shower location (one floor above drain stack); and
- Evidence of leaks.

A total of 50 candidates were deemed eligible based on the reviews. These customers were mailed participation agreements and were required to return their signed agreement within staggered periods.

Forty-two signed agreements were returned by customers. During installation visits, the DWHR installer determined that 9 of these customers were not eligible due to short pipe length, leakage problems, and access. Installations were successfully completed at 33 residences, as follows:

Table 2.4, Drain Water Heat Recovery Pilot Installations

Diesel System	Power Pipe® Recipients
Cartwright	5
Charlottetown	2
Labrador Straits	17
Makkovik	2
Mary's Harbour	1
Port Hope Simpson	6
Total	**33**

Various pipe sizes were installed based on each customer's existing drain stack set-up. Savings per customer varied based on pipe size. The total energy savings are:

Table 2.5, Drain Water Heat Recovery Pilot Energy Savings

Pipe Size	Total Units Installed	Savings Per Unit by Size (KWh)	Total Savings Per Size (KWh)	Total Savings Per Size (MWh)
R3-36	4	558	2,232	2.23
R3-42	13	638	8,294	8.29
R3-48	6	706	4,236	4.24
R3-54	3	764	2,292	2.29
R3-60	4	816	3,264	3.26
R3-66	1	860	860	0.86
R3-72	2	899	1,798	1.8
Total	**33**	**-**	**22,976**	**22.98**

Initial feedback has been positive from customers. A Makkovik participant indicated that her electricity bill was $100 lower than prior to the installation of the DWHR unit.

2.3 Retail Discount Coupons

Two new products were added to the product mix in 2013. The heavy duty outdoor timer was added in response to the success of the 2012 Block Heater Timer Giveaway and is carried in Labrador Straits. Also added was the programmable thermostat rebate of $20 (including $10 from NLH's regular rebate offer), which was requested by several 2012 customers. The product mix and rebates are summarized below:

Table 2.6, Retail Discount Coupon Products and Rebates

Rebate Amount	Product
$1.00	EnergyStar® Qualified 13W or 23W Regular CFL – Multi pack (2 or 3 packs only)
$3.00	EnergyStar® Qualified 13W or 23W Regular CFL – Multi pack (4 or more packs only)
$5.00	EnergyStar® Qualified 23W Specialty Dimmable Spiral CFLs (single packs)
$7.00	EnergyStar® Qualified 23W Specialty Dimmable Spiral CFLs (multi-packs of 2 or more)
$10.00	Heavy Duty Programmable Block heater/ Outdoor Timer
$10.00	Electronic Thermostats (Non-programmable)
$20.00	Programmable Thermostats
Up to $3.00	Furnace Filters (Panel style)

During the 2012 and 2013 program years, 63 retailers were surveyed to determine eligibility and interest in supporting this component. Retailers in the 2013 Direct Install systems were contacted, but were unable to support the program. The 8 Island retailers did not have the capacity to participate, and the 5 Nain and Hopedale retailers had too little space or staff to support this component.

In total, 15 retailers have partnered to support the rebates. Three new retailers joined in 2013, all from Labrador Straits. They include Diversified Supply & Rental (Castle Building Supply), and two appliance retailers, Earle's Grocery (Sears Catalogue) and Cohen's Furniture (Forteau). All but one 2012 partner agreed to continue in the program. Earle's Grocery declined to participate again in the 2013 instant rebate retail program, citing poor sales of qualified products. However, as they are also a Sears Catalogue outlet, they agreed to promote and participate in the mail-in appliance rebate program.

All retail partners have been contacted several times this year to refresh their understanding of the program and claims process. The area coordinator visited retailers in southern Labrador in the spring to post signage, check on products, and connect with store managers to review processes, rebates, and product stock.

Retailer compliance continues to be a challenge, despite efforts to educate and engage them. For example, during fall follow-ups, three retailers indicated that they had sold rebated products but had either lost the receipts or had forgotten to apply the rebate on the sale.

Three Labrador Straits hardware stores agreed to hold customer engagement events this fall. The goals of the events were to remind customers about available products, encourage sales, and provide education on the rebates and the Appliance Mail-in Rebates. Each event was four hours long, and included a product display. The attendance and sales for the events was:

- Pro-Hardware, Forteau: 20 customers, 1 sale;
- Turnbull's Home Hardware, L'Anse au Clair: 30 customers.

The final of the three events is planned for December 14 at the newest retail partner, Diversified Supply & Rental (Castle Building Supply).

2.4 Appliance Mail-in Rebates

In response to customer requests, two new products were added to the Appliance Mail-in Rebate product mix this year. A $50 rebate is offered on EnergyStar qualified full-size upright or chest freezers of 10 cubic feet or larger. EnergyStar qualified dehumidifiers are rebated at $15. These two products do not have a Consortium of Energy Efficiency (CEE) rating, so all EnergyStar qualified models are eligible. The current product mix is indicated below:

Table 2.7, Retail Discount Coupon Products and Rebates

Rebate Amount	Product
$50.00	EnergyStar® Qualified Tier 3 Refrigerator
$50.00	EnergyStar® Qualified Tier 3 Clothes Washer
$50.00	EnergyStar® Qualified Full-Size Upright or Chest Freezer (minimum size: 10 cubic feet)
$50.00	EnergyStar® Qualified Tier 5 Flat Screen Television
$15.00	EnergyStar® Qualified Dehumidifier

The total number of approved and rejected rebates is indicated below:

Table 2.8, Appliance Mail-in Rebates Approvals and Rejections

Rebate Type	Approved	Rejected	Total Applicants
Refrigerator	0	11	11
Clothes Washer	5	4	9
Television	1	12	13
Freezer	1	0	1
Dehumidifier	1	2	3
Total	**8**	**29**	**37**

2.5 Pop-up Shop Pilot

To address the lack of stores in the Island systems, a Pop-up Shop Pilot was created. This one-day "pop-up" sale event promoted EnergyStar® LED light bulbs and smart power strips at a savings of 50% or more off retail pricing. The special discount pricing was:

- $15 each; or
- Buy 2 or more for $10 each, an additional savings of $5 per product.

Additional training was provided to prepare the representatives to handle and record the monetary transactions. The two events held in Ramea and Grey River were extremely successful, with the smart power strips being most popular. Product sales are as follows:

Table 2.9, Pop-up Shop Pilot Totals

Community	LED Light Bulbs – Units Sold	Smart Power Strip – Units Sold	Total Sales ($)	Customers	Event Attendees
Grey River	9	30	$390.00	14	16
Ramea	10	10	$185.00	7	12
Total	**19**	**40**	**$575.00**	**21**	**28**

Two other events were planned for Francois and McCallum. However, these have been put on hold due to severe weather affecting staff travel and shipping. No smart power strips were sent to Francois and McCallum due to the overlap in timing with the CyberPower product replacement process.

2.6 Seasonal LED Lightstring Exchange

The Seasonal LED Lightstring Exchange was offered in five Island and two Labrador communities in 2013. Product was again sourced through the Home Depot – Halifax at a wholesale rate. Residents were invited to bring in up to 3 incandescent lightstrings in exchange for up to 3 multi-colour C6 35-bulb LED lightstrings. The incandescent lightstring recycler is Ontario-based Aevitas.

Events took place as follows:

- November 23: Hopedale, McCallum, Ramea
- November 25 to December 6: Nain
- November 26: Grey River
- November 30: Hopedale (due to low turnout on November 23), St. Brendan's
- December 10: Francois

A second event was held in Hopedale due to low attendance and poor weather at the first event. Due to lack of available staff and travel delays, the Nain Inuit Community Government and Francois' local service district representative ran the exchanges in those towns. The Nain exchange was a two week drop-in period during office hours. Final exchange events are taking place in Nain on December 19th to optimize savings in that community.

Participation was very high in all communities except Nain and Hopedale. In those towns, residents tend to leave their lights on the house year-round. The effort to take them down, coupled with an extended period of poor weather, discouraged many people from participating in the exchanges.

The totals by town and bulb type are as follows:

Table 2.10, Seasonal LED Lightstring Exchange Results by Community

Community	Total SLED Exchanged	Total Incandescents Collected	Achieved Energy Savings (MWh)	Total Participants
Francois	86	86	**1.50**	**40**
Grey River	125	133	**2.18**	**46**
Hopedale	26	26	**0.45**	**11**
McCallum	86	86	**1.50**	**25**
Nain	207	207	**3.61**	**75**
Ramea	240	292	**4.19**	**101**
St. Brendan's	166	166	**2.89**	**56**
TOTAL	**936**	**996**	**16.32**	**354**

3.0 Marketing

Word of mouth is the most effective approach in the small, isolated communities in this program. For this reason, basic marketing tactics, such as posters, direct mail, and door-to-door, are sufficient in getting customers interested and participating in the program. The following table summarizes the marketing tactics used for each program component:

Table 3.1, Marketing Tactics by Component

Component	Direct Install	Drain Water Heat Recovery	Retail Discount Coupon	Appliance Mail-in Rebate	Pop-up Shop	Seasonal LED Lightstring Exchange
Direct Mail (Postcard or Flyer)	X	Letter	X	X		X
Poster	X		X	X	X	X
Bag Stuffer	X		X	X		
Door Hanger	X					
Door-to-Door	X					
Phone Call	X	X				
Coupon/Rebate			X	X		
Event	X		X	X	X	X
Prizes	X					
Website	X	X	X	X		X

The DI poster, postcard, and installation surveys were available in English and Inuktitut in Nain and Hopedale and in English in all other 2013 DI communities.

The major marketing push began with the launch of the Direct Install component in the 2013 DI communities. Leading up to the launch, direct mail flyers were sent to these customers to announce the 2013 offerings, and posters were put up with the date, time, and location of the launch events. Representatives with a Facebook account posted updates and identified themselves as the local

representative. The takeCHARGE website was updated for the 2013 year. This push served to announce the overall program and introduce customers to the other offerings. The launches were timed to overlap local Canada Day celebrations, when customers were already out in their communities.

To encourage customers to sign-up and have their installation completed early in the program, Big Screen TV and $200 Visa gift card prizes were promoted during the launch events. Only those who signed up at the launch and had an installation by the representative by July 31st were eligible to win the gift card, and only those who had an installation by the representative by the end of the program were eligible to win the TV. NLH provided giveaways, such as hats, jackets, and shirts, to increase participation during the launch events, and, where possible, food and beverages were offered.

All Visa and TV prize winners were verified against the Direct Install survey and audit data. The Visa prizes were mailed on October 31st, and the TV prizes shipped that week. To support a local retailer, the TV prizes were purchased through Cohen's Furniture in Forteau. The Samsung LCD HDTV 46" model was chosen again to maintain consistency with 2012 winners and due its popularity and Tier 5 energy efficiency rating.

The non-DI components were promoted in a variety of ways. The installation visits were the main opportunity for customers to learn about the various rebates available in 2013. Representatives educated customers about these offers and let them know about upcoming events, such as the Pop-up Shop sales and Seasonal LED Lightstring Exchanges. Because the Pop-up Shops were in select towns only, posters were used to promote the event and announce the date, time, and location. The Seasonal LED Lightstring Exchanges were promoted using posters and direct mail postcards leading up to the events.

In communities served by the 2012 DI and where retail partners exist, posters were put up around town, and in-store signage, stickers, and coupons were displayed to remind customers to take advantage of the rebates. Posters specific to the Appliance Mail-in Rebate component were posted at the two appliance retailers in the Straits. Three customer engagement events were held in the Straits this fall. These events included product displays and provided an opportunity for customers to ask questions.

Customer responses to DI installation surveys and audits are addressed in section *4.0 Quality Assurance*.

4.0 Quality Assurance

4.1 Direct Install Survey Results

All Direct Install customers were required to complete a survey after receiving an energy efficiency kit. The survey verified installed products, determined initial eligibility for the DWHR pilot, and collected marketing and attitude data. 1,184 surveys were collected, of which 1,166 were signed by the customer. For a summary of customer responses to the marketing and attitude questions, see *Appendix C: Direct Install Installation Survey Summary*.

On average, survey respondents indicated a high degree of satisfaction with the program, rating it at 4.43/5. Less than 1.5% of customers rated the program as fair (2/5) or poor (1/5). Face-to-face (events, door-to-door) and phone promotion were again the most effective methods of reaching customers, highlighting the importance of using local representatives to engage customers in these small

communities. Saving money by saving energy was the greatest motivator for customer participation, with 79.16% of customers identifying it as the number one reason to participate. Attitudes towards energy efficient products (safety, cost, reducing impact, paying more) were extremely positive, with a minimum of 82% of customers agreeing or strongly agreeing to statements describing their attitudes. With the exception of turning down their heat at night or when not at home, most customers are taking low- or no-cost steps to save energy, and over 12% have installed EnergyStar® windows in the past year.

4.2 Direct Install Audits

Program quality was monitored through routine follow-ups with town contacts and by conducting post-installation audits with Direct Install customers. 348 customers completed a post-installation audit survey, representing 29.39% of the 1,184 DI participants (including installed and left-behind kit recipients). Twenty of the audits were completed in-person and the remainder by phone. The audits verified product installation and included marketing and satisfaction questions. Customers who had a kit left-behind during the installation visit were asked if they had installed the kit and, if not, if they would like the representative to return to install it. The confirmed installed products from the audits were updated in the Direct Install installation data. For the summarized audit results, refer to *Appendix D: Direct Install Audit Results Summary*.

Program managers followed up on negative feedback from customers and from town contacts. Anecdotal feedback was generally very positive.

4.3 Smart Power Strip Issues

In late September, reports about smoking or popping smart power strips were received by the program managers from select representatives. The affected model was the 7050SG Energy Saving Surge Suppressor 15A 7-Outlets smart power strip, manufactured by CyberPower and supplied by AM Conservation Group Inc. It is the same model as that distributed through the 2012 program but was part of a batch purchased and distributed in 2013. The program managers responded to the reports with the following initial steps:

- Affected customers were interviewed about the incident, attached items, etc.;
- Local representatives shipped the strips to Summerhill for testing; and
- The supplier was contacted, and communication with the manufacturer was initiated.

Simultaneous with these steps, NLH contacted Summerhill after receiving a report through its customer service about two affected Nain customers. At that time, there were approximately five total incidents of faulty smart power strips reported. NLH escalated the issue to its Safety and Legal departments to determine the best course of action.

Manufacturer testing of the 7 power strips sent by Summerhill in late September/early October indicated that there is a faulty capacitor component in a small percentage of the smart power strips purchased for the 2013 DI. The manufacturer stated that there are no life or product safety issues and there should be no fires or electronics issues associated with use of the power strip. With that information, NLH's Safety and Legal departments determined that a Product Alert letter should be issued to all 2013 DI customers. Summerhill sent the letter out as unaddressed admail through Canada Post on October 16th and had it posted around each town by staff and town managers. All town contacts and representatives were contacted by phone about the letter and product issues and were

sent a copy of the letter. Feedback from town contacts indicated that they appreciated the proactive nature with which the issue was being addressed and communicated.

Following the letter, NLH's Energy Efficiency Team requested that a replacement exchange be conducted for communities where a faulty power strip had been reported. NLH requested that different model with a higher level of fire protection be used as the replacement. The exchange would provide an opportunity for customers to exchange the power strip received in the 2013 DI with a new one.

On November 8th, Summerhill held a conference call with the manufacturer and supplier to request 250 replacement products. The amount represented a percentage of the customers in the affected communities. During the call, Summerhill communicated the significant impact the faulty product has had in the small, isolated communities of the program and product safety. CyberPower agreed to seek approval for 250 units of a different model but was unable to confirm the fire protection feature of the model or agree to the amount by the deadline required by Summerhill. In response, the supplier agreed to provide and cover shipping for a replacement and confirmed fire protection. The replacement is the TrickleStar 7-Outlet Advanced Powerstrip 181SS-US-7XX-3. Product was shipped to the affected communities on November 18th.

A Product Update letter was mailed to all communities on November 15th. The letter was different for each community based on faulty product reports:

- Communities with no reports of faulty power strips: customers were informed that they may continue to use the CyberPower unit at their discretion and that no life, fire, or safety issues had been identified by the manufacturer.
- Communities with reports of faulty power strips:
    - Mary's Harbour/Lodge Bay, McCallum, Port Hope Simpson, and Ramea: replacement exchanges would be held during a 2-hour, one-week drop-in period.
    - Nain: an event plus a one-week drop-in period would be held for customers to exchange their power strips for the new model.

All town contacts and representatives were contacted by phone about the update and were sent a copy of the letter to post in their local community.

The replacement exchanges were held in all affected communities the week of December 9th, except Nain. Prior to the exchanges, Summerhill had received reports of 8 smoking and 2 popping power strips. During the replacement exchanges, 25 faulty bars were returned to representatives, of which 8 were identified as smoking or popping. These strips will be sent to the manufacturer for testing.

The Nain Inuit Community Government recommended and volunteered to hold the exchange the week of December 16th. Since no representatives are available in Nain at this time, the program manager provided training to the Nain office's staff to ensure all tracking and communication is properly managed. Results will be communicated to NLH in January 2014.

The distribution of replacement power strips per community is:

Table 4.1, Replacement Smart Power Strip Units per System

Diesel System	Replacement Power Strip Units	Faulty Strips Received from Customers
Mary's Harbour	40	1 (smoking or popping)
McCallum	42	15 (14 not working properly; 1 smoking or popping)
Nain	100	TBD
Port Hope Simpson	36	6 (smoking or popping)
Ramea	32	0
Total	**250**	**25**

To date, all strips have been exchanged in Mary's Harbour, McCallum, Port Hope Simpson, and Ramea. Customers have been informed they can call the toll-free program line with questions or concerns about the products and replacement exchange process.

Summerhill is following up on one report of power strip-related damage to a television in Nain. Once the customer is reached, the claims process can be initiated directly with the manufacturer.

2014 Planning

The following activities are planned for Year Three of Newfoundland and Labrador Hydro's Isolated Systems Energy Efficiency Program:

- Direct Install:
  - Opportunity exists to do direct installation of energy efficient lighting in sockets that were not changed over during 2012 or 2013 installations. The bulb types will include regular, chandelier, and globe. It is anticipated that several of the communities that participated in the 2012 program will be targeted for this offer. The recommended list of communities will be provided to NLH in early 2014.

- Online Retail Sales:
  - A two-part online retail project is planned. Part One will investigate the need and market for an online retail option for isolated diesel systems to access energy efficient products. This study will include: customer surveys to determine buying habits, access issues, and interest; and a review of available online store models.
  - Based on results from part one, recommendations will be presented on the viability of an online store for this market and the most effective model for the online store. The store would provide rebates and improved access to energy efficient products to isolated diesel system customers.

- Continuing Components:
  - The Retail Discount Coupon and Appliance Mail-in Rebates will continue to be offered in 2014.

Final Thoughts on 2013 Program Delivery

Participation rates in the installations, exchanges, and launches reflect a very high level of engagement among customers in the Labrador and Island isolated diesel systems. It is important to determine and test best methods for maintaining and increasing engagement, especially in the retail area, while taking advantage of low-skill installation opportunities over the 2014 year. There are several opportunities to sustain and build on this program in 2014 in order to position NLH to offer deeper measures in these systems moving into the 2015 to 2018 period.

Appendices

Appendix A: Direct Install Results by Community

The 2013 kit products installed by representatives by community are indicated in the table below. The reported quantities for weather stripping and shrink-wrap window kits are for electrically heated homes only.

	TOTAL PARTICIPANTS			2013 Installed Kits		
Community	**TOTAL PARTICIPANTS**	**Total Installed Kits**	**Total Left-behind Kits**	**TOTAL ENERGY SAVINGS (MWh)**	**Total Energy Savings (KWh)**	**Total Installed Products**
Commercial	**83**	**80**	**3**	**94.86**	**94862.87**	**591**
Francois	**1**	1	0	**2.98**	2984.21	19
Grey River	**4**	4	0	**5.85**	5850.98	39
Hopedale	**9**	8	1	**3.44**	3435.11	23
Little Bay Islands	**2**	2	0	**2.93**	2927.69	20
Lodge Bay	**1**	1	0	**0.33**	327.98	2
Mary's Harbour	**15**	15	0	**11.33**	11327.46	68
McCallum	**7**	6	1	**13.48**	13481.00	72
Nain	**15**	15	0	**10.13**	10134.82	74
Norman Bay	**0**	0	0	**0.00**	0.00	0
Port Hope Simpson	**15**	15	0	**19.81**	19810.65	134
Ramea	**6**	5	1	**10.44**	10439.55	57
St. Brendan's	**8**	8	0	**14.14**	14143.42	83
Residential	**1101**	**1073**	**28**	**961.85**	**961849.21**	**9701**
Francois	**39**	34	5	**64.69**	64690.27	454
Grey River	**50**	50	0	**56.32**	56323.30	561
Hopedale	**123**	120	3	**114.95**	114952.06	1294
Little Bay Islands	**78**	76	2	**69.13**	69127.65	734
Lodge Bay	**27**	27	0	**6.25**	6246.31	100

	TOTAL PARTICIPANTS			2013 Installed Kits		
Community	TOTAL PARTICIPANTS	Total Installed Kits	Total Left-behind Kits	TOTAL ENERGY SAVINGS (MWh)	Total Energy Savings (KWh)	Total Installed Products
Mary's Harbour	**117**	113	4	**28.75**	28754.03	430
McCallum	**48**	48	0	**54.60**	54598.54	502
Nain	**232**	230	2	**117.44**	117439.28	1334
Norman Bay	**0**	0	0	**0.00**	0.00	0
Port Hope Simpson	**125**	121	4	**99.90**	99898.51	1133
Ramea	**149**	143	6	**223.22**	223224.89	1845
St. Brendan's	**113**	111	2	**126.59**	126594.35	1314
Total	**1184**	**1153**	**31**	**1056.71**	**1056712.08**	**10292**

Appendix B: Direct Install Results by Product Type

The total 2013 kit products installed by the representative by product type are indicated in the table below. The reported quantities for weather stripping and shrink-wrap window kits are for electrically heated homes only.

2013 Kit Products per Community	Total Installed Units	13W Regular CFL	12.5W LED A19	23W Regular CFL	23W Specialty Dimmable CFL	Pipe Insulation	Low Flow Shower-head	Faucet Aerators	Tank Wrap	Weather Stripping Kit ELECTRIC	Smart Power Strip	LED Exit Sign Retrofit	Shrink-wrap Window Kit ELECTRIC
Commercial	**591**	**64**	**92**	**33**	**99**	**15**	**12**	**64**	**5**	**9**	**113**	**47**	**38**
Francois	19	2	2	1	2	1	1	2	4	1	1	0	2
Grey River	39	6	8	3	6	0	0	5	0	1	8	0	2
Hopedale	23	0	0	0	0	0	0	0	0	0	13	10	0
Little Bay Islands	20	4	4	2	4	2	0	4	0	0	0	0	0
Lodge Bay	2	0	0	0	0	0	0	0	0	0	1	1	0
Mary's Harbour	68	0	13	2	24	0	0	0	0	0	17	8	4
McCallum	72	8	10	5	11	4	0	12	0	1	7	6	8
Nain	74	2	11	1	17	1	1	3	0	0	26	12	0
Norman Bay	0	0	0	0	0	0	0	0	0	0	0	0	0
Port Hope Simpson	134	22	23	9	15	3	4	23	1	0	24	4	6
Ramea	57	8	9	4	8	3	2	5	0	3	5	2	8
St. Brendan's	83	12	12	6	12	1	4	10	0	3	11	4	8
Residential	**9701**	**1494**	**1740**	**741**	**1863**	**526**	**615**	**1294**	**24**	**123**	**984**	**1**	**296**
Francois	454	66	66	34	68	8	34	65	0	29	33	0	51
Grey River	561	98	100	49	95	36	31	83	0	6	41	0	22
Hopedale	1294	240	230	113	213	118	107	146	0	7	114	0	6
Little Bay Islands	734	139	136	68	110	44	35	125	0	4	53	0	20
Lodge Bay	100	0	26	0	50	0	0	0	0	0	24	0	0
Mary's Harbour	430	2	108	2	207	0	0	0	0	0	106	0	5
McCallum	502	90	91	43	71	18	29	82	5	2	44	0	27

2013 Kit Products per Community	Total Installed Units	13W Regular CFL	12.5W LED A19	23W Regular CFL	23W Specialty Dimmable CFL	Pipe Insulation	Low Flow Shower-head	Faucet Aerators	Tank Wrap	Weather Stripping Kit ELECTRIC	Smart Power Strip	LED Exit Sign Retrofit	Shrink-wrap Window Kit ELECTRIC
Nain	1334	157	264	91	372	7	72	137	0	1	216	0	17
Norman Bay	0	0	0	0	0	0	0	0	0	0	0	0	0
Port Hope Simpson	1133	200	224	93	183	67	70	169	15	0	103	1	8
Ramea	1845	280	276	138	273	136	138	272	0	67	139	0	126
St. Brendan's	1314	222	219	110	221	92	99	215	4	7	111	0	14
Total	**10292**	**1558**	**1832**	**774**	**1962**	**541**	**627**	**1358**	**29**	**132**	**1097**	**48**	**334**

Appendix C: Direct Install Result Summary

The following results were collected during the installation visit survey for the Direct Install component.

Survey Question	Responses				
Residential or Commercial customer?	Residential				92.99%
	Commercial				7.01%
Did the representative install the kit for you?	Yes				97.38%
	No				2.62%
Nain: Was the full kit or small kit installed?	Full kit				40.89%
	Small kit				59.11%
How did you FIRST hear about the program?	Bill Insert				2%
	Community event				15%
	Door-hanger				1%
	Other				8%
	Posters				8%
	Radio				0%
	Representative called me to book appointment				63%
	Representative came to my door				25%
	takeCHARGE website				1%
	Town Bulletin Board				3%
	Town Facebook				5%
	Town Meeting				1%
	Word of Mouth				20%
What is the #1 reason you're participating in the program?	Help the community to reduce our use of Hydro plant				6.84%
	It's convenient to have the products installed				1.01%
	Receive free products				1.69%
	Reduce my impact on the environment				9.04%
	Save money by saving energy				79.14%
	To enter the contest to win a prize				0.25%
What best describes your attitude	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
They are safe and effective.	49.61%	47.77%	2.10%	0.26%	0.26%
I would like to install more energy saving products…	47.41%	49.87%	2.37%	0.18%	0.18%
I think that the money I save on my electricity or water bill makes up for the higher cost of the energy saving products I've purchased in the past.	39.46%	49.91%	8.89%	0.87%	0.87%
It is important to use energy saving products to reduce impact.	50.35%	47.55%	1.84%	0.09%	0.18%

Survey Question	Responses				
I am willing to pay more for an energy saving product.	34.22%	48.21%	11.60%	2.99%	2.99%
In the past 12 months, have you taken any of the following actions to reduce your energy use at home?	Bought or used Energy Star appliances				0.00%
	Installed Energy Star windows				12.75%
	Installed high performance or programmable thermostats				7.94%
	Installed new or upgraded insulation				15.54%
	Turned down heat at night or when not at home				0.00%
	Turned off lights and/or appliances when not in use				92.15%
	Used LED holiday lights				52.96%
	Washed laundry in cold water				78.80%
Please rate your satisfaction (1=Poor, 5=Excellent) with your experience in Hydro's Isolated Systems Energy Efficiency Program.	1 – Poor				0.17%
	2 – Fair				1.21%
	3 – Good				12.26%
	4 – Very Good				28.15%
	5 – Excellent				58.20%
Customer Gender:	Female				57.28%
	Male				42.72%
Customer Age Range:	19 or under				0.34%
	20-29				5.86%
	30-39				13.10%
	40-49				22.24%
	50-64				35.86%
	65+				22.59%
Main Heating Source:	Electric				18.83%
	Oil				34.29%
	Wood furnace				23.40%
	Wood stove				21.20%

Appendix D: Direct Install Audit Results Summary

The following results were collected during the post-installation audit surveys with Direct Install participants. The installation verification totals are included in the Direct Install results.

Audit Question	Responses	
Residential or Commercial customer?	Residential	64.54%
	Commercial	5.46%
Are the new items working to your satisfaction?	Yes	99.04%
	No	0.96%
How knowledgeable are you about saving energy and electricity in your home and at work?	Expert	11.80%
	Very knowledgeable	33.92%
	Some knowledge	49.85%
	Low knowledge	2.95%
	No knowledge	1.47%
	Average	3.52 / 5

Did you learn any new information on the following during the visit?	**Yes**	**No**
Saving energy through use of lighting and energy efficient electronics	84.77%	12.64%
How reducing water usage can help save energy	83.91%	13.51%
Saving energy by preventing heat loss	81.32%	15.80%

How energy efficient would you say your home is?	Very efficient	25.22%
	Moderately efficient	49.56%
	Needs improvement	21.99%
	Not very efficient	3.23%
In what areas do you think your home's energy efficiency needs improvement?	Windows	42.24%
	Doors	35.63%
	Insulation	34.20%
	Light fixtures	7.47%
	Energy efficient appliances	39.94%
	Energy efficient electronics	22.70%
	Air tightness	36.21%
	Electric heating controls and thermostats	16.38%
	Electric hot water heating control	8.05%
	Other	5.17%
If Hydro were to offer other programs or incentives in the future, what incentives would interest you?	**Suggestion**	**Number of requests**
	Appliance rebates	191
	Anything that lowers bills or saves money	12
	Better commercial rate	1
	Energy conservation advice	1
	Free products	118
	Home/Business energy audits	71
	Hot water heating tank replacement	8

Audit Question	Responses	
	Insulation (attic, basement, house)	27
	Redo basement	1
	Roof replacement	1
	Solar/renewable energy product (e.g. solar panels, wind energy)	3
	Window/door replacement or rebates	32
In the next 12 months, do you plan to take any of these actions to reduce your energy use at home?	Buy Energy Star appliances	33.91%
	Install Energy Star windows	20.98%
	Install high performance or programmable thermostats	9.48%
	Install new or upgraded insulation	21.26%
	Turn down heat at night or when not at home	89.94%
	Turn off lights and/or appliances when not in use	93.97%
	Use LED holiday lights	72.99%
	Wash laundry in cold water	81.90%
	Other	1.15%
Are you aware of Hydro's mail-in appliance rebates?	Yes	74.71%
	No	25.29%
Are you planning to use the mail-in appliance rebates in the next 12 months?	Yes	30.07%
	No	29.05%
	Unsure	40.88%
Rate your level of satisfaction with the takeCHARGE program.	Very satisfied	79.77%
	Somewhat satisfied	19.35%
	Neither satisfied nor dissatisfied	0.59%
	Dissatisfied	0.29%
	Very dissatisfied	0%
	Average	4.76 / 5
Rate your level of satisfaction with the representative's service.	Very satisfied	87.39%
	Somewhat satisfied	9.38%
	Neither satisfied nor dissatisfied	2.05%
	Dissatisfied	0.88%
	Very dissatisfied	0.29%
	Average	4.83 / 5
Did the representative appear knowledgeable about energy efficiency?	Yes	94.25%
	No	3.74%

take CHARGE!
Saving Energy Starts Here

2014 Isolated Systems Energy Efficiency Program - Final Report

February 11, 2015

Summerhill
Leaders in Energy Efficiency

Summerhill
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Table of Contents

1.0 Program Overview

Newfoundland and Labrador Hydro's Isolated Systems Energy Efficiency Program (the Program) is a Demand Side Management (DSM) program managed by Summerhill. Year Three of the Program is summarized in this report.

There were three components implemented in Year Three of the Program, including:

- Direct Install (DI) – Residential and Commercial
- Home Energy Audit and Draft Proofing Pilot
- Consumer Behaviour Survey

Appliance mail-in rebates were included, but not promoted, this year.

Achieved savings and targets are shown in Table 1.1. Newfoundland and Labrador Hydro (NLH) approved a minimum target of **400 MWh** for the Direct Install component. This target was determined using installation information from past NL Hydro Isolated Systems programs from 2011 to 2013. The mid-range target was set between **600-800 MWh**, while the high-end target was set at the **800-1,000 MWh** range.

The total net energy savings achieved during Year Three was 1,321.83 MWh. This figure does not include savings achieved through the Home Energy Audit and Air Sealing Pilot. The net energy savings are based on free-ridership, installation rate, and net electric savings rate per unit. *Appendix B: Direct Install Results by Product Type* provides a breakdown of products by component.

Table 1 - Total Net Direct Install Energy Savings

	Total Net Energy Savings (MWh)	Total Products Installed	Total Installs/ Participants
Residential	1,010.69	21,840	1,056
Commercial	311.14	1,952	95
Total	**1,321.83**	**23,792**	**1,151**

The Direct Install component was conducted in ten isolated diesel systems across twenty one communities in Labrador. 1,151 customers (1,056 residential and 95 commercial) received an installation, representing a 66% installation rate based on 2011-2013 previous participation levels. Direct installs were offered to nearly 100% of eligible customers, of which there are approximately 1,729. Post-installation audits were completed with 60 customers to verify installed products.

Twenty four customers in Port Hope Simpson received a home energy audit through the Home Energy and Air Sealing Pilot. Twelve of the customers who received a home energy audit also

received draft proofing in their homes. Post draft proofing air exchange tests showed total energy savings of 2.642 MWh. Draft proofing work included caulking, spray foam, vapour barriers, adding additional trim to doors and attic hatches, and air sealing electrical outlets.

In response to the low savings experienced in the retail component of 2013's Isolated Systems Energy Efficiency Program, Summerhill conducted a consumer behaviour survey to determine the best method to incent and offer energy efficient products to residents in isolated communities. The findings of this survey were presented to NL Hydro in a report submitted in July.

1.1 Delivering on Success Factors

The following table summarizes key areas of success across the program year.

Table 2 - Achieved Success

Approach	Achieved Success
Strong education to homeowners and businesses on energy efficiency	• 100% of audit respondents indicated that representatives were knowledgeable or very knowledgeable in regard to energy efficiency
Strong engagement with homeowners and businesses through community outreach activities, including advertising and launch events	• Launch events, door-to-door, phone calls, posters, magnets, and direct mail flyers were used in Direct Install systems. • TV and $200 Visa card prizes to encourage early DI sign-ups. • Canada Day Launch Events were conducted in 2014 DI Systems to introduce the program and encourage Direct Install sign-ups. • Representatives reached out to their networks, including Facebook.
Maximize program participation	• Maximized number of installs based on available products and program budget • Experienced a lower participation rate due primarily to product and budget constraints restricting number of installs
Hire and train local staff	• Hired 11 installers, 1 area coordinator/installer, 1 home energy auditor, and 1 air-sealer. • Completed a 2-day Direct Install training session in June, 1 two week in-person home energy audit and air-sealing training session in July, and had 12 employees complete online training modules.
High satisfaction among all customers with installation and program experience	• Averaged 4.85/5 for program satisfaction and 4.91 for representative satisfaction, according to audit calls. The overall program satisfaction for all customers was 4.20/5, according to the install visit surveys. • Anecdotal feedback was very positive.

Move customers along the sustainability continuum	• 55% of audit respondents confirmed they learned something new from their representative about saving energy through lighting, water conservation, and heating.
Collect energy use and building information for future program planning	• As part of direct installs, collected energy use and building information that will assist in the planning of future programs.

1.2 Program Challenges

The following table summarizes challenges experienced during the 2014 program year.

Table 3 - Program Challenges

Challenge	Opportunity for Improvement
Maintaining adequate inventory levels	• Higher than expected install opportunities and longer than expected shipping times contributed to challenges maintaining the required amount of inventory • **Recommended solution**: To avoid similar situations we recommend starting with a higher inventory level at the program start date and raising the re-order levels (e.g. in 2014 we reordered product when we neared the 30-40% range of the original order. We would increase this to 50-60%)
Customer counts	• Declining populations and transient residents (e.g. residents who work in Alberta for most of the year) made it difficult to determine accurate participation rates • **Recommended solution**: In 2014 we estimated that populations were at the same level as recorded between 2011-2013. Results indicate that the population is 5-10% less than previously recorded. We will lower future install estimates by 5-10% to compensate for this change.
Robust data collection	• One of the objectives of 2014 was to collect building specific data that could be used to plan future programs and identify individual savings opportunities for residents. One major challenge is connecting buildings to an address as many homes and businesses do not have an associated civic number. There were also some discrepancies in how each rep recorded building information. • **Recommended solution**: We will provide additional data collection fields to help identify the building. We will also explore the possibility of using GPS coordinates to identify a building. Additional training and periodic review will be provided to local staff to ensure that data collection is consistent.
CFL perception	• Despite regular education through takeCharge programs there remains a high level of skepticism toward CFL lamps in many communities.

	• **Recommended solution**: We recommend producing one or two marketing pieces that target the stigmas surrounding CFLs. These should reference reputable experts and/or scientific studies.
Internet/technology network	• Local staff continue to have challenges submitting results in large part to inconsistent internet availability in the isolated communities. • **Recommended solution**: As much as possible, we will create flexible results submission processes that allow staff to submit results at times when internet availability and speed is consistent.

1.3 Resource Use

Summerhill managed all Year Three resources except for marketing design and remaining 2013 rebate processing. Billed expenses for the January 1st to December 31st, 2014 period are:

Table 4 - Program Budget

Category	Expenses ($)	2014 Budget Estimate ($)	Difference ($)
Program Management	$224,400.00	$260,400.00	-$36,000.00
Marketing & Communications	$33,821.84	$32,000.00	$1,821.84
Program Incentives	$72,508.31	$36,650.00	$35,858.31
Program Representatives	$179,902.47	$178,477.30	$1,425.17
Program Delivery Expenses	$97,304.65	$114,004.50	-$16,699.85
Total	**$607,937.27**	**$621,531.80**	**-$13,594.53**

The overall 2014 expenses were under the budget estimate. We were able to reduce program management expenses by $36,000 by using lower-cost support staff and field reps for a large portion of the data collection and quality assurance activities. This significantly increased spending on program representatives; however, costs were reduced in other areas through improved efficiencies in the field, including operating a smaller team over a larger area and streamlining reporting processes. The cumulative effect was program representative costs being slightly higher than originally estimated.

The shift from the direct install kit method to the “a la carte” approach resulted in considerably higher than expected opportunity to install products. As such, we purchased nearly double the amount of products originally budgeted for. The previously mentioned reduction in program management costs, as well as a significant reduction in program delivery expenses, enabled us to purchase the additional product while still remaining under budget.

Program delivery expenses were reduced in large part by focusing efforts solely on Labrador and reducing the number of field reps. By doing so we were able to reduce travel and training costs. Negotiating with our suppliers to cover shipping costs also contributed to the reduced expenses.

1.4 Total Resource Cost

The Total Resource Cost (TRC) is positive at 3.65 for the 2014 program year. Electric heat and electric water heating customers are factored into product install numbers. The TRC includes:

- Fixed management costs to December 31st; and
- Payroll and delivery costs to end of the 2014 program year.

Table 5 - Summary and TRC Results

Summary and TRC Results	2014
Benefits	$1,524,656.56
Measures TRC Costs	-$40,881.67
Program Costs	$459,044.03
Program TRC (Net Present Value)	**$1,106,494.19**
Program TRC (Ratio)	**3.65**

2.0 Detailed Results by Component

The following target and objectives were submitted as part of NL Hydro's Environmental Management System (EMS).

EMS Target: Implement Year 3 Activities of the Isolated Systems Community Energy Efficiency Program

Objectives:

- To achieve **400 MWh** through direct install programs
- Evaluate additional channels to provide further access to energy efficient products

Milestones:

Table 6 - Program Milestones

Milestone	Target Date	Result
Launch direct install in 12 select communities, of energy efficient bulbs in sockets that were not changed over during previous installations	July 30, 2014	Achieved
Achieve install rates of 70% for participating communities	November 30, 2014	Not Achieved*
Research and evaluate the viability of online or on location retail channels for isolated communities	August 31, 2014	Achieved
Develop and implement a pilot to determine issues and barriers to installing deeper measures in isolated communities	November 30, 2014	Achieved
Perform audits and air-sealing on select pilot homes to evaluate the potential impact of a broader program in the future	November 30, 2014	Achieved

**Participation rate is based on 2011-13 data and does not reflect actual population levels for 2014*

2.1 Direct Install

Direct installation of energy efficient products is an effective method for achieving savings, ensuring products are installed, and maximizing customer education. In 2014, efforts were focused in Labrador in coastal communities between L'anse au Claire and Makkovik.

The achieved energy savings and participation are summarized below:

Table 7 - Direct Install Achieved Energy Savings and Participants

Component	Total Net Energy Savings (MWh)	Total Products Installed	Total Installs/ Participants
Direct Install - Residential	1,010.69	21,840	1,056
Direct Install - Commercial	311.14	1,952	95
Total	**1321.83**	**23,792**	**1,151**

For detailed breakdowns of installations by community and by product types, refer to *Appendix A: Direct Install Results by Community* and *Appendix B: Direct Install Results by Product Type.*

In 2014 we revisited communities that had previously received kits in 2012 and 2013. The kits offered a limited number of efficient products to each home and business leaving considerable opportunity to get further electricity savings by installing additional products. To maximize savings in 2014 we opted for an "a la carte" direct install model where reps were not limited to a certain number of products per house, rather they replaced any inefficient product for which they had an efficient alternative.

Additionally, prior to the program launch we had local staff conduct a number of audits to identify the most common lamp types and average number per household of each product. This information was used to determine the product lines and initial product orders.

The 2014 product line included:

Table 8 – Product Line

Product	Deemed kWh Savings/ Product - Residential	Deemed kWh Savings/ Product - Commercial
13 Watt Regular CFL	32.91	154.54
23 Watt Regular CFL	36.37	170.98
Low-flow Bathroom Faucet Aerators	170.78	170.78
Low-flow Kitchen Faucet Aerators	170.78	170.78
LED Exit Sign	-	276.20
23 Watt R40 Flood Lamp	82.07	233.60
7 Watt CFL Chandelier	31.92	119.73
14 Watt CFL Vanity Globe	39.95	39.95

There was also a small amount of product remaining from the 2013 program that was installed during the 2014 program, where opportunities were identified. These products included:

Table 9 – Product Line Additions

Product	Deemed kWh Savings/ Product - Residential	Deemed kWh Savings/ Product - Commercial
12.5 Watt LED A-lamps	33.10	119.73
23 Watt Specialty CFL – Dimmable	82.86	184.13
Pipe Insulation	34.25	34.48
Low Flow Showerheads	365.25	-
Hot Water Tank Wraps	97.15	97.15
Weather Stripping Kit*	120	-
Shrink-wrap Window Kit*	480	-

**kWh savings for these products are only included if the primary heat is electric*

Overall, customers were very satisfied with this component and with the products. Quality issues are discussed in section 4.0 Quality Assurance.

2.2 Home Energy Audit and Draft Proofing Pilot

The *2014 Home Energy Audit and Draft Proofing Pilot* was undertaken in the community of Port Hope Simpson from August 2nd to 20th, 2014. Energy assessments were performed on 24 residences from August 4th to the 13th and draft proofing on 11 houses took place from August 11th to the 17th.

The contact list for the survey consisted of 126 residents from NL Hydro's isolated diesel systems using contact information collected in past NL Hydro *takeCharge* programs. The distribution of participants was focused on the community of Port Hope Simpson due to the presence of a technically proficient local representative with strong ties to the community. Additionally, the majority of homes in the community received building assessments in 2011. This information, made available to Summerhill by the local town office, allowed us to prioritize homes most in need of receiving a full home energy audit.

Participants were selected based on the information recorded in the 2011 housing assessments. Several prioritized houses did not respond, or were not interested in receiving a home energy audit, at which point the home owner of the next ranking house was contacted.

Due to last-minute cancellations, some appointments were made mid-project in order to fill the energy assessment schedule. These candidates were selected based on short-term availability and willingness to participate.

The on-site energy assessment took approximately 1.5-3 hours to complete and adhered to the mandate and structure of the Energuide for Houses program administered by Natural Resources Canada. The draft proofing was performed on qualified residences and varied from 3 to 8 hours to complete.

Training

A major objective of the pilot was to train local residents on home energy audits and draft proofing, thus allowing future projects to be completed with local staff. The training that took place focused on experiential learning. The local representative was given training materials in advance to prepare for the on-sight work. On-sight training was performed by experienced qualified technicians and took place over the three week time period of the project. The training process included the following modules:

Module 1 (July 28 – August 4): Self-study: Energy Efficiency and House as a System
Module 2 (July 28 – August 4): Self-study: Components of an Energy Assessment
Module 3 (August 4– 11): On-Site: Performing a Blower door Test
Module 4 (August 4– 11): On-Site: Collecting House Component Data
Module 5 (August 11– 17): On-Site: Draft Sealing and Recording Results

Home Energy Audit - Key Findings

Electric Space Heaters

i. 9 of 22 Houses with wood heat had supplemental electric space heaters
   - Hot2000, the program used for calculations, does not account for supplemental heaters in the energy consumption calculations. Therefore the electric energy savings as listed in the results does not take into account reduction in space heater usage.

Window air conditioners

i. 8 of 24 houses have a window air conditioner
   - None of the air conditioners were EnergyStar certified

Water Heaters

i. 100% of homes have electric water heaters
ii. 1 of 24 houses had a domestic hot water heat recovery unit installed

Insulation levels

There are significant energy savings opportunities in the community through building envelope upgrades, particularly for attic and basement wall insulation.

i. Attic Insulation:
   a. Only 7 of 24 homes have R32 or greater insulation
   b. Only 5 have R40 insulation and none have R40+
ii. Basement Insulation:
   a. 16 of 24 homes have less than R5 on the basement walls
   b. 11 of 24 have no basement wall insulation

Age of houses

The homes in Port Hope Simpson were built relatively recently. The oldest home tested was built in 1965 and the majority were built between 1980 and 1999.

i. Average age of the houses was 1989
   a. 18 of 24 were built in the 80's and 90's
   b. Only 3 homes were built after 2000
ii. Age of home does not dictate insulation levels
   i. 0/3 homes built after 2000 have greater than R20 in the attic

Ventilation and moisture control

Moisture issues were present in a number of homes due to lack of proper ventilation and water leakage problems. Draft proofing was not recommended on houses that demonstrated moisture control issues.

i. 9 of 24 houses have a properly vented bathroom fan
ii. 9 of 24 houses have a properly vented range-hood fan
iii. 3 of 24 houses have a heat recovery ventilator (HRV) present

Draft Proofing Upgrade Results

The below tables provide the performance improvements achieved in each building as a result of the draft proofing. It should be noted that a twelfth house received draftproofing, but this work was completed after the testing equipment had left the community, therefore we were unable to determine the performance improvements.

Table 10 - Building Performance Improvements

House Reference Number	Energuide Score		Draft Proofing Results		Electricity Consumption		Non-Electric Energy Consumption		Total Energy Consumption	
	EGH Score Before	**EGH Score After**	ACH @50 Before	**ACH @50 After**	kWh Before	**kWh After**	Wood (Ton) Before	**Wood (Ton) After**	Mil. BTU Before	**Mil. BTU After**
PHS 001	47	**51**	4.19	**3.88**	15567	**15549**	16.3	**14.7**	301.4	**277.2**
PHS 019	52	**58**	4.96	**3.52**	15277	**15180**	16.8	**13.8**	253.7	**217.2**
PHS 037	55	**58**	4.74	**4.44**	15241	**15192**	16.3	**14.7**	247.1	**228.5**
PHS 039	49	**50**	7.94	**7.33**	15312	**15298**	16.9	**16.5**	255.3	**250**
PHS 051	58	**61**	7.64	**7.16**	15213	**15152**	12.2	**11**	198.2	**183.8**
PHS 053	25	**35**	14.74	**11.88**	15728	**15574**	30.2	**25.2**	415.5	**356**
PHS 061	49	**54**	7.54	**6.5**	15209	**15112**	18.4	**15.8**	271.6	**236.5**
PHS 070	52	**55**	5.76	**5.07**	15259	**15218**	16.8	**15.5**	253.2	**238.1**

PHS 075	43	**51**	5.24	**4.73**	15451	**15333**	22.3	**18.6**	319.9	**275.6**
PHS 123	54	**54**	2.42	**2.29**	73268	**72578**	0	**0**	250	**247.6**
PHS 126	59	**60**	5.41	**4.8**	58915	**57612**	0	**0**	201	**196.6**
Average	**49**	**53**	**6.42**	**5.60**	**24,585**	**24,345**	**15**	**13**	**270**	**246**

Table 11 - Annual Energy and Cost Savings

House Reference Number	Total Energy Savings (Mil. BTU)	Electricity Savings (kWh)	Wood Fuel Savings (Ton)	Approximate Cost Savings*
PHS 001	24	18	1.6	$162.70
PHS 019	37	97	3.0	$314.55
PHS 037	19	49	1.6	$167.35
PHS 039	5	14	0.4	$42.10
PHS 051	14	61	1.2	$129.15
PHS 053	60	154	5.0	$523.10
PHS 061	35	97	2.6	$274.55
PHS 070	15	41	1.3	$136.15
PHS 075	44	118	3.7	$387.70
PHS 123	2	690	-	$103.50
PHS 126	4	1,303	-	$195.45
TOTALS	**260**	**2,642**	**20**	**$2,436.30**

** Cost per kWh is estimated at $0.15 and cost per Ton of wood is estimated at $100 to include fuel cost for wood processing and transportation*

Draft Proofing Upgrade – Key Findings

Draft Proofing Results

Overall, draft proofing in the 11 houses achieved the targeted 10% reduction in air leakage (measured by change in air changes per hour at 50 Pa (ACH@50). With an average date of build

of 1989 it is expected, and observed, that the level of air leakage in each house is relatively moderate.

i. Average starting ACH@50 is 6.42
ii. Average ACH@50 reduction was 0.82
iii. Average time required to perform draft proofing was 4 hours

Electricity Savings

While the majority of homes were heated with wood-fired furnaces (22 of 24) there were still electrical savings realized in all of the houses upgraded. This is due to the calculation in Hot2000 surrounding furnace fan run-times. It is important to note that there were a number of electrical space heaters found in the wood heated homes, but Hot2000 does not factor this energy consumption into the savings calculations. Therefore the electricity savings would be underestimated in the results.

i. Total annual electricity savings for the project were 2,642 kWh
    - Results ranged from 14 to 1,303 kWh annual savings
    - Average annual savings were 240 kWh

Cost Savings

The energy cost savings calculated in this report is based upon $0.15 / kWh electricity cost and $100 per ton of wood. While wood is generally cut, gathered and transported by the individual residents it is not free. The cost of fuel and equipment is a hidden cost and is factored in to the estimated cost per ton.

i. Average cost savings per house is $221.48 per year
ii. Savings range from $42.10 to $523.10

For further details refer to the *2014 Home Energy Audit and Draft proofing* final report.

2.3 Consumer Behaviour Survey

The *2014 Energy Efficient Products Consumer Survey* was administered by phone from May 26 – July 9, 2014, with a total of 104 participants. The contact list for the survey consisted of 100 residents from NL Hydro's isolated diesel systems using contact information collected in past NL Hydro *takeCharge* programs. The distribution of respondents across the various isolated communities was based on population (e.g., if Cartwright makes up 8.05% of the total population of the isolated communities, then 8 out of 100 randomly-selected individuals were from Cartwright). When individuals did not respond, another randomly-selected individual from the same community would be added to the contact list. However, some individuals decided to call back to complete the survey when the number of responses was nearing 100, which accounts for the extra four respondents.

The survey took approximately 10-15 minutes to complete by phone. It mainly consisted of questions where the respondent would choose either one option or all options that apply to

them, depending on the question being asked. These questions successfully examined the purchasing behaviours for energy efficient products amongst individuals living in isolated communities. It is suggested that a focus group be conducted if there is a need to examine consumer behaviour in further detail.

Survey Analysis

The survey was designed to explore the preferred purchasing methods of consumers living in the target communities, whether it be in person, online, or through other related channels. Of particular interest was the online purchasing behaviour of these consumers. By analyzing the types of stores that residents shop from, and by determining the number of frequent shoppers at each store type, we are able to identify the best retail methods to deliver energy efficient products in these communities.

The survey also identified several barriers, including price sensitivity and an existing knowledge gap regarding what it means to have an energy efficient home. Additionally, results from the survey show significant opportunities to engage customers including utilizing the positive image of the NL Hydro brand, taking advantage of the preference to shop for energy efficient products in-person, and engaging customers at times when they are most likely to act on the information provided to them.

Recommendations

Based on the results of the surveys, Summerhill recommends the following:

1. Do Not Engage in Online Retailing for Energy Efficient Products

Although 52% of respondents have purchased products online, the analysis shows that only a small portion of these purchases are products that use electricity. When asked about purchasing light bulbs, large household appliances, and electronics responses ranged from 0%-17.3% for purchasing these products online or by phone. It was further determined that only 43.7% of consumers are comfortable with the idea of purchasing any item online. This information suggests that any effort to develop an online retail store would likely be unsuccessful due to lack of use.

2. NL Hydro Pop-up Shops

This survey suggests that Newfoundlanders and Labradorians generally shop at local retailers for electrical products, however limited inventory space and demand make it challenging for local retailers to provide an array of energy efficient products. Based on this information, **it is recommended to coordinate local *Pop-up Shops* that offer energy efficient products at discounted prices.**

We further recommend using data collected as part of the 2014 direct install portion of the program to select products that would be in high demand, and then individually target

customers based on their product needs prior to a *Pop-up Shop*. Based on survey findings, an optimal form of promoting *Pop-up Shops* would be a bill insert informing residents of what the NL Hydro *Pop-up Shops* will be offering and when it will be available in their town. This advertising piece should also refer residents to NL Hydro resources such as the Isolated Systems program web site and Facebook page to increase home energy efficiency knowledge.
A combined approach of referring customers to the website material and having knowledgeable staff interact directly with them will help to address the knowledge gap that was identified in the survey analysis. The direct interaction will also provide the customer with the personalized information that they need to feel comfortable with adopting the products into their homes. As price sensitivity is a barrier in the isolated systems, maintaining discounted prices on products in the *Pop-up Shops* will encourage a high level of participation.

3. Continue Province-Wide retail Programs

Another key finding from this survey is residents of the isolated systems frequently purchase products from larger centres, therefore, province-wide retail programs, such as the 2014 *takeCharge Instant Rebate campaign*, will have a spillover effect in the isolated systems.
The findings from this survey indicate that appliances and larger electrical products are purchased more frequently at larger centres when compared to smaller, lower-cost products such as light bulbs. As such, we recommend expanding the energy efficient products offered in the Instant Rebate program to include appliances and larger household items.

For further details refer to the *2014 Consumer Behaviour Survey* final report.

3.0 Marketing

The 2014 program saw a decrease in the overall marketing costs as program awareness is now at a level where minimal marketing is required to achieve the desired results. We continue to use print pieces, such as community posters and direct mail, however the greatest impact seems to come from personal social media (posts on Facebook pages) and general word of mouth.

The marketing tactics employed in 2014 included:

- Social media (Facebook posts);
- Direct mail (postcard or flyer);
- Community posters;
- Door hangers;
- Door-to-door;
- Phone calls;
- Events;
- Participation prizes (TVs and VISA gift cards); and
- Website content.

The Direct Install poster, postcard, and door hangers were available in English and Inuktitut in Makkovik and Rigolet and in English in all other 2014 Direct Install communities.

The major marketing push began with the launch of the Direct Install component in the 2014 DI communities. Leading up to the launch, direct mail flyers were sent to these customers to announce the 2014 offerings, and posters were put up with the date, time, and location of the launch events. Representatives with a Facebook account posted updates and identified themselves as the local representative. The takeCHARGE website was updated for the 2014 year. This push served to announce the overall program and introduce customers to the other offerings. The launches were timed to overlap local Canada Day celebrations, when customers were already out in their communities.

To encourage customers to sign-up and have their installation completed early in the program, Big Screen TVs for larger communities and medium sized TVs for smaller communities were promoted during the launch events. Only those who had an installation by the representative by the end of the program were eligible to win the TV prizes. Participants who signed up at the launch event and had an installation by the representative by July 31st were also entered in a draw to win one of eight $200 Visa gift cards. NLH provided giveaways, such as hats, jackets, and shirts, to increase participation during the launch events, and, where possible, food and beverages were offered.

All Visa and TV prize winners were verified against the Direct Install survey and audit data. Five of the eight Visa prizes were mailed on December 17th. The remaining three prizes were emailed in early January once the prize winners were reached and confirmed their mailing address.

Feedback received in 2013 and 2014 indicated that the prize distribution was not viewed as being fair in so far that a community of 30 households received the same draw prize as a community of 300 households. In response to this we grouped communities together into prize pools with more even populations and offered Big Screen TVs for larger communities and medium sized TVs for smaller communities.

To support a local retailer, the TV prizes were purchased through Cohen's Furniture in Forteau. The Samsung LCD HDTV 40" model was chosen for the larger communities, while the Samsung LCD HDTV 32" model was selected for smaller communities. Overall six Big Screen TVs and five medium screen TVs were drawn for. All winners were notified in December and the TVs will be delivered in January. Winners have the option to pick the TV up from the store if they do not want to wait until the January delivery date.

4.0 Quality Assurance

4.1 Direct Install Survey Results

All Direct Install customers were required to complete a survey after receiving an installation. The survey verified installed products, collected marketing and attitude data, and collected data on household energy use and building information. A total of 1,151 surveys were collected. For a summary of customer responses to the marketing and attitude questions, see *Appendix C: Direct Install Installation Survey Summary*.

On average, survey respondents indicated a high degree of satisfaction with the program, rating it at 4.20/5. Less than 5% of customers rated the program as fair (2/5) or poor (1/5). Face-to-face (events, door-to-door) and phone promotion were again the most effective methods of reaching customers, highlighting the importance of using local representatives to engage customers in these small communities. Saving money by saving energy was the greatest motivator for customer participation, with 87% of customers identifying it as the number one reason to participate. Attitudes towards energy efficient products (safety, cost, reducing impact, paying more) were extremely positive, with a minimum of 71% of customers agreeing or strongly agreeing to statements describing their attitudes. With the exception of turning down their heat at night or when not at home, most customers are taking low- or no-cost steps to save energy.

4.2 Direct Install Audits

Program quality was monitored through routine follow-ups with town contacts and by conducting post-installation audits with Direct Install customers. 60 customers completed a post-installation audit survey, representing 5.21% of the 1,151 DI participants. The audits verified product installation and included marketing and satisfaction questions. The confirmed installed products from the audits were updated in the Direct Install installation data. For the summarized audit results, refer to *Appendix D: Direct Install Audit Results Summary*.

Program managers followed up on negative feedback from customers and from town contacts. Anecdotal feedback was generally very positive. See below for some excerpts.

"Great program… but need quicker lightbulbs." –[redacted] L'Anse au Loup

"Keep up the good work!" –[redacted] Black Tickle

"I'm very pleased with all the NL Hydro products and services." –[redacted] Cartwright

"Happy with the program, but I would like to see more LEDs." –[redacted] Mary's Harbour

"I find this a very worthwhile program." –[redacted], L'Anse au Clair

"Awesome program!" –[redacted], L'Anse au Loup

5.0 2015 Program Planning

In general, there exists significant opportunity for additional energy savings across the isolated systems. Our main recommendation for 2015 is to offer the "a la carte" 2014 direct install program to the remaining isolated communities that did not receive it. We estimate that such a program will realize over a GWh in energy savings.

For further details on recommended 2015 programming please refer to the report *Isolated Systems Energy Project 2015-2017* submitted on January 28th, 2015.

6.0 Final Thoughts on 2014 Program Delivery

Overall the 2014 Isolated Systems program was a notable success seeing higher than expected savings while remaining under budget. Major factors contributing to this success include the shift away from the kit model to an “a la carte” model and operating with a smaller team in a condensed geographic area. Interest in the program remains high and both the surveys and audits done this year indicate that the people in these communities hope to see a continuation of these programs in the future.

As the final year of the 2012 – 2014 Isolated Systems program steps were taken to plan for future programs including a consumer behaviour survey and the collection of building envelope and household energy use information. This has provided a foundation for designing post 2014 programs that will meet the unique needs of these communities.

Appendices

Appendix A: Direct Install Results by Community

The 2014 products installed by representatives by community are indicated in the table below. The reported quantities for weather stripping and shrink-wrap window kits are for electrically heated homes only.

Community	TOTAL PARTICIPANTS	TOTAL ENERGY SAVINGS (MWh)	Total Energy Savings (KWh)	Total Installed Products
Commercial	**95**	**311.14**	**311141.44**	**1952**
Black Tickle	4	10.64	10642.97	55
Buckle's Point	0	0	0	0
Capstan Island	4	9.81	9811.13	64
Cartwright	20	65.32	65323.74	419
Charlottetown	6	16.25	16245.76	108
English Point	0	0.00	0.00	0
Forteau	4	22.44	22443.71	139
L'Anse Amour	0	0.00	0.00	0
L'Anse au Clair	0	0.00	0.00	0
L'Anse au Loup	3	10.17	10170.71	71
Lodge Bay	2	10.18	10176.73	58
Makkovik	0	0.00	0.00	0
Mary's Harbour	12	18.36	18360.36	121
Paradise River	0	0.00	0.00	0
Pinsent's Arm	2	6.30	6297.42	35
Pinware	3	9.40	9403.06	56
Port Hope Simpson	8	16.75	16753.43	103
Red Bay	13	43.33	43331.89	279
Rigolet	11	25.90	25896.76	157
West St. Modeste	4	53.10	53102.54	320
William's Harbour	3	3.82	3824.19	22
Residential	**1056**	**1010.69**	**1010686.48**	**21840**
Black Tickle	26	24.73	24731.68	557
Buckle's Point	1	0.80	806.49	20
Capstan Island	21	22.03	22032.90	503
Cartwright	196	165.32	165320.59	3450
Charlottetown	44	56.67	56672.82	1290
English Point	16	19.27	19266.23	433
Forteau	77	69.79	69789.47	1525
L'Anse Amour	3	1.75	1747.48	27

Community	TOTAL PARTICIPANTS	TOTAL ENERGY SAVINGS (MWh)	Total Energy Savings (KWh)	Total Installed Products
L'Anse au Clair	52	54.23	54226.96	1151
L'Anse au Loup	133	107.81	107807.13	2379
Lodge Bay	21	21.15	21147.23	433
Makkovik	46	37.17	37173.09	793
Mary's Harbour	96	86.55	86552.15	1930
Paradise River	15	11.74	11736.87	271
Pinsent's Arm	21	23.98	23984.74	476
Pinware	21	22.32	22317.38	497
Port Hope Simpson	92	99.05	99045.29	2026
Red Bay	65	74.69	74693.54	1640
Rigolet	82	72.03	72028.37	1545
West St. Modeste	42	52.09	52092.70	1192
William's Harbour	12	12.25	12245.03	259
Total	**1151**	**1321.83**	**1321827.92**	**23792**

Appendix B: Direct Install Results by Product Type

Products installed in 2014 are indicated in the table below. The reported quantities for weather stripping and shrink-wrap window kits are for electrically heated homes only.

2014 Products per Community	Total Installed Units	13W Regular CFL	12.5W LED A19	23W Regular CFL	23W Specialty Dimmable CFL	Pipe Insulation	Low Flow Shower-head	Faucet Aerators	Kitchen Aerators	Tank Wrap	Weather Stripping Kit ELECTRIC	LED Exit Sign Retrofit	Shrink-wrap Window Kit ELECTRIC	23W R40 Flood	7W Chandelier	14W Vanity Globe
Commercial	**95**	**899**	**1**	**617**	**19**	**0**	**1**	**110**	**54**	**0**	**4**	**16**	**5**	**87**	**36**	**103**
Black Tickle	4	16	0	11	0	0	0	2	2	0	0	0	0	24	0	0
Buckle's Point	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capstan Island	4	21	0	36	0	0	0	0	1	0	0	0	0	0	0	6
Cartwright	20	224	0	102	0	0	0	24	12	0	0	0	0	25	0	32
Charlottetown	6	24	0	59	0	0	0	7	5	0	3	0	0	0	0	10
English Point	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forteau	4	81	0	36	1	0	0	13	8	0	0	0	0	0	0	0

2014 Products per Community	Total Installed Units	13W Regular CFL	12.5W LED A19	23W Regular CFL	23W Specialty Dimmable CFL	Pipe Insulation	Low Flow Shower-head	Faucet Aerators	Kitchen Aerators	Tank Wrap	Weather Stripping Kit ELECTRIC	LED Exit Sign Retrofit	Shrink-wrap Window Kit ELECTRIC	23W R40 Flood	7W Chandelier	14W Vanity Globe
L'Anse Amour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L'Anse au Clair	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L'Anse au Loup	3	56	0	7	0	0	0	0	0	0	0	0	0	0	0	8
Lodge Bay	2	43	0	4	0	0	0	0	1	0	0	8	0	2	0	0
Makkovik	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mary's Harbour	12	51	0	18	18	0	0	4	1	0	0	0	0	0	26	3
Paradise River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinsent's Arm	2	0	0	30	0	0	0	0	0	0	0	0	0	5	0	0
Pinware	3	18	0	30	0	0	0	4	2	0	0	0	0	2	0	0
Port Hope Simpson	8	20	1	40	0	0	1	15	7	0	1	0	1	8	9	0
Red Bay	13	114	0	114	0	0	0	15	8	0	0	3	0	2	1	22
Rigolet	11	63	0	64	0	0	0	8	2	0	0	0	0	14	0	6
West St. Modeste	4	184	0	56	0	0	0	20	7	0	0	5	4	28	0	16
William's Harbour	3	0	0	21	0	0	0	0	0	0	0	0	0	1	0	0
Residential	**1056**	**11345**	**79**	**5369**	**130**	**6**	**61**	**785**	**704**	**12**	**16**	**4**	**38**	**621**	**1102**	**1568**
Black Tickle	26	346	0	140	0	0	0	19	16	0	0	0	0	21	6	9
Buckle's Point	1	16	0	3	0	0	0	0	1	0	0	0	0	0	0	0
Capstan Island	21	205	5	191	0	0	2	9	13	0	0	0	0	16	13	49
Cartwright	196	2140	7	712	10	0	0	178	150	0	0	0	0	61	95	97
Charlottetown	44	674	6	265	8	2	3	30	35	3	0	0	3	38	74	149
English Point	16	223	0	103	3	0	1	13	9	0	0	0	0	18	23	40
Forteau	77	875	0	268	21	0	5	50	42	0	0	0	0	47	82	135
L'Anse Amour	3	16	0	1	0	0	0	3	3	0	0	0	0	0	0	4
L'Anse au Clair	52	617	0	179	0	0	7	50	31	0	0	0	0	20	61	186
L'Anse au Loup	133	1136	0	522	22	0	4	57	75	0	0	0	0	113	205	245
Lodge Bay	21	211	0	129	0	0	0	27	17	0	0	4	0	7	12	26
Makkovik	46	488	0	167	0	0	0	33	36	0	0	0	0	20	43	6
Mary's Harbour	96	1020	15	475	2	0	7	68	51	2	3	0	1	35	116	135
Paradise River	15	166	1	72	2	0	0	8	7	0	0	0	0	7	0	8
Pinsent's Arm	21	178	6	174	4	0	4	21	20	0	0	0	0	8	36	25
Pinware	21	261	5	112	0	0	2	10	16	0	0	0	0	20	20	51

2014 Products per Community	Total Installed Units	13W Regular CFL	12.5W LED A19	23W Regular CFL	23W Specialty Dimmable CFL	Pipe Insulation	Low Flow Shower-head	Faucet Aerators	Kitchen Aerators	Tank Wrap	Weather Stripping Kit ELECTRIC	LED Exit Sign Retrofit	Shrink-wrap Window Kit ELECTRIC	23W R40 Flood	7W Chandelier	14W Vanity Globe
Port Hope Simpson	92	721	17	671	28	4	16	78	66	7	7	0	24	63	167	157
Red Bay	65	718	8	616	10	0	7	35	48	0	0	0	0	73	19	106
Rigolet	82	912	0	396	1	0	0	88	48	0	0	0	0	16	46	38
West St. Modeste	42	635	7	246	11	0	3	16	27	0	6	0	3	48	83	107
William's Harbour	12	133	2	67	8	0	0	11	9	0	0	0	7	11	7	4
Total	**1151**	**12244**	**80**	**5986**	**149**	**6**	**62**	**895**	**758**	**12**	**20**	**20**	**43**	**708**	**1138**	**1671**

Appendix C: Direct Install Result Summary

The following results were collected during the installation visit survey for the Direct Install component.

Survey Question	Responses				
Residential or Commercial customer?	Residential				91.62%
	Commercial				8.38%
How did you FIRST hear about the program?	Bill Insert				1%
	Community event				17%
	Door-hanger				0%
	Other				1%
	Posters				4%
	Radio				0%
	Representative called me to book appointment				36%
	Representative came to my door				11%
	takeCHARGE website				0%
	Town Bulletin Board				0%
	Town Facebook				3%
	Town Meeting				1%
	Word of Mouth				26%
What is the #1 reason you're participating in the program?	Help the community to reduce our use of Hydro plant				4%
	It's convenient to have the products installed				1%
	Receive free products				0%
	Reduce my impact on the environment				8%
	Save money by saving energy				87%
	To enter the contest to win a prize				0%
What best describes your attitude	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
They are safe and effective.	25.88%	60.31%	4.31%	6.13%	3.36%
I would like to install more energy saving products…	24.10%	59.38%	3.67%	6.42%	6.42%
I think that the money I save on my electricity or water bill makes up for the higher cost of the energy saving products I've purchased in the past.	17.24%	53.79%	16.49%	6.24%	6.24%
It is important to use energy saving products to reduce impact.	27.52%	60.57%	2.16%	4.31%	5.44%
I am willing to pay more for an energy saving product.	18.20%	57.13%	8.93%	7.87%	7.87%
In the past 12 months,	Bought or used Energy Star appliances				34.67%

Survey Question	Responses	
have you taken any of the following actions to reduce your energy use at home?	Installed Energy Star windows	11.47%
	Installed high performance or programmable thermostats	8.69%
	Installed new or upgraded insulation	14.42%
	Turned down heat at night or when not at home	0.00%
	Turned off lights and/or appliances when not in use	96.96%
	Used LED holiday lights	56.99%
	Washed laundry in cold water	81.75%
Please rate your satisfaction (1=Poor, 5=Excellent) with your experience in Hydro's Isolated Systems Energy Efficiency Program.	1 – Poor	0.09%
	2 – Fair	4.06%
	3 – Good	20.36%
	4 – Very Good	26.75%
	5 – Excellent	48.75%
Customer Gender:	Female	53.41%
	Male	46.59%
Customer Age Range:	19 or under	0.18%
	20-29	3.51%
	30-39	10.81%
	40-49	23.81%
	50-64	34.97%
	65+	26.71%
Main Heating Source:	Electric	24.25%
	Oil	18.64%
	Wood furnace	34.51%
	Wood stove	22.61%

Appendix D: Direct Install Audit Results Summary

The following results were collected during the post-installation audit surveys with Direct Install participants. The installation verification totals are included in the Direct Install results.

Audit Question	Responses	
Residential or Commercial customer?	Residential	93.34%
	Commercial	6.66%
Are the new items working to your satisfaction?	Yes	90.00%
	No	10.00%
How knowledgeable are you about saving energy and electricity in your home and at work?	Expert	3.33%
	Very knowledgeable	45.00%
	Some knowledge	40.00%
	Low knowledge	8.33%
	No knowledge	3.33%
Did you learn any new information on energy efficiency during the visit?	Yes	55%
	No	45%
How energy efficient would you say your home is?	Very efficient	25.00%
	Moderately efficient	48.33%
	Needs improvement	26.67%
	Not very efficient	0.00%
In what areas do you think your home's energy efficiency needs improvement?	Windows	11.67%
	Doors	11.67%
	Insulation	11.67%
	Light fixtures	3.33%
	Energy efficient appliances	3.33%
	Energy efficient electronics	0.00%
	Air tightness	3.33%
	Electric heating controls and thermostats	0.00%
	Electric hot water heating control	0.00%
	Other	0.00%
If Hydro were to offer other programs or incentives in the future, what incentives would interest you?	**Suggestion**	**Number of requests**
	Appliance rebates	4
	Anything that lowers bills or saves money	29
	Better commercial rate	0
	Energy conservation advice	0
	Free products	29
	Home/Business energy audits	0
	Hot water heating tank replacement	0
	Insulation (attic, basement, house)	7
	Redo basement	0
	Roof replacement	0
	Solar/renewable energy product (e.g. solar panels, wind energy)	0

Audit Question	Responses	
	Additional lighting	1
	Window/door replacement or rebates	4
In the next 12 months, do you plan to take any of the below actions* to reduce your energy use at home?	Yes	56.66%
	No	43.34%
Are you aware of Hydro's mail-in appliance rebates?	Yes	74.71%
	No	25.29%
Are you planning to use the mail-in appliance rebates in the next 12 months?	Yes	20.00%
	No	68.33%
	Unsure	19.67%
Rate your level of satisfaction with the takeCHARGE program.	Very satisfied	86.67%
	Somewhat satisfied	11.67%
	Neither satisfied nor dissatisfied	1.67%
	Dissatisfied	0.00%
	Very dissatisfied	0.00%
Rate your level of satisfaction with the representative's service.	Very satisfied	94.92%
	Somewhat satisfied	5.08%
	Neither satisfied nor dissatisfied	1.69%
	Dissatisfied	0.00%
	Very dissatisfied	0.00%
Did the representative appear knowledgeable about energy efficiency?	Yes	100.00%
	No	0.00%

**Actions include the below list:*

Buy Energy Star appliances
Install Energy Star windows
Install high performance or programmable thermostats
Install new or upgraded insulation
Turn down heat at night or when not at home
Turn off lights and/or appliances when not in use
Use LED holiday lights
Wash laundry in cold water
Other