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LOWER CHURCHILL PROJECT

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April 1, 2011

Lower Churchill Hydroelectric Generation Project
Joint Review Panel
P. O. Box 8700
St. John's, NL
A1B 5J6

Attention: Ms. Lesley Griffiths, Co-Chair
Mr. Herb Clarke, Co-Chair

Subject: Response to Panel's Information Request of March 21, 2011

Dear Co-Chairs:

This letter is in response to the Panel's information request of March 21, 2011. The response from Nalcor Energy (Nalcor) is provided in the context of the Panel's mandate and legislative requirements applicable to the project review. The mandate of the Panel is defined in the Joint Review Panel Agreement executed by the Governments of Canada and Newfoundland and Labrador. That mandate includes a consideration of the environmental effects of the Lower Churchill Hydroelectric Generation Project (the Project), as well as the purpose, need, rationale, and alternatives to the Project. These requirements are reflected in Sections 4.3.1 and 4.3.2.1 of the Environmental Impact Statement Guidelines. The "Scope" of the project under review was the subject of a scoping decision by the provincial and federal regulatory authorities and was determined to include the Muskrat Falls and Gull Island generation facilities and interconnecting transmission lines.

The Canadian Environmental Assessment Agency's (CEAA) Operational Policy Statement ("OPS") on need, purpose, rationale and alternatives[1] stresses that the environmental assessment of a project should occur in the early stages of project planning, and before irrevocable decisions on the project are made. The OPS recognizes that the information available at this stage is (and should be) planning level information. The OPS states that the "need for" and "purpose of" the project should be established from the perspective

[1] http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=5C072E13-1

of the *project proponent* and should provide the context for the consideration of "alternatives to" the scoped project. Similarly, "alternatives to" a project are to be considered in relation to the project need and purpose and also from the Proponent's perspective. Finally, the OPS also confirms that the level of detail should reflect the conceptual nature of the alternatives to the project at this stage of the process.

In accordance with the OPS, the Panel's consideration of need, purpose, rationale and alternatives to the Project should not be an audit of the economics of the Project; that obligation is the responsibility of the Province as the sole shareholder of Nalcor and in consideration of the Province's objectives as set out in its energy policy. The Panel's mandate is to consider the need, purpose and rationale so it can better understand the objectives the Proponent is trying to achieve with the development of the Project, and whether the Proponent has considered alternatives to the proposed Project that achieve those objectives.

The Proponent, as a Crown Corporation, has an obligation to implement government policy in relation to its mandate. As Nalcor has described in its various filings, the Province of Newfoundland and Labrador has determined that the resource potential of the lower Churchill River is to be developed for the benefit of the province and its people. Nalcor has an obligation to take the steps necessary to fulfill that policy direction. The Panel's mandate does not include a review of the Province's energy policy. Energy policy is the ambit of the elected representatives of the people of the Province of Newfoundland and Labrador. The Panel's mandate is to consider need and purpose from the Proponent's perspective (in accordance with the OPS) and the Proponent's obligations to implement Provincial policy within its mandate, which includes implementation of energy policy and ensuring security of power supply in the province.

To restate, the objectives that Nalcor wants to achieve with the development of this Project are:

- To develop the province's natural resources for the benefit of the Province and its people;
- To address future demand for hydroelectric generation in the province;
- To provide an electric energy supply for sale to third parties; and
- To ensure a long-term renewable source of energy for the Province and its people.

Nalcor also understands that the Panel wishes to have more financial information for each phase of the Project in order to assess benefits and environmental effects for each phase of the Project. That information is provided below. Nalcor has provided the Panel with the rationale and approach for making sanction determinations in its response to IR JRP.146 and JRP.147, and these criteria remain valid. In Nalcor's view the level of information that the Panel is now requesting exceeds what is (and has been) required for projects undergoing environmental assessment in Canada pursuant to joint review. Nalcor also believes it has provided sufficient information to meet the requirements of the Guidelines, through submission of its Environmental Impact Statement, five rounds of information requests, and through evidence given by Nalcor at the public hearing. While Nalcor believes the additional information that has been requested is not necessary for the Panel in order to make determinations regarding the need, purpose and rationale for the project or to assess the likely effects of the Project, it has attempted to respond with the best available information it has at this point in the Project's development and in accordance with the OPS.

Nalcor also notes the Panel's comment that "Given that Muskrat Falls (MF) and Gull Island (GI) will be subject to separate sanction decisions, the possibility exists that MF only may proceed." Nalcor trusts that this statement is made in the sense that the Panel wishes to understand that the development of either site is justifiable by itself rather than trying to confirm a sanction decision during the environmental assessment process. There is no "Muskrat Only Project"; the Project proposed by Nalcor includes both Gull Island and Muskrat Falls, which is the Project as scoped by the regulatory authorities.

The Panel has also requested specific analyses, comments and information from Nalcor, and these issues are addressed below in the same order as they were raised by the Panel.

Assumptions Presented by the Panel

On page one of the March 21 letter, the Panel has presented a number of assumptions regarding the uses and costs of energy for the Muskrat Falls portion of the Project. Nalcor offers the following comments on these assumptions:

1) **40% of MF output in the early years would be used to displace Holyrood with unit costs of 7.7 cents per kWh for generation, and 14.3 cents per kWh delivered to the Island.**
   The values of 7.7 cents per kWh and 14.3 cents per kWh were provided by Nalcor to the Panel in response to separate questions. These values are correct, but were produced

using different analyses with different purposes as set out below, and therefore cannot be directly compared.

The 7.7 cents per kWh figure is a levelized unit energy cost (LUEC) for Muskrat Falls generation only calculated the traditional way – the present value of costs divided by the present value of output. A critical feature of this type of analysis is that the output is total plant capability, in the case of Muskrat Falls, this is 4.9 TWh annually.

The 14.3 cents per kWh figure is the equivalent escalating price for the Island market, assuming that the entire cost of the Muskrat Falls generating station and the Labrador-Island Transmission Link is recovered based on projected demand in the Island market. The price per kWh is expressed in real terms and escalates according to CPI.

2) **20% of MF output would go to NS with no revenue to Nalcor for 35 years.**
This statement does not accurately reflect the terms reached with Emera and the benefits to Nalcor. The Maritime Transmission Link, which is fully funded by Emera, provides 330 MW of capacity to Nalcor from Newfoundland to Nova Scotia, and Nalcor also receives access to the Nova Scotia transmission system in return for 20% of the energy output from Muskrat Falls.

This link provides a pathway to sell Muskrat Falls output not used in the NL domestic market, and also increases the reliability of the Island electricity system by creating a second interconnection (in addition to the Labrador – Island Transmission Link) to the North American market.

3) **The remaining 40% of MF output would be available to other as yet uncertain markets.**
This assumption is incorrect in that the market for Muskrat Falls output is not "uncertain." Nalcor, under the terms of its agreement with Emera, has access to firm transmission capacity through and into the Nova Scotia, New Brunswick, and New England markets. Thus markets exist and are accessible for the power from the Project.

As explained in the response to IR# JRP.5S/25S, the New England electricity market is both structured and liquid. Market supply bids are matched to load in order of increasing cost until the supply is sufficient to meet the total load in the market. At that point, all supply bids receive the "market clearing price" for their supply. Given the very low marginal cost of hydroelectric generation, Nalcor will be able to access this market with a very high degree of certainty.

Part A – Financial Benefits, Cash Flow and Return on Equity for Muskrat Falls and Gull Island

The financial benefits of the Project were presented in the *Supplemental Report on Need, Purpose, and Rationale* prepared in response to IR JRP.146. The financial benefits from the Project will be generated in two primary ways: the first is through the financial returns from the Project which will generate profits and dividends to the shareholder, and the second is through broader economy-wide benefits which will result from the construction and operation of the hydro-electric plant and facilities.

Figure 4 in that report showed the net financial benefits to the Newfoundland and Labrador economy for the Project. In response to the Panel's request to separate the results for Gull Island and Muskrat Falls, the same methodology as used in the *Supplemental Report on Need, Purpose, and Rationale* was used to prepare the charts displayed in Figures 1 and 2.

The following assumptions were used for analysis of the financial benefits, cash flow, and return on equity:

Gull Island

Capital Cost:	As per latest available cost estimate ($3.9 billion 2010$)
Schedule:	In service in 2021 (2014 construction start)
Debt/Equity:	70/30
Interest Rate:	7.3%
Revenue:	Portfolio of New Brunswick, Ontario, New England and New York markets Weighted average market price shown in Figure 1
Market Access:	via HQT system, includes OATT and upgrade costs
Energy Sold:	Average production from Gull Island accounted for (11.8 TWh/yr)

Muskrat Falls

Capital Cost:	As per latest available cost estimate ($2.5 billion 2010$)
Schedule:	In service in 2017 (construction start late 2011)
Debt/Equity:	59/41
Interest Rate:	7.3%
Revenue:	Newfoundland and Labrador domestic market, Nova Scotia, New Brunswick and New England markets Weighted average market price shown in Figure 2
Market Access:	via Labrador – Island Transmission Link, Maritime Transmission Link, NSPI/Emera transmission system and rights
Energy Sold:	Average production from Muskrat Falls accounted for (4.9 TWh/yr)

Figure 1: Gull Island Portfolio										
Gull Island Market Analysis, Base Case IR165 Sequencing: Market Volumes and Average Prices										
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Export Volumes to Ont, NB, and US (GWh)	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
Average Portfolio price per MWh (CDN $, Nominal)	$94	$98	$102	$107	$112	$114	$116	$119	$121	$124
	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Export Volumes to Ont, NB, and US (GWh)	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950
Average Portfolio price per MWh (CDN $, Nominal)	$126	$129	$131	$134	$136	$139	$142	$145	$148	$151

Figure 1 - Gull Island Portfolio

Figure 2:Muskrat Falls Portfolio										
Muskrat Falls Market Analysis, Base Case IR165 Sequencing: Market Volumes and Average Prices										
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Market Volumes to NL and Export (GWh)	3,713	3,718	3,724	3,729	3,738	3,746	3,760	3,768	3,774	3,783
Average Portfolio price per MWh (CDN $, Nominal)	$72	$76	$80	$86	$88	$91	$95	$98	$101	$103
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Market Volumes to NL and Export (GWh)	3,793	3,809	3,834	3,843	3,853	3,861	3,870	3,878	3,885	3,890
Average Portfolio price per MWh (CDN $, Nominal)	$105	$107	$109	$111	$113	$115	$117	$119	$121	$123
	2037	2038	2039	2040						
Market Volumes to NL and Export (GWh)	3,885	3,890	3,896	3,900						
Average Portfolio price per MWh (CDN $, Nominal)	$126	$128	$130	$133						

Figure 2 - Muskrat Falls Portfolio

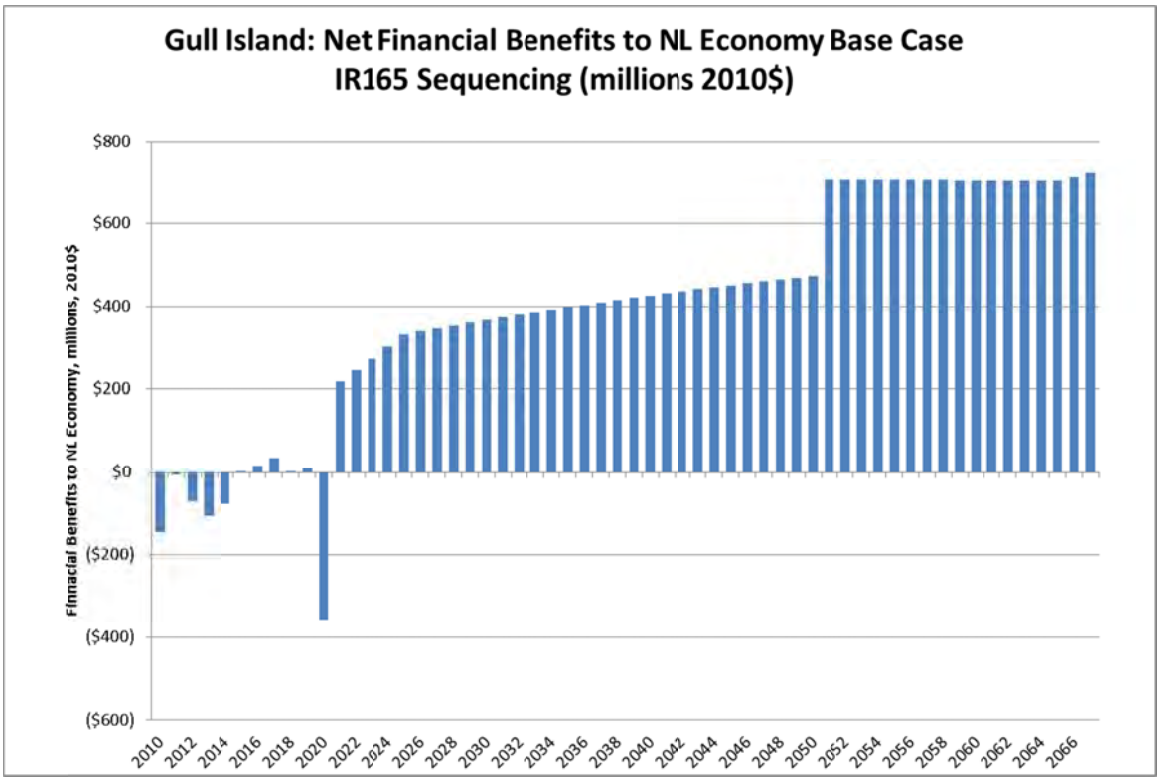


Figure 5- Net Financial Benefits to NL, Gull Island

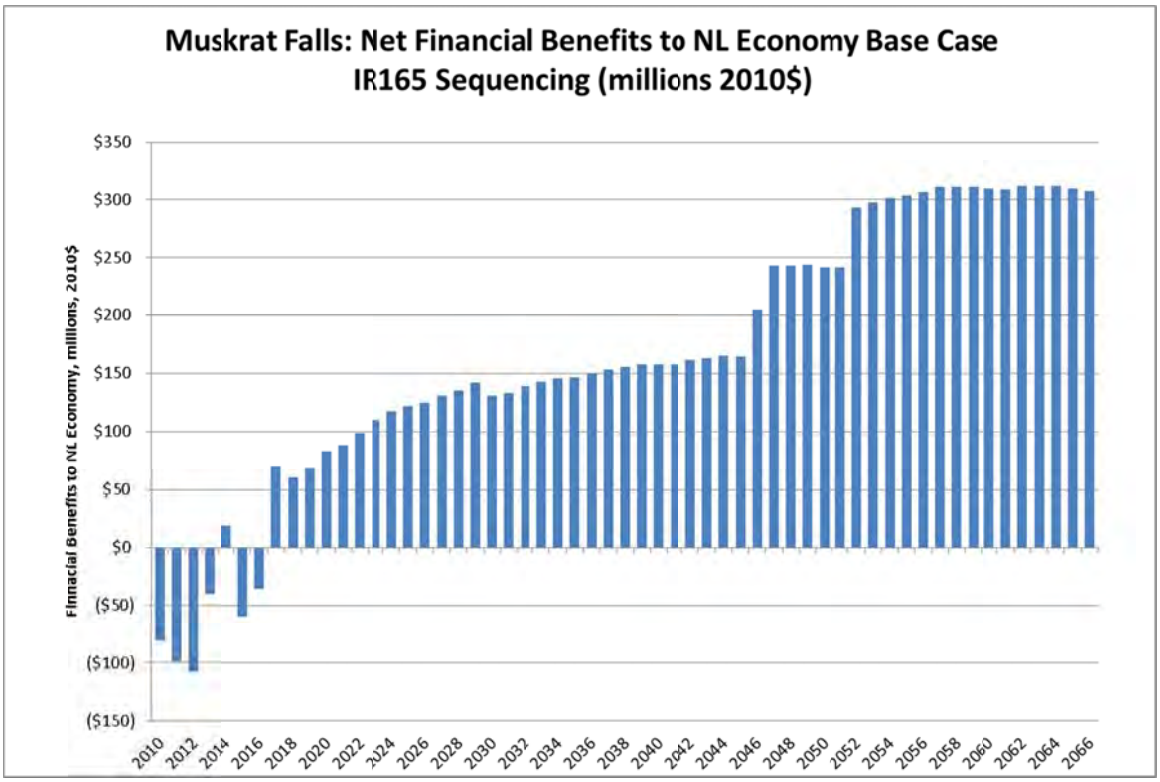


Figure 6 - Net Financial Benefits to NL, Muskrat Falls

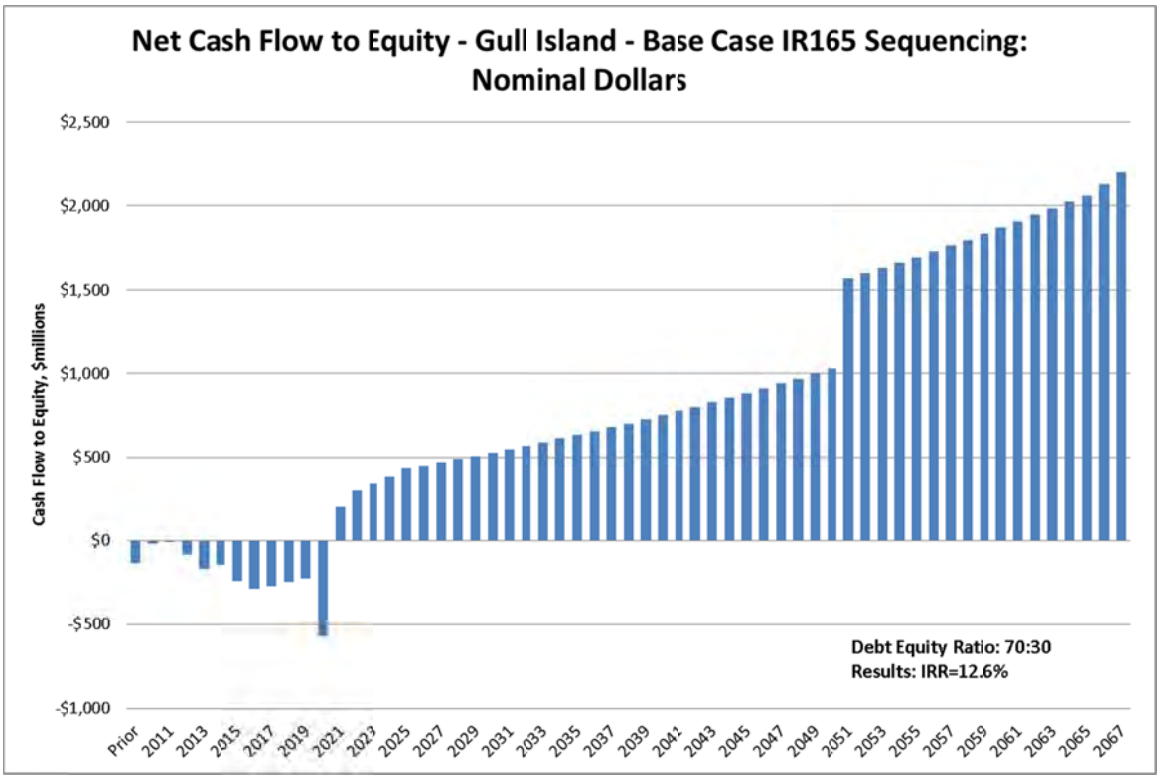


Figure 7 - Net Cash Flow to Equity, Gull Island

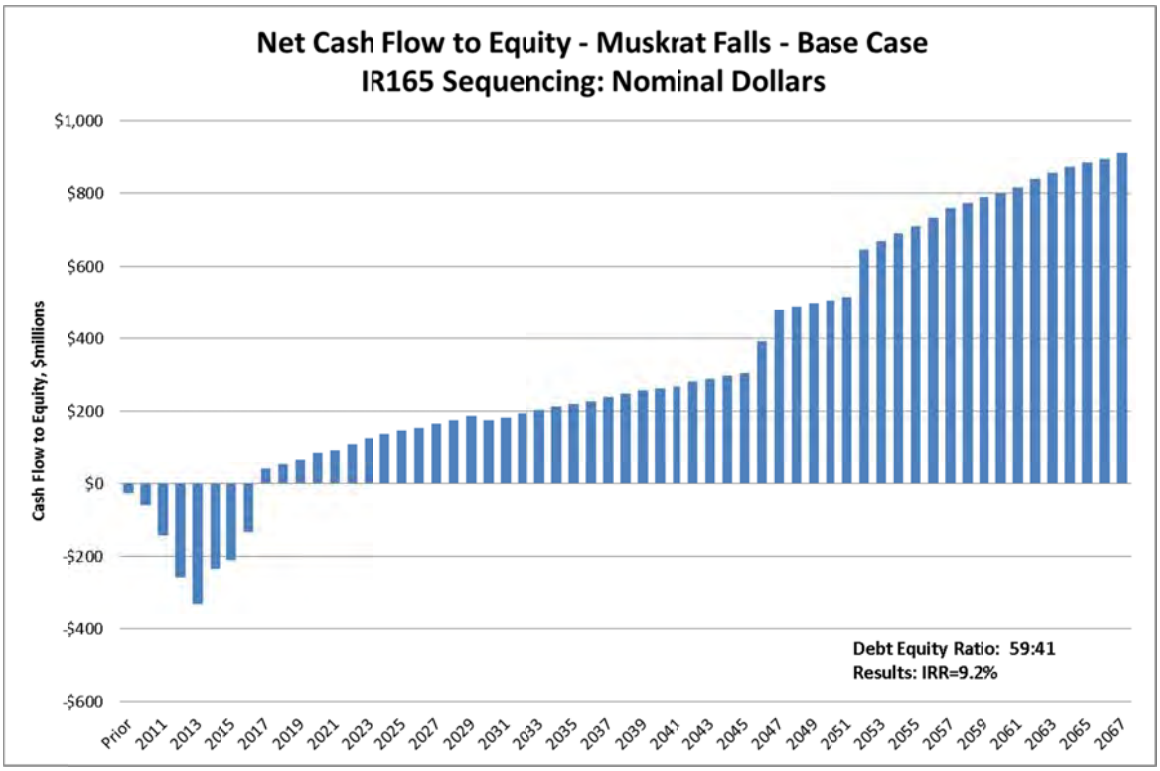


Figure 8 - Net Cash Flow to Equity, Muskrat Falls

Return on Equity

The projected return on equity (ROE), as measured by the equity Internal Rate of Return (IRR) for Gull Island is 12.6% and that for Muskrat Falls is 9.2%.

Sensitivity Analyses

The scenario requested by the Panel for Gull Island included a combined 10% increase in capital cost, 20% reduction in sales volumes, and a 10% reduction in market price.

In Nalcor's view, the requested scenario for Gull Island is not realistic. In particular, the 20% reduction in sales volumes is not reasonable given Nalcor's strategy of securing firm market access. This issue will be addressed in the decision process leading up to Project Sanction, and a decision to proceed with Gull Island will be made only upon completion of that review. The sanction process described by Nalcor is consistent with all major projects (such as the Hebron Project or the MacKenzie Valley Pipeline, for example).

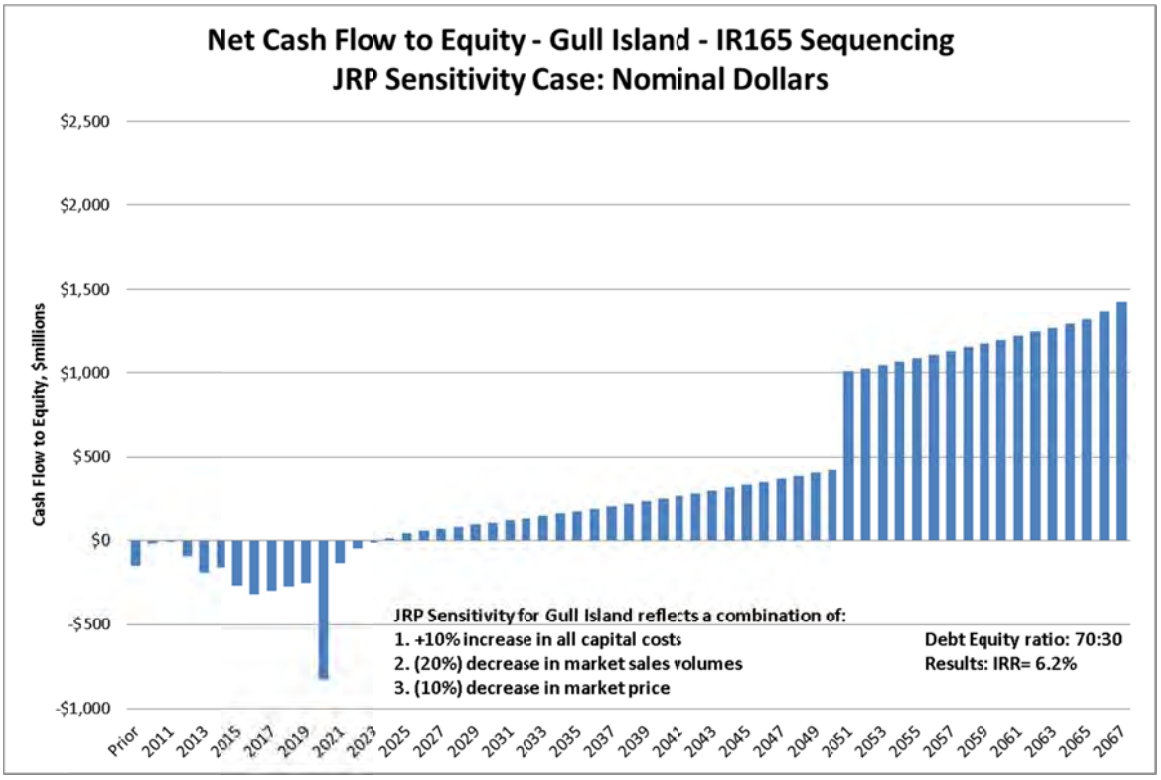


Figure 9- Net Cash Flow to Gull Island, Panel Sensitivity Combination

Notwithstanding Nalcor's view that the requested scenario is not realistic for the reasons identified above, Gull Island would be projected to provide a return on equity of 6.2% in the requested scenario.

The first Muskrat Falls scenario requested by the Panel included a combined 10% increase in capital cost and no export sales. As Emera has committed to provide 330 MW of firm transmission access on the Maritime Transmission Link and beyond to the New England market, Nalcor believes that the scenario requested by the Panel is not realistic. Thus Nalcor does not foresee a situation where available Muskrat Falls energy cannot be sold into regional export markets.

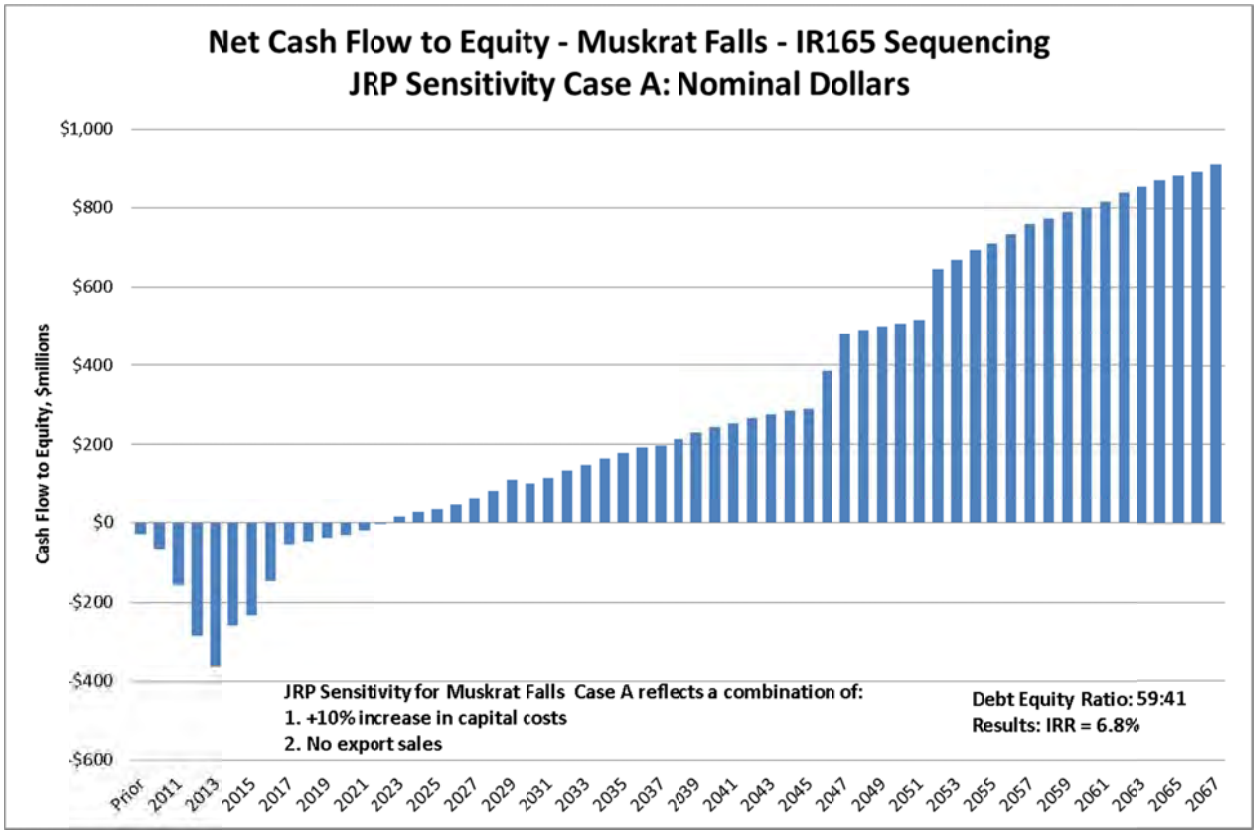


Figure 10 - Net Cash Flow to Muskrat Falls, Panel Sensitivity Combination 1

Notwithstanding Nalcor's view that the requested scenario is not realistic for the reasons identified above, Muskrat Falls would be projected to provide a return on equity of 6.8% in the requested scenario.

The second sensitivity analysis requested includes a combination of 10% increase in capital cost and an assumption that only half of export sales will be achieved. Nalcor's concerns regarding export market availability described above apply equally to this scenario, and therefore it is not a realistic scenario.

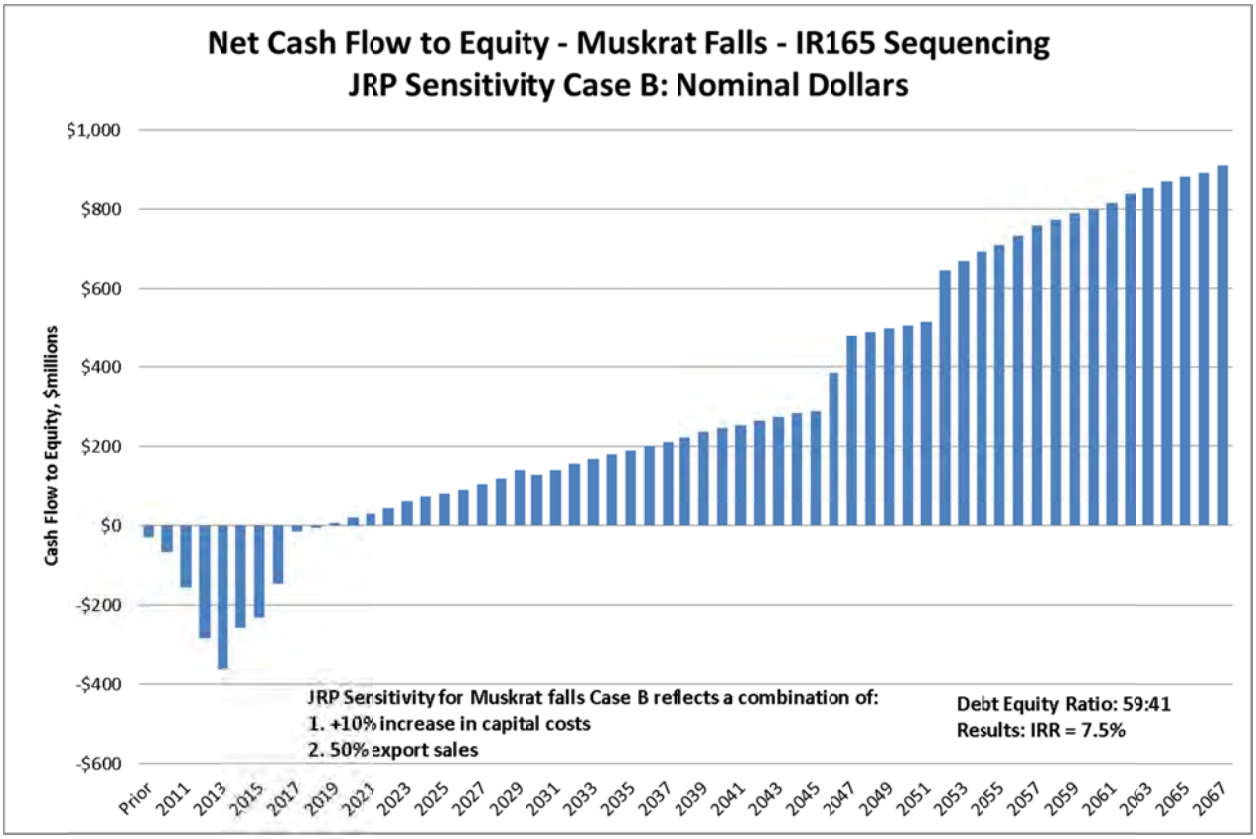


Figure 11 - Net Cash Flow, Muskrat Falls, Panel Sensitivity Request 2

Under these conditions, this scenario would be projected to earn a return on equity of 7.5%.

Part B – Financial Analysis of Alternative Generation Sources on the Island

In its letter of March 21, the Panel requested information relating to the financial analysis of other generation sources on the island of Newfoundland. While serving domestic load is one of the Project's objectives, it is only one of several. No alternative or combination of alternatives is capable of meeting all of the objectives of the Project. There is no combination of feasible alternatives that can deliver over 3,000 MW of capacity and 16.7 TWh annually which could provide an attractive rate of return to the Province and which fulfills the *Energy Plan* commitment to replace production from the Holyrood Thermal Generating Station (Holyrood plant).

The alternative that the Panel is considering, limited displacement of the Holyrood plant's production, represents the alternative from the *Energy Plan* in the event that the Project does not proceed:

> In the event that the Lower Churchill Project does not proceed as anticipated, scrubbers and precipitators will be installed at the Holyrood plant. This will clean up many of the pollutants, however, it will not reduce the GHG emissions. As previously discussed in this Section, part of this alternate plan will be to increase the amount of wind and small hydro on the Island system. [2]

If this alternative is pursued, island customers will still receive their electricity from the Holyrood plant, will still be exposed to oil price volatility, and will be required to fund refurbishment and replacement of the Holyrood plant.

Notwithstanding these concerns, Nalcor has provided responses to the questions raised by the Panel below.

<u>Scenario 1 – Newfoundland and Labrador Hydro Systems Plan</u>

While the Panel wishes to understand the financial benefits, cash flow, and return on equity for the "Isolated Island" scenario, this analysis, except for ROE is not normally presented in such a manner in respect of the operations of a regulated utility. Regulated utility investment decisions are undertaken on a least-cost basis, and as a result, broader financial benefits such as employment and taxation income, are not normally a factor contemplated in regulated utility economic analysis. In this framework, the utility least cost plan will result in a lower revenue requirement collected from ratepayers than otherwise would be the case. This underlying utility investment principle was reaffirmed in the Newfoundland and Labrador *Energy Plan*[3]:

[2] *Energy Plan*, page 39.
[3] *Energy Plan*, page 48.

> "The Government of Newfoundland and Labrador will maintain least-cost power as the primary objective in electricity rate setting in the province"

As a regulated utility to which cost of service principles apply, Newfoundland and Labrador Hydro, a subsidiary of Nalcor Energy (NL Hydro) earns an approved rate of return for its shareholder (ultimately the Province of Newfoundland and Labrador) on all of its deployed equity, and cost recovery of all prudently incurred operating costs such as labour, fuel expenses, and power purchases. Based on policy guidance provided by the Government of Newfoundland and Labrador, NL Hydro expects to being earning the same return on equity as Newfoundland Power when NL Hydro completes its next general rate application[4]. The 2011 return on equity for Newfoundland Power is currently established by the Board of Commissioners of Public Utilities (PUB) at 8.38%[5].

NL Hydro follows a standard utility least cost planning process when comparing one alternative future versus another. By definition this is a long term planning analysis (in this case, from 2010 to 2067) that is carried out using utility production costing and generation expansion simulation computer software. It is only through such a program that the critical reliability standards for the operation of the electricity grid can be incorporated to ensure that one system expansion plan is comparable to an alternative.

The outcome of the generation planning analysis is a metric called Cumulative Present Worth (CPW), which is the present value of all incremental utility capital and operating costs incurred by the utility to reliably meet a specific load forecast given a prescribed set of reliability criteria. Where one alternative cost future for the grid has a lower CPW than another alternative supply future, the option with the lower CPW will be preferred by the utility, consistent with the provision of mandated least cost electricity services. From a financial planning perspective, the supply future with the lowest CPW will translate into the lowest overall revenue requirements that would be recovered from ratepayers based on established regulated cost of service principles (where cost of service = O&M + fuels + power purchases + depreciation + interest expense + ROE) with ROE prescribed by the regulator based on long established capital valuation methods.) The supply future with the lowest CPW confers economic benefits on future ratepayers' to the amount of the difference between the CPWs through lower overall electricity rates that otherwise would be the case.

In this context, the CPW in present value 2010$ for the isolated island supply future is $8,810 million. The CPW for the Labrador Interconnected supply future with Muskrat Falls supply is $6,652 million. The CPW preference for the Labrador Interconnected case is $2,158 million lower in utility costs over the analysis period. It is also noteworthy that this assessment assumes no cost for GHG emissions in the thermal alternative, and no restrictions on extending the life of the existing Holyrood plant to the 2035 timeframe. Either of these

[4] http://www.releases.gov.nl.ca/releases/2009/nr/0617n04.htm
[5] http://n225h099.pub.nf.ca/orders/order2010/pu/pu32-2010.pdf

potentially material costs for NL Hydro will increase the CPW preference for the Labrador Interconnected supply alternative.

The 'revenue requirement' analysis that flows from this initial system planning work, combines the existing utility rate base and all of its associated costs with the incremental system planning CPW related capital and operating costs to ultimately derive an overall wholesale revenue requirement/rate analysis for the island grid under the alternative futures in question. That revenue requirement analysis ensures that a proper cost of service framework is detailed for all operational and capital costs associated with each alternative. The results of this financial analysis-comparing the regulated utility's revenue requirements under the isolated island supply future versus the Labrador/Muskrat interconnected-has been in the public domain on the Newfoundland and Labrador Government website and was presented to the Panel in Nalcor's presentation on Need, Purpose and Alternatives.[6] The utility's revenue requirement financial analysis is prepared as total dollars of all regulated costs, while the information in the public domain has been expressed in $/MWh to illustrate overall electricity rate trends.

Scenario 2 – Incorporate Conservation and Demand Management (CDM) potential

This section is intended to provide background information and context on the energy conservation plan currently managed by NL Hydro and Newfoundland Power. It also responds to questions 1 and 2 relating to CDM from the Panel in the March 21 letter.

Background

NL Hydro and Newfoundland Power jointly filed with the PUB a 5 Year Energy Conservation Plan (ECP) plan in June 2008 (attached to this letter as Appendix 2), outlining a target of 79 GWh/year savings by the Plan's final year in 2013. This plan will be updated in 2011 as a joint utility effort and will explore an expansion of programs and increased savings targets. To date, the utilities have seen lower than predicted initial savings, but with positive signs of growth. The ECP reflects the key roles of each utility – NL Hydro as the primary generator of electricity for the province and Newfoundland Power as having the majority of the customer base. The resulting CDM programs are then administered by the utilities to their direct customers, meaning Newfoundland Power is the administrator of the majority of the commercial and residential programming and Hydro for the industrial sector. Jurisdiction for these programs rests with the PUB, and NL Hydro and Newfoundland Power file annual activity reports with the PUB.

[6] CEAR # 758, Exhibit 13, page 19.

The costs and savings associated with the program as defined in the ECP are presented below:

	2009	2010	2011 (Forecast)
Energy (GWh/yr)	2.7	5.2	10.4
Demand (MW)	0.9	1.7	2.1
Cost ($M)	1.7	2.6	3.1

Table 1 - CDM Savings 2009 - 2011

Nalcor does not expect the original target of 79 GWh/yr to be achieved in the original timeframe of 2013 due to a variety of factors, in large part due to a reduction in savings expected from the Industrial sector[7], slower than expected uptake by residential and commercial customers, and the lack of substantial complementary programming from the provincial and federal government. There have been positive signs that awareness and uptake of the programs is increasing. CDM portfolios must be built in a strategic way in the marketplace to engage customers **as savings rely on voluntary participation by individual consumers**.

The utilities continue to evolve rebate offerings, promotional efforts and partner strategies to build the marketplace and increase uptake in the rebate programs. For each new technology being examined for rebate, there is significant local market knowledge required to determine the current market position, key players in the market and how to effectively affect the purchase decision for that technology.

For 2010, the electricity consumption for space heating in the residential sector is estimated at 1400 GWh. The electricity consumption for space heating in the commercial sector is estimated at 400 GWh. Both consumption estimates are based on the Marbek Potential Study completed in 2008. There is no significant amount of electricity consumption associated with space heating in the industrial sector.

Island interconnected peak electricity demand associated with electric space heating and other seasonal loads such as lighting and increased electric hot water demand is estimated at 680 MW. Electric space heating represents the most significant portion of this demand.

The prevalence of electric heat as a driver of demand and energy is expected to continue in view of recent and forward looking energy prices which impact equipment and fuel choice decisions for space heating. Over the historical period, increased market share for electric heat resulted

[7] The savings for the Industrial Energy Efficiency Program were initially estimated to be 45 GWh/yr at the end of the 2013 cycle. Updated sector information, including the closure of Abitibi in Grand Falls-Windsor has reduced this target to 37 GWh/yr.

from a preference for electric baseboard heat within new construction and from persistent conversion activity away from non-electric based fuels within existing construction. Approximately 25% of the existing residential electric heat customer base resulted from conversions from other fuels, predominantly fuel oil. The preference for electric heat occurred notwithstanding the energy price advantage of fuel oil that existed prior to the mid-2000 period. Conversions to electric heat within the existing residential customer base continue to increase the electric heat market share and the penetration of electric heat in new construction continues to be in excess of the current market share for electric heat which is now estimated at 62%.

There is an overwhelming preference for electric space heating systems on the island. In the absence of a space heating fuel substitution program acceptable to consumers, the potential for CDM to address this major component of island interconnected load is very limited in scope for the next several years.

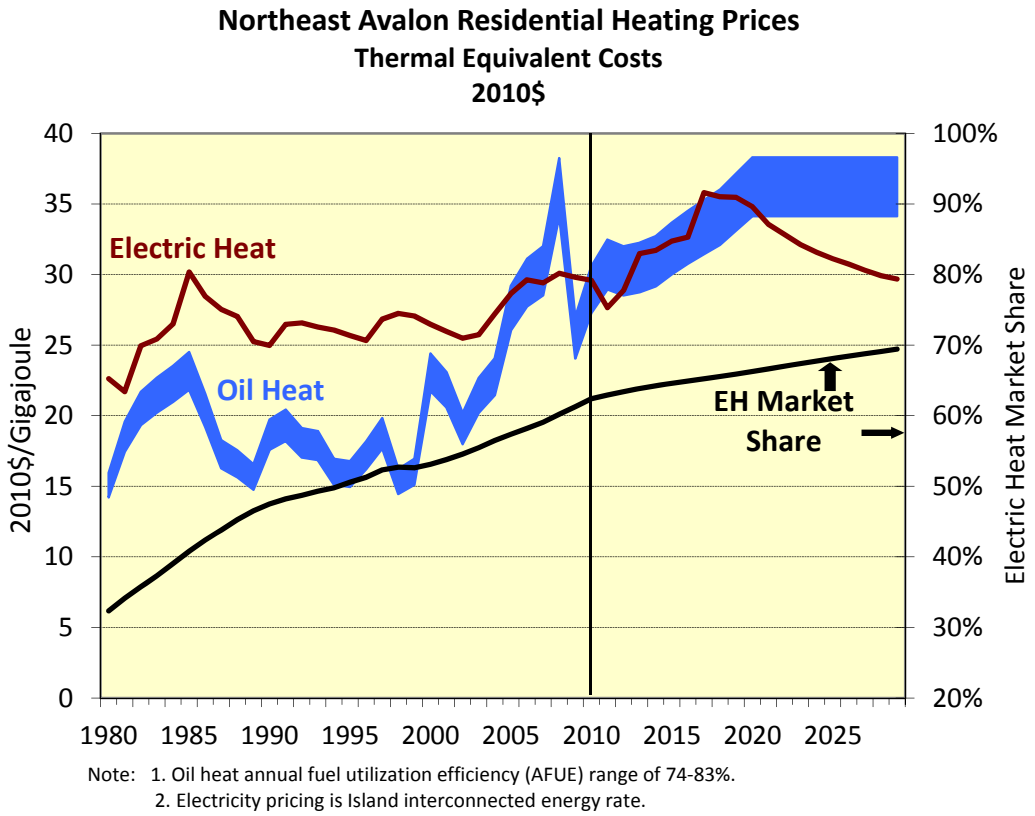


Figure 12 - Comparative Energy Costs of Oil and Electric Heat (Interconnected Scenario)

Savings Potential

The Panel has requested an updated assessment of the economic potential of CDM as outlined from the Marbek study from the view of an isolated island system. Nalcor understands the Panel is interested in determining the scale of CDM options under different economic conditions, but a discussion on the steps in the development of savings targets is useful as the Economic Potential is only one input into to that process.

The Marbek study defines the Economic Potential as the

> "…level of electricity consumption that would occur if the Utilities' customers installed all "cost-effective" technologies. "Cost effective" for the purposes of this study means that the Cost of Conserved Energy (CCE) is less than or equal to the estimated cost of new electricity supply…. This forecast does not yet incorporate consideration of the many practical considerations that affect a customer's willingness to implement the CDM measures. Rather, it provides a valuable interim step towards determining the Achievable Potential"[8]

The next step is to determine the Achievable Potential, defined as

> "…the proportion of the savings identified in the Economic Potential Forecast that could be achieved within the study period. Achievable Potential recognizes that it is difficult to induce customers to purchase and install all the electrical efficiency technologies that meet the criteria defined by the Economic Potential forecast. The results are, therefore, presented within an "upper" and "lower" range."[9]

The step from Economic Potential to Achievable Savings is dependent on many factors. In the Marbek study, there were Lower and Upper Achievable scenarios that recognized that CDM success depends greatly on the environment in which it operates. These two boundaries of potential savings reflect external factors, including the level of standards and codes, legislative efforts, and other programs with government and other agencies present in the marketplace that would increase the consumer awareness and participation in the utility programs. The Lower Achievable has been more reflective of the results in the Newfoundland and Labrador market to date, and savings predictions for the 2011 milestone year are below the Lower Achievable threshold. In this scenario, the Achievable Savings are estimated to grow from 11% to 33% of the Economic Potential during the life of the study, as shown on the following table.

[8] CDM Potential Study, Summary Report, p.4, Marbek Resource Consultants, 2008
[9] CDM Potential Study, Summary Report, p.5, Marbek Resource Consultants, 2008

Table 2 - Economic and Achievable Savings by Milestone Year

	2011	2016	2021	2026
Economic Potential (GWh/yr)	1020	1237	1457	1665
Upper Achievable (GWh/yr)	211	437	679	951
Lower Achievable (GWh/yr)	112	253	404	542
Achievable as % of Economic Potential	11%	20%	28%	33%

This forecast considers two key points for CDM portfolio development:

- There is a ramping up and growth stage as the market becomes aware of and interested in efficient technologies.
- While there may be strong economic incentives, behavioural factors determine whether the desired savings are actually achieved through utility CDM.

With these two factors in mind – the economic potential for savings and the inclination to actually invest and generate the savings, CDM initiatives must be managed on a program basis. The Marbek study provided detailed savings estimates for the technologies solutions meeting the economic thresholds when it was prepared. The study also noted that costs and market conditions for efficient technologies change frequently, and the program would require ongoing management as cost thresholds and market conditions changed.

This incremental approach was used by NL Hydro and Newfoundland Power in the current CDM program. The Achievable Potential savings assessment assumed a start-up in 2007 and programming to address each technology passing the economic threshold at the time.[10] The additional efforts required to develop and implement programs led to a launch of commercial and residential sector offerings in 2009 and industrial offerings in 2010. As well, the utilities have focused on a shorter list of high priority technologies to begin the growth of a larger portfolio of offerings over time. In addition, the utilities are also developing and managing quality assurance initiatives to ensure eligible products have been installed in eligible structures. The determination of methods to evaluate customer energy savings will be addressed in the update to the 5 Energy Conservation Plan to be completed later in 2011.

In working through the many steps in utility CDM program planning, the estimation of Marbek's Achievable Potential for 2011 of 117 GWh/yr has evolved to a programming reality of approximately 10 GWh as the 2011 joint utility target for savings.

[10] CDM Potential Study, Summary Report, Footnote 6, p.5, Marbek Resource Consultants, 2008

Program Expenditures

The provincial budget for 2011 CDM is currently $3.1M, approximately 0.75% of utility revenues. As noted in the table above, the level of expenditures has been increasing since the program launch in 2009. With the utilities working together in 2011 to develop an updated and expanded 5 Year CDM Plan, this pattern of expenditure increases will continue. The Marbek study provided some guidance as to appropriate levels of CDM spending. Referring to two separate studies on CDM expenditures, 1.5% of electricity revenue was outlined as an appropriate level for a jurisdiction in the early stages of CDM programming[11]. The expenditures have been growing towards this level.

Marbek further described ramping up to a budget of 3% of revenues as an appropriate level of expenditure once program delivery experience is gained. This would be well beyond the current 5 Year ECP but is an achievable budget level for longer term planning. In examining the budgets for other utilities, we see that a target of 1.5% of expenditure would be consistent with utilities that have been active in CDM for a significant time.[12]

Responses to Other Panel Questions

3. **Based on the Marbek study and an avoided cost equivalent to operating Holyrood (with appropriate annual increases), what is the economic potential of CDM to reduce capacity and energy requirements on the Island by 2014, 2019, 2024, 2029?**

   The Marbek study did not consider opportunities that might be feasible at the higher suggested Economic Potential. More specifically, the Achievable Potentials were not assessed at this higher Economic Potential level.

   Since the experience of the customer base with CDM is limited (the program has been in operation for two full years), and approaches to optimize customer response are still under development, no meaningful prediction regarding the success of the program 18 years into the future can be made.

4. **Assuming three levels of investment in CDM and smart grid technologies of 1.5%, 3% & 5% of annual electricity revenues, what portion of the CDM potential estimated in #3 above could be expected to be realized by 2014, 2019, 2024, 2029 and how would this affect Island load forecasts and new generation requirements?**

[11] CDM Potential Study, Summary Report, p.27, Marbek Resource Consultants, 2008
[12] CEE report "Canadian Electric Program Budgets and Expenditures by Region", 2010 provides CDM budgets, and review of utility annual financial statements provides revenues for comparison. Fortis BC and Hydro Quebec have 1.5%, Manitoba Hydro 3% and BC Hydro is 5%.

As discussed above, the CDM budget is currently increasing towards a 1.5% of revenues, a spending level appropriate to the stage of CDM development in Newfoundland and Labrador. Again, the data is not available to estimate an increase of the Economic Potential. More importantly, the appropriate building of the portfolio of CDM programs must be in relation to the ability of the utilities to successfully deliver and of the marketplace awareness to actively participate in each opportunity and the current level of expansion of utility programs reflects this reality. Expenditures cannot be arbitrarily increased and market response realized. The inclusion of smart grid technology has not been considered within the development of joint utility CDM. While a range of smart grid opportunities is being pursued in some jurisdictions, there is insufficient industry and consumer response to these emerging technologies to gauge the reaction of consumers and industry at this time.

Summary

The savings that actually accrue from a CDM program are the result of economic and behavioural factors. Since the Newfoundland and Labrador CDM program has only been recently introduced, a prediction of consumer and industry behaviour in the long term cannot be made in any meaningful way.

Given the limited exposure of NL Hydro and Newfoundland Power customers to CDM and the large scale investments that would be required in order to adjust demand for space heating, Nalcor is unable to calculate long term forecasts for CDM response. Based on the information provided above, however, Nalcor believes that the response would be marginal, and certainly would be insufficient to completely offset production from the Holyrood plant.

Scenario 3 – Incorporate Potential for Small Hydro, Tidal and Wind Energy

Background

Small-scale hydro and wind has been proposed as an alternative for part of the objective to the Project – to meet a portion of domestic needs on the Island of Newfoundland. This section addresses the considerations and issues associated with this alternative.

System Planning and Hydrology Considerations

Small hydro and wind energy are currently integrated in the Newfoundland electricity system. To date, the extent to which they can be accommodated is limited because the Newfoundland electricity system is currently isolated from the rest of North America. The lack of interconnection to other systems introduces technical and operational system constraints. The major constraints include:

- The extent to which these resources can be drawn on during the peak winter season. If they are not available, then storage must be available on the system to store produced energy and then to draw it from storage later. In addition, capacity must be available from other firm sources (such as the Holyrood plant or combustion turbines) during peak periods.

- The extent to which storage can be used is limited, as existing storage resources are used to store spring runoff and summer/fall precipitation for the following winter's peak demand. In addition, water must be held in reserve in the event of a future drought.

In integrating small hydro and wind energy into the Newfoundland electricity system, planning and operational considerations to ensure reliable electricity supply are paramount. Both wind and run of river hydro are non-dispatchable; wind is variable and no storage is created with a run of river project. Also river flows during the peak winter season are lower than during any other season. The successful integration of these technologies is conditional upon interconnection to a larger grid and/or additional storage capability, neither of which currently exists on the Island. In addition, firm capacity must be available to make up for shortfalls from non-dispatchable resources.

Since no interconnections to other markets exist, opportunities to export surplus energy to other markets or to rely on other markets to support the island system do not exist.

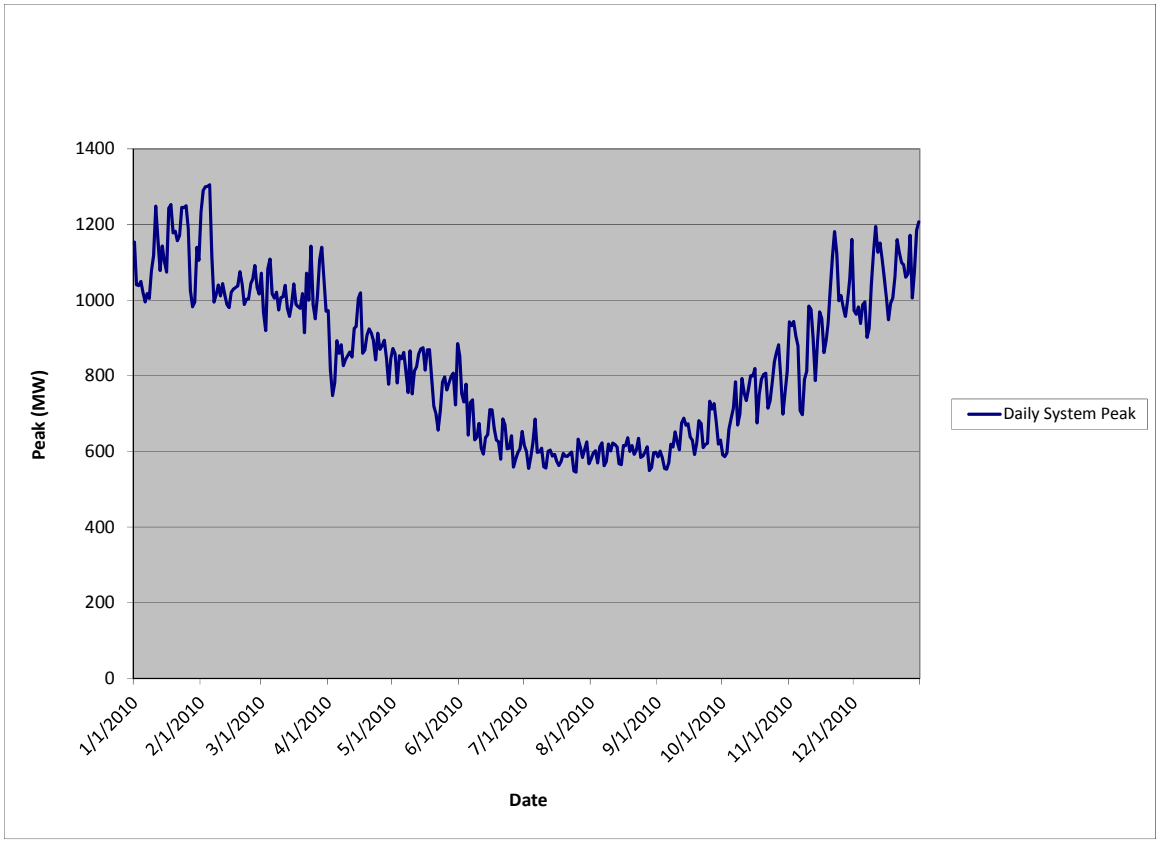


Figure 13 - NL Hydro Peak Daily Load (2010)

Storage capacity on the island of Newfoundland is already used to provide sufficient water for existing generating facilities to operate through the winter seasonal demand peak and to integrate the existing renewable generation on the island. Without additional storage to ensure that energy is available from new resources when it is needed, additional small hydro or wind production will simply result in increased probability of spill at existing facilities. As a result, these additional small hydro and wind sources do not contribute to security of supply. Thus, limited additional renewable resources are included in the NL Hydro's generation expansion plan for this reason.

The following figure shows the system energy storage for the NL Hydro Island system for the periods 2005 to 2010. In two of the five years presented, storage reached maximum supply levels, and additional non-dispatchable energy generated on the system would have resulted in increased spillage from NL Hydro's reservoirs. Based on currently available information, there is **considerable uncertainty** as to whether any additional non-dispatchable generation can be integrated into the NL Hydro system. While additional non-dispatchable generation could be integrated on the NL Hydro system in the future as load grows, this would only be possible in small amounts commensurate with an increase in load.

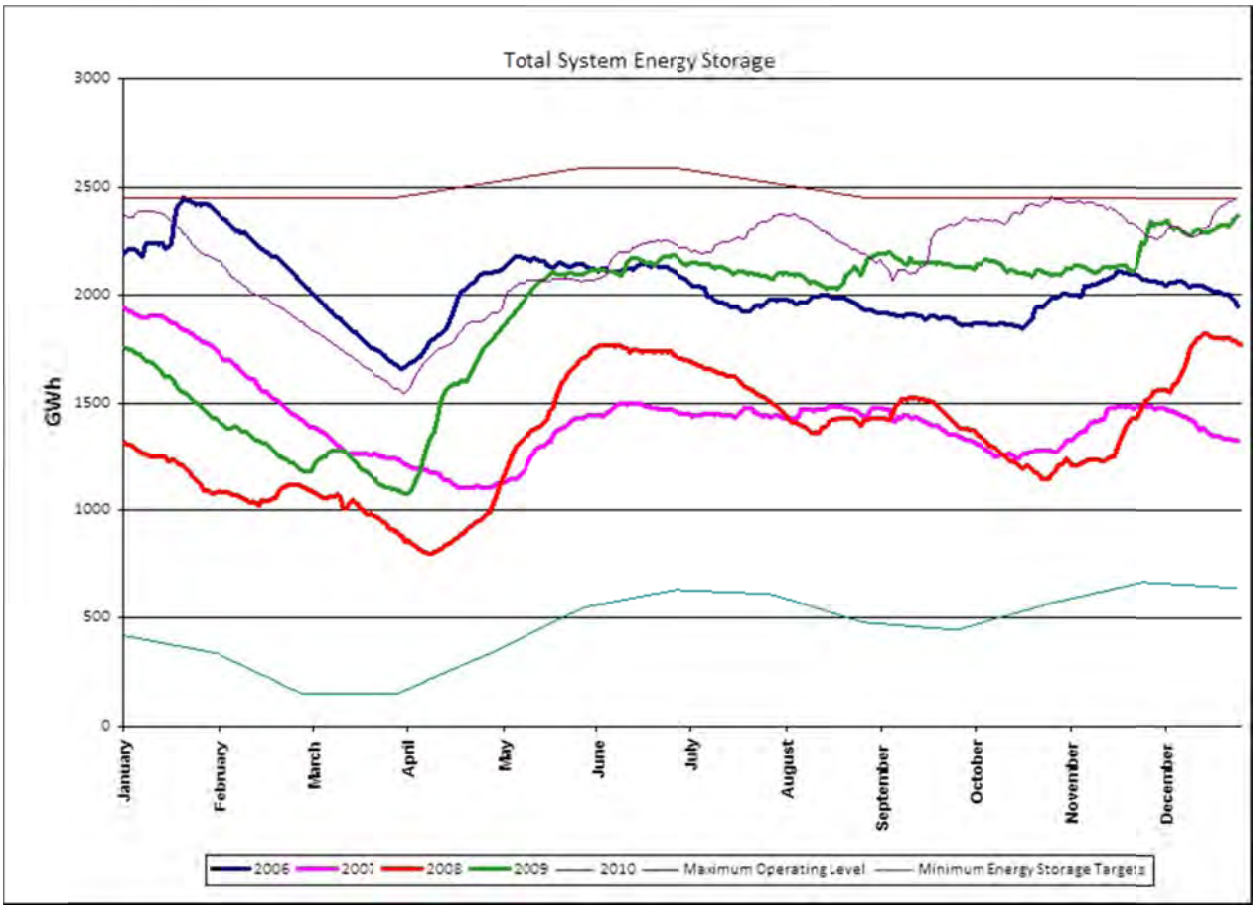


Figure 14 - NL Hydro Island System Energy Storage: 2005 - 2010

In addition to the variation in domestic demand over the course of a year, it is also necessary to consider hydroelectric production on a longer term basis. One of the important functions of the Holyrood plant is to provide a source of firm energy during periods when reduced inflows result in reduced hydroelectric production. The Holyrood plant, with an unlimited fuel source, can be depended on to provide a known amount of energy and thus mitigates this issue. As a result, investment in small hydro production will not displace investment in The Holyrood plant. Scrubbers and electrostatic precipitators will be required in accordance with the *Energy Plan*, and the refurbishment and replacement of the facility will still be required in the future.

Conclusion

The inference in the Panel's request is that the above possibilities may fulfill part of the Project's stated purpose–the possibility of serving a portion of our Province's domestic electricity requirements. Based on the foregoing, the inference is not supported by an assessment of the Newfoundland electrical system and how it operates. The options referred to are not alternatives to the Project (or part of the Project) and the purposes of the Project.

2009 Harris Centre Study

Nalcor is also concerned that the Panel is interpreting the Harris Centre presentation[13] as a different scenario to meet part of the Project's purpose. In that light, it may be useful to consider the points raised in the Harris Centre presentation.

The conclusions drawn in the Harris Centre presentation are based on an inventory of small hydro potential on the island completed by Shawmont Newfoundland for NL Hydro in 1986. 196 sites with capacities between 1 and 20 MW were identified, and 160 of these sites were identified as "feasible in the future." The presentation stated that a sample of sites was compared using "current construction costs" and "current grid access" to test whether they could meet a standard offer price of $86.68/MWh.

The Harris Centre presentation indicates that "current construction costs" were developed using the RETScreen software application. This statement is incorrect. The RETScreen application contains a database of previous projects, and generates a cost estimate based on experiences from other projects. This offers no insight into actual site conditions, and therefore cannot be relied on as an indicator of project viability.[14] "Current grid access" also cannot be assumed simply because a transmission line is in proximity to a proposed site. To provide the Panel with an example, interconnection of a 5 to 20 MW site would be accomplished using a single, radial 69 kV transmission line. Assuming a 25 km line length to the grid and the need for transformation and switchgear at the interconnection site, the interconnection cost for this example site would be in the order of $7 million to $9 million. The Harris Centre presentation also assumes that no issues will be encountered during environmental assessment. Mr. Charles Bown, Associate Deputy Minister of Natural Resources, indicated in his presentation to the Panel that significant issues were encountered with small hydro sites during previous RFP processes.

[13] "Our Energy Resources: What's the Plan," Andrew Fisher, M. Eng., P. Eng., Memorial University of Newfoundland, January 2009, http://www.mun.ca/harriscentre/policy/memorialpresents/2009a/Memorial_Presents_Energy.pdf

[14] RETScreen hydro costing model is provided in Appendix 1.

Nalcor compared the cost estimates contained in the Harris Centre presentation to those presented in the 1986 Shawmont study, and identified significant differences in the estimated costs of the project. In some cases, the 2009 cost estimates were lower than the corresponding estimates from 1986. As a result, Nalcor does not believe that the cost estimates presented in the presentation are reasonable or reliable. As a result, Nalcor also disagrees with the conclusion made that "190 feasible projects could produce 940 MW."

Even if the costs were assumed to be reasonable preliminary estimates, and the cost of generation was $86.68, that price would need to be escalated to be comparable to the estimated cost of the Project.

Table 3 - Escalated cost of Small Hydro

Harris Centre Threshold (assumed in $2009)	$86.68
Contingency against estimate (+ 40%)	$121.35
Transmission interconnection to the NL grid (+ 30%)	$157.75
Escalation from 2009 to 2017 @ 2% (+ 17%)	$185.04

If as Nalcor expects, the energy from these projects is not available during peak periods and cannot be stored within existing reservoir capacity, the unit cost of usable energy increases, thus further reducing the feasibility of these projects.

To summarize, the conclusions drawn in the Harris Centre presentation have the following limitations:

- Capital costs are derived from a catalogue of other projects that are unrelated to actual site conditions;
- No site investigations or pre-feasibility design have been completed to validate the preliminary costs;
- No storage to reshape production from these facilities is available, and based on the expectation that energy production from these opportunities is not consistent with the island's demand profile, the estimated cost of usable energy will be much higher than estimated on a "take or pay" basis;
- No transmission studies have been completed to determine the cost of integrating these projects into the Island grid, and the cost of additional transmission capacity to the Avalon Peninsula has not been considered. This will be further discussed in response to a question by the Panel; and

- Upgrades at the Holyrood plant, including scrubbers and electrostatic precipitators at a cost of $600 to $800 million are still required, because the Holyrood plant will still be required to run during the peak winter season.

The Harris Centre presentation also raises the question as to whether a focus on least-cost energy supply should evolve to one where other issues, including regional development and social considerations, should be included. This is a broader energy policy question, and one that is beyond the mandate of this environmental assessment.

While Nalcor does not see these small developments as a credible alternative to the Project, the Project does not preclude these developments in the future. In fact, the Project makes them more likely. The development of transmission capacity between Labrador and the Island, to the North American market, and to the Maritime Provinces provides new opportunities for other renewables by enabling access to storage resources and by opening up new markets.

Tidal Energy

The Panel has indicated in its letter that "Tidal power is also relevant." Nalcor disagrees. The economic and technical feasibility of tidal power are both unproven, and the environmental effects of large-scale deployment are unknown. In Atlantic Canada, Nova Scotia Power, a subsidiary of Emera, has deployed a single turbine in the Minas Basin to help determine the feasibility of this technology.[15] Damage to this turbine's rotor was discovered in June 2010, and it was removed from the water in December 2010. On March 22, 2011 the Scottish Government announced approval of the development of the "world's largest tidal energy plant off the country's west coast."[16] This 10 MW installation offers 0.30 percent of the capacity of the Project, with 3074 MW of capacity.

Tidal power, at this stage of its development, is at the research and development stage and is an alternative that is neither technically nor economically feasible. The environmental feasibility also remains an outstanding question, as no potential sites or studies have been undertaken.

[15] http://www.nspower.ca/en/home/environment/renewableenergy/tidal/projectoverview.aspx
[16] http://www.sustainablebusiness.com/index.cfm/go/news.display/id/22102

Responses to Panel Questions

1. **As background, please provide a summary of the current status of integrated resource planning activities of NL Hydro and of Newfoundland Power for Island consumers.**

   NL Hydro and Newfoundland Power are both subject to cost of service regulation, and that the adequacy of generation, the implementation of conservation programs, the integration of new resources, and the annual operating costs for utilities are all subject to public procedures by the PUB in accordance with the *Public Utilities Act* and the *Electrical Power Control Act*.

   The PUB is responsible for establishing the planning process followed by NL Hydro, and considered the question during the hearing of NL Hydro's 2006 General Rate Application. In its decision[17], the PUB noted (referring to itself as "the Board"):

   > The Board is not prepared to proceed with an IRP exercise given the pending release of the Energy Plan and completion of the various rate design reviews and conservation and demand management studies currently underway. In the Board's view the Province's future policy direction respecting energy supply will be a key ingredient in formulating an IRP. As well these various studies/reviews would also comprise important inputs needed to stimulate informed discussion and debate contributing to a comprehensive IRP acceptable to all stakeholders.
   >
   > In terms of the Board's ongoing role with respect to ensuring adequate planning Hydro prepares an annual system planning report, which reviews the latest long-term load forecast, generation expansion requirements, options, costs and other important issues. The 2005 report was filed on November 27, 2006 (Schedule JRH-Supplementary 1) and the 2006 report was filed on December 8, 2006. This report provides fundamental information regarding future supply issues in the Province and is valuable to the Board in meeting its responsibilities under s. 4 of the *EPCA*. The Board remains convinced that an IRP undertaken as part of a generic process as described in Order No. P. U 14(2004) is an important planning tool and would enhance the information available to the Board and other parties regarding future generation and supply options in the Province. The Board will convene a meeting of stakeholders including Hydro and the parties to this proceeding to discuss the scope of an IRP process with the timing of such an exercise to be determined by the Board.
   >
   > **The Board will not establish at this time a process with respect to the commencement of an IRP exercise.**

[17] Order Number P.U. 8(2007), Board of Commissioners of Public Utilities

Integrated resource planning is therefore under consideration by the PUB, and the PUB will provide direction to NL Hydro and Newfoundland Power in relation to integrated resource planning at an appropriate point in time. As well, the PUB has stated that it will take direction in that review from the Province's *Energy Plan*.

2. **With investment equivalent to the cost of operating Holyrood (with appropriate annual increases), how much small scale renewable energy generation, of the type included in the MUN study, could potentially be integrated into an isolated Island grid by 2014, 2019, 2024, 2029?**

The ability to integrate small scale renewable generation has been addressed in the *Generation Planning Issues 2010 July Update*[18]. In an isolated scenario, the projects that would be integrated are:

- 2014 25 MW Wind Farm, 88 GWh annual energy
- 2015 36 MW Island Pond hydroelectric project, 186 GWh annual energy
- 2018 23 MW Portland Creek hydroelectric project, 142 GWh annual energy
- 2020 18 MW Round Pond hydroelectric project, 139 GWh annual energy

The hydroelectric sites have had feasibility level studies completed and, with the exception of Portland Creek, are part of the Bay d'Espoir hydroelectric complex. As a result, the general concerns raised in the *System Planning and Hydrology Considerations* section of this response do not apply to these sites. These proposed developments take advantage of existing storage within the Bay d'Espoir reservoir system.

As indicated in the *System Planning and Hydrology Considerations* section, technical and operational constraints preclude the integration of additional small scale resources on the isolated system.

3. **What order-of-magnitude investment would be required in system upgrades to enable acceptance of distributed small scale renewables, as estimated in #2 above?**

Large scale integration of renewables on the scale necessary to replace the Holyrood plant requires substantial transmission system upgrades.

[18] CEAA Registry 773

NL Hydro's Island Interconnected Transmission System is planned, constructed, and operated under a single transmission element contingency criterion. The 230 kV bulk transmission system topology today is the result of a number of historical factors:

- To date the least cost economic hydroelectric generating sites with water storage to meet the firm demand and energy requirements of the system have been located in the central and western portions of the island;

- The Avalon Peninsula represents the largest load center on the island, with a demand requirement expected to reach approximately 67% of the total load; and

- With system load growth and limited hydroelectric potential, the least cost generation expansion plan required the addition of a thermal generating station to maintain reliability of supply. A deep water, relatively ice free port for fuel delivery is required for thermal generating stations. Such a site was located in Conception Bay, near the major load center in St. John's, resulting in the construction of the thermal generating station at the Holyrood plant with limited transmission line investment.

The operation of the hydroelectric generating fleet in combination with the Holyrood plant results in a 230 kV transmission system with an appropriate, but limited, transfer capacity between the Bay d'Espoir Generating Station and the Avalon Peninsula load center. At present the 230 kV transmission system east of Bay d'Espoir has a transfer limit of 365 MVA in the summer and 509 MVA in the winter. This transmission capacity ensures the efficient use of the existing hydroelectric and thermal generation on the island.

The replacement of the Holyrood plant with distributed small scale renewable generation is expected to have a significant impact on the existing transmission system and will require major upgrades. A high level evaluation has been completed to provide the Panel with an order of magnitude analysis, including the following simplifying assumptions:

- As the majority of the small scale hydro sites are located off the Avalon Peninsula, the transmission system between Bay d'Espoir and the Avalon Peninsula load center will be required to deliver the Avalon portion of the existing large scale hydro generation, the displaced generation from the Holyrood plant and additional small scale hydro/renewable for future load growth;

- With approximately 67% of the island demand located east of Bay d'Espoir, the transfer limit of the Bay d'Espoir East transmission system must equal 1000 MW in 2017; and

- To assess the Bay d'Espoir East transmission system impact combined small scale hydro/renewables was modeled as a single generator on the Bay d'Espoir 230 kV bus.

Preliminary load flow analysis considered continued application of 230 kV transmission lines between Bay d'Espoir and the Avalon Peninsula load center with the Holyrood plant's generation removed from service. Analysis indicated that at least three new 230 kV transmission lines, for a total of five, would be required between Bay d'Espoir and Western Avalon Terminal Station to meet the 2017 peak. Load growth beyond the 2017 level could not be met by this solution. Station congestion at Sunnyside Terminal Station and the need for a 230 kV transmission line corridor for at least five 230 kV transmission lines through the Bay du Nord wilderness area make the continued 230 kV transmission line solution impractical.

Given the magnitude of the power transfer (i.e. 1000 MW and beyond) and distances involved (267 circuit km Bay d'Espoir to St. John's), a more practical solution is to increase the transmission voltage between Bay d'Espoir and the Avalon load center to the 315 kV level. Preliminary analysis indicates the following changes and additions to the existing transmission system:

- Construct a new 315/230 kV terminal station at Bay d'Espoir including two 315/230 kV, 500 MVA autotransformers;
- Construct a new 315/230 kV terminal station at Piper's Hole near the existing Sunnyside Terminal Station including two 315/230 kV, 250 MVA autotransformers;
- Remove existing 230 kV transmission lines TL202 and TL206 between Bay d'Espoir and Piper's Hole Terminal Stations;
- Construct three 315 kV transmission lines, 139 km each, between Bay d'Espoir and Piper's Hole Terminal Stations;
- Construct a new 315/230 kV terminal station at Soldiers Pond including two 315/230 kV, 500 MVA autotransformers;
- Tie in existing 230 kV transmission lines TL201, TL217, TL218, and TL242 into the new Soldiers Pond Terminal Station for power transfer to the Avalon load centers;
- Construct two 315 kV transmission lines, 113 km each, between Piper's Hole and Soldiers Pond Terminal Stations; and
- Convert the Holyrood plant's generators to synchronous condenser operation for voltage support.

By 2027, the increased loading on the system will require system additions to meet contingency criteria including:

- Third 315/230 kV, 500 MVA autotransformer at Bay d'Espoir;
- Third 315/230 kV, 250 MVA autotransformer at Piper's Hole;

- Third 315/230 kV, 500 MVA autotransformer at Soldiers Pond; and
- A new 150 MVAR synchronous condenser at the Holyrood plant.

An order of magnitude cost estimate for the Bay d'Espoir East transmission system upgrades is $750 million.

Given that a significant number of the small hydro sites are located west of Bay d'Espoir, the addition of up to 500 MW of generation west of the Bay d'Espoir Generating Station can be expected to have a substantial impact on the Bay d'Espoir West transmission system. At a very high level, depending upon the location of small hydro/renewable sites, the following upgrades to the Bay d'Espoir West transmission system will be required over time:

- Construct a 230 kV transmission line, 180 km in length, between Granite Canal and Bottom Brook;
- Thermally uprate the Massey Drive to Bottom Brook transmission corridor, TL211, either through rebuild of the existing 56 km long line or construction of a second 230 kV transmission line;
- Rebuild/reconductor 35 km of existing TL228 between Massey Drive and Buchans;
- Thermally uprate the Buchans to Stony Brook transmission corridor (TL205 and TL232), either through construction of a third 230 kV transmission line 84 km in length, or rebuild the existing TL205 circuit; and
- Construct a third 230 kV transmission line, 105 km in length, between Stony Brook and Bay d'Espoir.

An order of magnitude cost for the 230 kV Bay d'Espoir West transmission system upgrades would be $240 million.

Beyond the bulk 230 kV transmission system, the thermal ratings of existing radial 138 kV transmission lines would limit the installed small scale hydro/renewables capacity to approximately 90 MVA prior to new 138 kV transmission line construction. The cost of this upgrade has not been considered, but may be required on a case by case basis.

4. **What would be the technical and economic feasibility of booking a portion of existing hydro capacity (currently base loaded) as dispatchable power to even out the impact of less reliable renewables? Is there potential to augment dispatchable power at existing hydro sites using wind pumps?**

Storage issues have been discussed in detail in the *System Planning and Hydrology Considerations* section of this response.

The existing hydroelectric fleet operates as base load, load following, and peaking generation. Various units in the NL Hydro generating fleet perform load following and are used to even out the impact of less reliable renewables. The integration of less reliable renewables is not constrained by the ability of NL Hydro's existing generation to respond to variable output, but rather by the inability of the less reliable renewables to deliver energy when it is required during the peak winter season. The integration of less reliable renewables is limited by the finite hydroelectric storage and inability to market surplus energy, rather than the short term integration of hydro and less reliable renewables. The result of this limitation is either excessive reservoir drawdown or spill.

Given the existing seasonal demands, the existing hydro capacity is fully utilized during the peak winter season, no hydro capacity is available to make up for unavailability of less reliable renewables during that period of high demand. As a result, firm thermal generation will be required to make up the shortfall.

Approaches to "augment dispatchable power" do not address the finite storage capability and lack of interconnection with neighbouring markets. For example, if additional generation capacity were added at existing hydro facilities, the increased capacity could draw down reservoir levels below acceptable storage levels, as the non-firm production is not available to the extent required during the peak period.

As a result, these types of solutions are not technically feasible.

To summarize these integration issues, the cost of transmission upgrades to integrate capacity on the scale required to displace the Holyrood plant is estimated to be in the order of $1,000 million, and pollution control investments for the Holyrood plant at an estimated cost of $600 to $800 million are also required, for a total integration investment of $1.6 to $1.8 billion.

The cost of small scale generation is expected to be more than double the cost of Muskrat Falls generation, and large scale integration of small renewable projects is not technically feasible because of the limited storage and intertie capacity available from Newfoundland to other markets. These factors, combined with the cost of substantial cost of transmission upgrades, preclude small scale generation from being a viable alternative for this aspect of the Project.

Helios Centre Questions

The Panel also invited Nalcor's comments on questions raised by the Helios Centre. Nalcor has reviewed these questions, and believes that these questions represent a level of detail that reaches far beyond that required for the purposes of environmental assessment. Responses to each question are provided in Appendix 1.

Nalcor is therefore of the view that the information presented in this letter, in conjunction with the material already provided on the record is more than sufficient to address matters related to need, purpose, and alternatives for the Project.

Sincerely,

- *Original signed by* -

Gilbert J. Bennett, P. Eng.
Vice President – Lower Churchill Project

Attachments

Appendix 1 – Nalcor Responses to Helios Centre Questions

1. **Please provide the detailed calculations used to derive the unit cost figures mentioned (7.7 cents/kWh for generation only, and 14.3 cents/kWh delivered to the Island), including all data and assumptions necessary to reproduce the calculations.**

   See Nalcor reply to Panel on p.4, question 1.

2. **Do the price per MWh figures provided in U-27 represent the price at which power would be sold from Nalcor to NLH? If not, please specify what meaning should be given to these figures?**

   The Price per MWh figures provided in U-27 represent the price at which power would be sold from Nalcor to NL Hydro for the base case analysis.

3. **Please provide a year-by-year financial analysis after commissioning, that includes, as a minimum, the following elements:**

   a. **Costs, including debt and equity payments, depreciation, O&M and other costs,**
   b. **Revenues (per MWh) and total,**
   c. **Debt balance**
   d. **Undepreciated equity.**

   Given the fact that financing arrangements have not yet been finalized, several scenarios may be presented to provide the Panel with an understanding of the various possible arrangements.

   Nalcor has provided forecasted Net Cash Flow for Gull Island and Muskrat Falls in this response using reasonable assumptions. This detailed information is not necessary for the purposes of the planning process envisioned in environmental assessment.

4. **For each scenario provided in response to the previous question, please indicate the year-by-year per MWh cost to passed on to Island ratepayers, including both generation and transmission (Island Link) costs.**

   The year by year cost to be passed on to Island ratepayers for the base case analysis is the equivalent of $143 /MWh in 2017 escalating annually at the CPI rate of 2%.

5. Please explain how the costs to Island customers would be different if the Muskrat Falls project were included in the rate base of NLH for regulatory purposes.

There would be no material difference for Island ratepayers. Nalcor has established a price for the island Muskrat Falls energy that provides a return on capital for the Muskrat Falls investment consistent with the regulated utility's weighted cost of capital. If the Muskrat Falls asset was developed directly within NL Hydro, it would be precisely at the regulated utility's cost of capital.

6. Please provide a summary of the current status of conservation and demand management programs of NLH and of NP for island consumers, including:

- **a. Most recent plans submitted to PUB for approval, and relevant PUB decisions**
- **b. Current program budget ($/yr) and objectives (kW and MWh savings per year)**
- **c. Expected evolution of budget and objectives over the coming years.**

See Nalcor reply to Panel re Part B scenario 2.

7. Please provide a summary of the current status of integrated resource planning processes of NLH and NP for Island consumer.

See Nalcor reply to Panel re Part B scenario 3.

Appendix 2 – Five Year Energy Conservation Plan 2008-2013

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

FIVE-YEAR ENERGY CONSERVATION PLAN: 2008 - 2013

Pursuant to Order No. P.U. 8 (2007)

JUNE 2008

CONTENTS

1.0 EXECUTIVE SUMMARY

The *Five-Year Conservation Plan: 2008-2013* (the Plan) provides an overview of the current conservation marketplace in the Province of Newfoundland and Labrador, and outlines the strategy to be implemented by Newfoundland and Labrador Hydro and Newfoundland Power (the Utilities) for joint conservation activities. The Plan outlines technologies, programs, supporting elements and cost estimates that support a long term goal of development of a conservation culture and sustainable reduction in electricity consumption.

This *Five-Year Conservation Plan: 2008-2013* follows the broad methodological guidance contained in Marbek Resource Consultant Inc.'s January 2008 study of conservation potential[1] (the Potential Study), and considers the current conservation marketplace. The specific programs described in the Plan were selected by the Utilities to deliver energy efficiency savings to customers over the next five years. However, it is expected that program offerings and conservation activities in the province will evolve through 2013. This strategy will remain flexible to address the changing landscape, as both Newfoundland and Labrador Hydro and Newfoundland Power ramp up their collective efforts to realize energy efficiency potential.

Delivery of these programs is scheduled to commence in 2009. The total estimated energy savings through 2013 under this plan are 79 GWh per year. The total estimated costs through 2013 are $28.7 million.

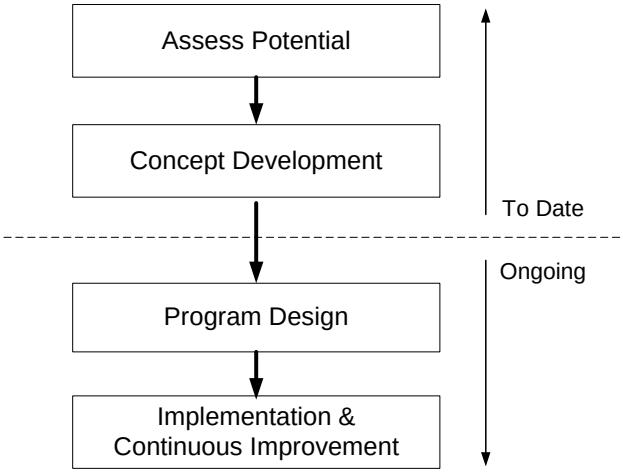
Figure 1 shows the major steps in program development. [2]

[1] The Potential Study was prepared by Marbek Resource Consultants Inc. jointly for Newfoundland and Labrador Hydro and Newfoundland Power. It was filed with the Board of Commissioners on Public Utilities (the Board) on March 20, 2008.

[2] The program development cycle was illustrated in the Potential Study *Program Evaluation Guidelines*, pp. 3.

Figure 1

CDM PROGRAM DEVELOPMENT: MAJOR STEPS



The Plan marks completion of concept development and the beginning of the program design phase.

2.0 OVERVIEW

2.1 Provincial Context

Public interest in energy conservation has increased materially over the recent past. This development has resulted from a number of factors including rising energy prices and a growing consciousness of the environmental impacts of energy usage. The Government of Newfoundland and Labrador's *2007 Energy Plan* clearly reflected an increased provincial public policy focus on improved overall energy efficiency.

The *2007 Energy Plan* announced the creation of the Energy Conservation and Efficiency Partnership (the ECEP) which will be chaired by the Provincial Department of Natural Resources. Both Utilities will be members of the ECEP.

The ECEP is currently in its formative stages and full membership is not yet fully established. However, the Department of Natural Resources (the Department) has taken the initiative to fund certain energy conservation programs that were delivered by the Utilities and community partners. In 2007, the Department contributed to the *Holiday Light Switch LED*[3] *Campaign* which encouraged electricity consumers to switch to more energy efficient LED Christmas season lighting and brought the support of the Council of Atlantic Premiers to the *SAVE CFL Campaign* which distributed compact fluorescent light bulbs (CFLs) in the Burin and Labrador West areas of the province.

The federal government also has a presence in the current conservation marketplace. The federal Department of Natural Resources' Office of Energy Efficiency publishes a number of consumer publications, and sponsors and participates in a variety of events and programs.[4]

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3 Light Emitting Diode (LED)

4 The federal Department of Natural Resources (NRCan) Office of Energy Efficiency provides copies of consumer publications for utility circulation to its customers. NRCan programs include *Dollars to $ense* (aimed at energy conservation for small business) and *EcoEnergy Retrofit* (aimed at energy efficiency retrofits of existing homes) and CIPEC (aimed at providing capital assistance for industrial efficiency projects). In this province, federal program participation has been low but will be encouraged through new utility programs.

2.2 Utility Approach

The electricity sector in the province has been part of these broader developments in energy conservation. Consumers of electricity have indicated a heightened interest in understanding how to conserve and an expectation that Utilities will provide them assistance in this regard.[5] The Utilities have renewed their focus on energy efficiency and conservation in response to consumer expectations.[6]

Current utility energy efficiency and conservation efforts are undertaken on a co-operative basis. Both customer information and programming offered by the Utilities are coordinated to provide consistency for customers.[7]

The Plan outlines a joint utility approach to development of provincial conservation and demand management (CDM) activities[8]. The Utilities recognize that providing conservation and efficiency programming is in line with efforts to be responsible stewards of provincial electrical energy resources and is also consistent with provision of least cost reliable electric service.

A network of retail and trade participants in the provincial energy efficiency marketplace is also evolving. The Utilities have developed partnerships with such participants over the past few years. In addition, non-profit organizations with a variety of environmental and social objectives have demonstrated an interest in energy efficiency.[9]

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5 Surveys conducted by both Newfoundland and Labrador Hydro and Newfoundland Power since 2005 have consistently indicated that both Utilities' customers feel conservation is important and expect Utilities to provide information that helps enable customers to conserve electricity.

6 In the early 1990s, an increase in customer conservation programming occurred across North America including in Newfoundland and Labrador. This substantially diminished throughout North America in the later 1990s.

7 Both Utilities, for example, currently offer *Wrap Up For Savings* and co-ordinate informational messaging for customers and tips information on their websites.

8 The programs outlined in the Five-*Year Conservation Plan: 2008-2013* are proposed as joint initiatives which will address the provincial market in its entirety and will be coordinated under a single electricity conservation brand. However, each utility may identify unique opportunities that are appropriate to address their own customers. For example, isolated diesel communities may present opportunities that could be addressed independently by Newfoundland and Labrador Hydro.

9 Amongst such non-profit organizations are *Newfoundland and Labrador Federation of Municipalities, Habitat for Humanity, Atlantic Canada Sustainable Energy Coalition, Torbay Environment and Trails Committee, Seniors 50Plus Federation* and the *Conservation Corps Newfoundland and Labrador.*

The Plan has taken into account current participation in the electricity marketplace. It specifically attempts to complement efforts by others in conservation to improve overall effectiveness.

2.3 Conservation Potential

In January 2008, a comprehensive study of electricity conservation and demand management potential for the province was completed.

The Potential Study estimated the potential for electrical energy and demand savings on a sectoral basis (i.e., for each of the residential, commercial and industrial sectors). It also identified specific technologies available to assist in achieving that potential.

The Potential Study essentially provides a framework, consistent with current North American best practice, within which to assess conservation programming.[10] The findings enabled the Utilities to quickly focus on cost effective technologies for each sector and begin assessment of market characteristics which guide program concept development.

Market based data can also be expected to inform conservation planning and programming over the longer-term. The design, development and implementation of specific programs will yield information which will assist in both iterative revision/replacement of program offerings and broader conservation planning.[11] As forecasts and assumptions change, the potential available for overall conservation can be expected to change.[12]

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[10] The Potential Study includes *Program Evaluation Guidelines* which recommend specific metrics for assessing program cost effectiveness including the Total Resource Cost, Societal Cost Test and the Rate Impact Measure. See: *Program Evaluation Guidelines*, pp. 15 *et seq.*

[11] The use of market research as a tool in the program design and evaluation cycle is described at *Program Evaluation Guidelines*, pp. 3 *et seq.*

[12] During the concept development phase, many of the data inputs to the Potential Study were refined to reflect more recent data. For example, while the Potential Study indicated significant savings potential for Compact Fluorescent Lights in the residential market, recent market research found stronger growth in CFL penetration than had earlier data. This challenged the economics of a CFL rebate program.

Figure 2 shows the provincial energy usage forecast used in the Potential Study (the reference case), and the upper and lower achievable potentials estimated by the Potential Study[13].

Figure 2

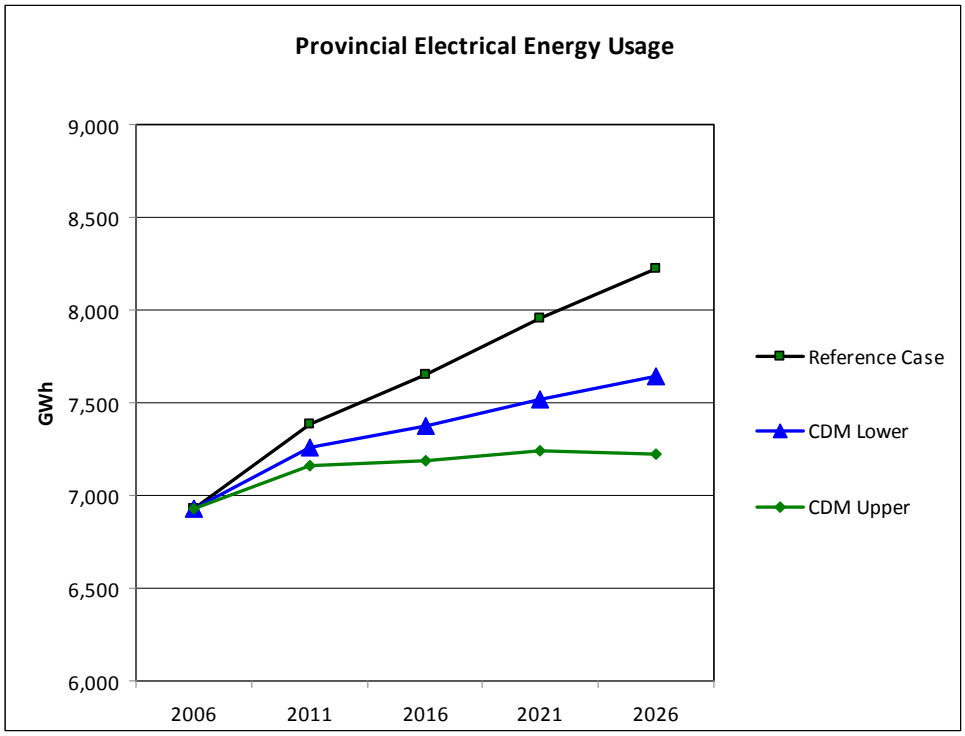

Figure 2 shows that over time, the cumulative effects of implementing cost effective technologies can significantly reduce the forecast growth in electrical usage.

The Potential Study estimated energy savings at five-year intervals. At the end of the first interval, 2011, the Potential Study shows a lower achievable potential savings of approximately 124 GWh. This compares with savings of 79 GWh currently estimated for the specific programs identified in the Plan.[14]

[13] The Potential Study examined two scenarios for conservation programming, with the Lower Achievable being a less aggressive approach and the Upper Achievable being a more aggressive approach. The achievable savings included considerations of market barriers, complementary programs and agencies, as well as other factors.

[14] As additional programs are developed during the planning period, expected savings will increase.

2.4 Other Considerations

The long-term course of conservation programming can be expected to evolve as the estimates of the cost of new electricity supply evolve. This reflects the essential fact that *cost effective* conservation programs will be those that yield benefits in excess of estimated new or future supply options. The supply outlook beyond 2014 for the Island Interconnected System is somewhat clouded by the possible Lower Churchill/Infeed project currently being assessed. If it does proceed, this project will impact the economic evaluation of conservation programming.

The consumer price of electricity could also affect conservation programming economics into the future. Currently, Newfoundland Power is undertaking a comprehensive rate review with a primary focus on economic efficiency in electricity pricing. While the results of this review may ultimately impact conservation programming, no particular assumption has been made regarding that review in the Plan.

3.0 FIVE-YEAR CONSERVATION PLAN: 2008-2013

3.1 The Plan in General

The Plan has been prepared jointly by the Utilities. It is anticipated that it will be updated periodically as program development and implementation capability develops and the conservation marketplace evolves.

The Plan adopts the sector based approach to conservation planning and programming used in the Potential Study. The detailed design of the programs in this plan will follow from the recommendations of the Potential Study and will consider lessons learned from other utilities in CDM program delivery. In addition, the types of programs included are broadly consistent with those currently offered by public utilities in Canada.[15]

The specific program focus of the next five years is *energy* conservation. Current high marginal energy costs (which predominantly reflect fuel costs) on both the Island Interconnected System and isolated systems justify such a focus.[16] However, it should be noted that because of the strong link between energy and demand, the programs launched will also bring about demand reductions.[17]

The principal focus for programming is the near term period 2009-2010. The last three years of the current five-year planning horizon (i.e., 2011-2013) are expected to have materially expanded program offerings to address additional energy conservation technologies. Program development and implementation capabilities will be increased and additional information will be obtained through continued market research and experience from the delivery of initial programs.

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15 Differences from other jurisdictions are largely due to local market factors, and the need for the Utilities to ramp up their delivery capacity and gain expertise before increasing the level of programming offered.

16 Newfoundland and Labrador Hydro's current system planning criteria for the Island Interconnected grid also has a significant energy focus. In other jurisdictions, pressures to build new generation capacity for peak load periods may result in more focus on demand savings or peak reductions.

17 Newfoundland Power's existing Demand Management activities (Curtailable Service Option and Facilities Management) will continue but are excluded from the Plan.

3.2 Program Selection

The development of the specific programs in the Plan has been based on a market assessment for Newfoundland and Labrador. The programs and supporting initiatives outlined address the market barriers and opportunities, providing communication and education initiatives in addition to rebate and incentive programs. The broad program concepts have been defined, which will lead to detailed program design and implementation.[18]

The Potential Study used avoided cost screening[19] to develop the list of economically viable technologies. This cost screen identified a large number of potential technologies, which warrant investigation of associated program delivery costs.

In addition, implementation capability of the Utilities was a primary criterion in program selection. The selected programs build on the current capacities of the Utilities gained through existing and past incentive programs, partnered initiatives and education efforts.

The selected technologies reflect the refinement of the energy conservation potential and economics identified in the Potential Study, through updated local market information and program cost estimates. The primary metric for assessing program cost effectiveness proposed in the Potential Study is the Total Resource Cost (TRC) test.[20] Each program implemented by the Utilities will have a positive TRC result.[21]

Schedule A contains the program descriptions for the Plan.

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[18] Detailed program design will include (i) completion of comprehensive market research and determination of appropriate incentives, (ii) identifying the required market relationships (i.e., service and product supply) for program delivery, (iii) creation of customer information, (iv) development of necessary systems and procedures to support the program, and (v) establishing appropriate parameters for ongoing program monitoring and evaluation.

[19] The screen was based on avoided costs from an earlier study conducted by NERA Economic Consulting, entitled Marginal Costs of Generation and Transmission, completed in May 2006 for Newfoundland and Labrador Hydro.

[20] The TRC test measures the net program benefits against program costs. See: *Program Evaluation Guidelines*, pp. 15 *et seq*.

[21] The TRC results for each program are found on the program profile templates found in Schedule A.

3.3 Specific Programs

The programs selected for implementation in the near term period 2009 - 2010 are as follows:

- Residential Windows
- Residential Thermostats
- Residential Insulation
- Commercial Lighting
- Industrial Customer Custom Projects

Programs for the residential sector are aimed at space heating and include *Energy Star* windows, programmable and high efficiency thermostats, and insulation. For the window and thermostat programs, a relatively high level of market information is available from product retailers, wholesalers and manufacturers currently in the conservation marketplace. For the insulation program, market data is more disaggregated and refining data more challenging. Market information from the existing rebate programs offered by the Utilities has been useful for the thermostat and insulation programs.

Commercial programming is focused on lighting, which the Potential Study identified as the single largest area of opportunity for this sector. Data for the lighting market is also disaggregated, and further research will be required for detailed program design. Utilities in other Canadian jurisdictions have used this type of program as a point of entry to the commercial conservation market.[22]

The approach to the industrial sector responds to the unique nature of industrial facilities, with a program based on custom engineering proposals, as established in other jurisdictions.

Table 1 shows energy reduction estimates associated with the specific programs outlined in the Plan.

[22] Based on information from Hydro Ottawa and Fortis BC.

Table 1
Conservation Programs
Energy Reduction Estimates: 2008-2013
by Sector
(MWh)

	2008[23]	2009	2010	2011	2012	2013
Residential	1,120	5,690	10,950	16,950	23,830	31,520
Commercial	-	590	1,760	2,930	2,930	2,930
Industrial[24]	-	-	-	20,000	45,000	45,000
Total	**1,120**	**6,280**	**12,710**	**39,880**	**71,760**	**79,450**

Estimated energy savings for the residential sector reflect existing programs and program development capability of the Utilities, which have largely focused on this sector. Commercial sector energy savings reflect program growth in a sector that is relatively new to the Utilities. Industrial sector estimates are based on ongoing consultation with transmission level customers.[25]

Table 2 shows cost estimates for the specific programs outlined in the Plan.

Table 2
Conservation Programs
Program Cost Estimates: 2008-2013[26]
by Sector
($000s)

	2008[27]	2009	2010	2011	2012	2013	Total
Residential	330	1,930	1,830	2,180	2,170	2,470	10,910
Commercial	-	290	310	340	-	-	940
Industrial	100	1,470	2,640	4,270	-	-	8,480
Total	**430**	**3,690**	**4,780**	**6,790**	**2,170**	**2,470**	**20,330**

[23] 2008 energy reduction estimates reflect existing programs.
[24] The Potential Study industrial sector savings did not include the customers' self-generation supplied energy. However, these are included here.
[25] Expected energy reductions are consistent with the Potential Study overall. On a sectoral basis, differences with the Potential Study reflect new market information and the current program development capabilities of the Utilities.
[26] Estimates include all costs associated with specific programs, including program research, design, incentives, marketing, and management.
[27] 2008 program cost estimates reflect existing programs and new program development.

Within the planning period, the Utilities will continue to assess applicability of additional technologies outlined in the Conservation Potential Study for local market conditions. For the residential sector, assessment of heating technologies and the market for energy efficient appliances and energy monitoring devices may result in program initiatives. For the commercial sector, an expansion of more customized incentives in the area of lighting will be assessed, and programs implemented where justified. Incentives for other commercial end uses, including HVAC, refrigeration and the building envelope, will also be assessed for program potential. For the industrial sector, programming is expected to be more customized to better achieve potential efficiencies in this small customer group.

3.4 Education, Support and Planning

The successful implementation of a conservation plan over the long-term will require continuing efforts in general customer energy awareness and support. In addition, ongoing development and evaluation of potential programs will be required. These activities, while justified, will not be associated with the implementation of specific programs.[28]

Table 3 shows cost estimates for education, support and planning for the period 2008 to 2013.

[28] For example, informational, promotional, or educational effects aimed at brand awareness (i.e., *Energy Star* appliances) or products (i.e., compact fluorescent lighting) may not be related to a specific utility program but still be valuable to customers.

Table 3

Education, Support and Planning Cost Estimates: 2008-2013 ($000s)							
	2008[29]	**2009**	**2010**	**2011**	**2012**	**2013**	**Total**
Education[30]	580	660	750	770	820	900	4,480
Support[31]	150	120	150	180	190	220	1,010
Planning[32]	440	290	630	550	550	410	2,870
Total	**1,170**	**1,070**	**1,530**	**1,500**	**1,560**	**1,530**	**8,360**

The Utilities currently estimate that the aggregate cost associated with these activities will average approximately $1.4 million per year from 2008 through 2013.

3.5 Cost Recovery & Regulatory Approach

Schedule B contains a summary of currently estimated program costs and energy savings associated with the Plan.

The currently estimated costs are material: $1,600,000 in 2008 and $4,760,000 in 2009. They are not fully reflected in the current rates of either Newfoundland and Labrador Hydro or Newfoundland Power.[33]

Each of the specific programs outlined in the Plan will be subject to cost-effectiveness tests *prior* to implementation. The implementation of each is expected to be economically attractive when compared to the forecast cost of energy produced and

[29] 2008 cost estimates reflect existing and new activities in education, support and development.
[30] Education costs are principally costs associated with promoting energy awareness and include advertising, outreach events, and initiatives in partnership with others. Joint branding for electricity conservation will begin with the launch of these new programs.
[31] Support costs are principally costs associated with customer interaction focused on energy efficiency. As these costs support the full CDM portfolio but cannot be connected to specific programs, a portion of them will be included in assessing overall program cost effectiveness.
[32] Planning costs are the costs of program planning, development management and evaluation.
[33] Current rates of Newfoundland and Labrador Hydro and Newfoundland Power are based upon aggregate cost recovery for conservation of approximately $1,044,000 (Newfoundland and Labrador Hydro, $400,000; Newfoundland Power $644,000.)

delivered in the absence of implementation.[34] Accordingly, recovery of the costs of the programs in rates will be justified on a cost-of-service basis.

The estimates associated with the Plan reflect the current state of program development and can be expected to be refined as detailed program design progresses in 2008. To enable development and implementation of the specific programs in 2008 and 2009 will require the matter of cost recovery to be addressed, at least on an interim basis, prior to the end of 2008.[35]

[34] The primary metric for assessing program cost effectiveness proposed in the Potential Study is the Total Resource Cost (TRC) test. The TRC test measures the net program benefits against program costs. See: *Program Evaluation Guidelines*, pp. 15 *et. seq*.

[35] The Utilities are examining regulatory approaches in other jurisdictions and their applicability to this situation. Considerations include determining accounting treatments, cost allocation among ratepayers, communications and reporting mechanisms.

4.0 OUTLOOK

The majority of specific programs outlined in the Plan target the residential sector. To a degree, this is reflective of current program development capability. It is the current outlook of Newfoundland and Labrador Hydro and Newfoundland Power that the program offering will expand during the period to 2013.

During the planning period, the Utilities will undertake a reassessment of the conservation potential. This will assist in ensuring that utility conservation programming remains both responsive to potential in an evolving conservation market and complementary to initiatives undertaken by other participants, including governments. A reassessment of potential with respect to marginal cost updates will also assist in ensuring that programming continues to capture all cost effective technologies to reflect evolving system supply scenarios. Continued involvement in the marketplace will ensure programming continues to reflect the evolving marketplace.

The Utilities intend to work closely with the ECEP to ensure a consistent and coordinated approach is maintained in the delivery of conservation in the provincial marketplace.

Newfoundland and Labrador Hydro and Newfoundland Power expect that an appropriate means of stakeholder participation in conservation planning will develop through the ECEP in the near term.

The ECEP may also provide access to government funding to bridge particular barriers such as those in residential low-income program areas, and facilitate implementation of appropriate standards to support energy conservation.

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							

Schedule B
Page 1 of 1

Table B1
Conservation Programs
Program Cost Estimates: 2008-2013
by Sector
($000s)

	2008	2009	2010	2011	2012	2013	Total
Residential							
Insulation Program	260	1,210	1,210	1,400	1,430	1,590	7,100
Thermostat Program	30	300	220	280	230	270	1,330
Energy Star Windows Program	40	420	400	500	510	610	2,480
Commercial							
Lighting Rebate Program	-	290	310	340	-	-	940
Industrial							
Custom Retrofit Project Rebate Program	100	1,470	2,640	4,270	-	-	8,480
Total	**430**	**3,690**	**4,780**	**6,790**	**2,170**	**2,470**	**20,330**

Table B2
Conservation Programs
Energy Reduction Estimates: 2008-2013
by Sector
(MWh)

	2008	2009	2010	2011	2012	2013
Residential						
Insulation Program	1,060	5,190	9,730	14,720	20,220	26,260
Thermostat Program	60	270	650	1,210	1,910	2,650
Energy Star Windows Program	-	230	570	1,020	1,700	2,610
Commercial						
Lighting Rebate Program	-	590	1,760	2,930	2,930	2,930
Industrial						
Custom Retrofit Project Rebate Program	-	-	-	20,000	45,000	45,000
Total	**1,120**	**6,280**	**12,710**	**39,880**	**71,760**	**79,450**

File No. _____

NEWFOUNDLAND AND LABRADOR HYDRO
Head Office: St. John's, Newfoundland P.O. Box 12400 A1B 4K7
Telephone (709) 737-1400 • Fax (709) 737-1231 • Website: www.nlh.nf.ca

November 21, 2008

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road
P.O. Box 21040
St. John's, Newfoundland & Labrador
A1A 5B2

Attention: Ms. Cheryl Blundon
Director Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: Application for the approval of a deferral account for the deferred recovery of Hydro's Conservation and Demand Management program costs proposed to be incurred in 2009.

In June 2008, a Five-Year Energy Conservation Plan: 2008-2013 (the Plan) was filed with the Board pursuant to Order No. P.U. 8 (2007). The Plan outlined a proposed energy conservation plan to be implemented jointly by Hydro and Newfoundland Power and reflected the methodological guidance contained in Marbek Resource Consultant Inc.'s January 2008 study of conservation potential which was filed with the Board on March 20, 2008.

The specific programs described in the Plan are scheduled to commence in 2009. Costs to implement the Plan, estimated to be $1.8 million, were not included in the conservation and demand management costs which comprised a portion of Hydro's 2007 approved expenses for rates set by Order No. P.U. 8 (2007). As such, the electricity rates charged to Hydro's customers in 2009 will not recover the costs of the energy efficiency programs outlined in the Plan.

Hydro is applying to the Board for the deferral of the costs to be incurred by Hydro that are associated with the 2009 implementation of the conservation and demand management programs outlined in the Plan.

Please find enclosed fifteen (15) copies of the above noted Application together with draft order and supporting affidavit of Robert Henderson adopting as pre-filed evidence the attached 2009 Conservation Cost Deferral report. Please note that following a discussion with Ms. Jaqueline Glynn, Legal Counsel for the Board, it was determined that the aforementioned Plan and the Marbek Resource Consultant Inc. Report, which are incorporated into this Application by reference, need not be physically attached to this Application at this time. These documents have already been filed with the Board as aforesaid and have been re-filed by Newfoundland Power on October 29, 2008 in an application that is similar to the present. Of course, should the Board determine that these documents should be re-filed in this matter, Hydro would do so forthwith.

Should you have any questions about any of the enclosures or as to the foregoing, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Geoffrey P. Young
Senior Legal Counsel

cc: Mr. Peter Alteen - Newfoundland Power
Mr. Gerard Hayes – Newfoundland Power
Mr. Thomas Johnson – Consumer Advocate
Mr. Joseph S. Hutchings, Q.C., Poole Althouse
Mr. Paul Coxworthy – Stewart McKelvey Stirling Scales

IN THE MATTER OF the *Public Utilities Act*, (the Act); and

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro (Hydro) for the approval, pursuant to Section 58 and 80 of the Act, of a deferral account to provide for the deferred recovery of certain conservation program costs proposed to be incurred in 2009.

TO: The Board of Commissioners of Public Utilities (the Board)

THE APPLICATION OF NEWFOUNDLAND AND LABRADOR HYDRO (Hydro) STATES THAT:

1. Hydro is a corporation continued and existing under the Hydro Corporation Act, is a public utility within the meaning of the Act and is subject to the provisions of the *Electrical Power Control Act, 1994*.

2. The issue of energy conservation was discussed during Hydro's 2006 General Rate Application. As part of its energy conservation initiatives, Hydro, with the co-operation of Newfoundland Power, had issued a request for proposals for a study, referred to as a Conservation and Demand Management (CDM) Potential Study (the Potential Study) to determine the potential for energy conservation in the Province and to examine what types of programs could be implemented to yield positive results in terms of energy conservation. A five-year strategic plan with respect to energy conservation initiatives was developed from the Potential Study.

3. By Order No. P.U. 8 (2007) the Board required Hydro to file, no later than June 30, 2008, a report outlining its five-year strategic plan with respect to energy conservation initiatives, which was to include a copy of the Potential Study.

4. On March 20, 2008, the Potential Study, prepared by Marbek Resource Consultants Ltd. for Hydro and Newfoundland Power, was filed with the Board. The Potential Study identified the potential contribution of specific technologies and measures in reducing forecast electricity consumption.

5. On June 27, 2008, a Five-Year Energy Conservation Plan: 2008-2013 (the Plan) pursuant to Order No. P.U. 8 (2007) was filed with the Board. The Plan outlined energy efficiency programs to be implemented jointly by Hydro and Newfoundland Power. The Plan reflects the results of the Potential Study.

6. Costs to implement the Plan, estimated to be $1.8 million in 2009, were not included in the conservation and demand management costs which comprised a portion of Hydro's 2007 Test Year approved expenses for rates set by Order No. P.U. 8 (2007). As such, the electricity rates charged to Hydro's customers in 2009 will not recover the costs of the energy efficiency programs outlined in the Plan.

7. The estimated cost of $1.8 million in 2009 to implement the Plan are:

(a) Consistent with the management and operation of sources and facilities for the production, transmission and distribution of power in a manner that results in power being delivered to consumers in the province at the lowest possible cost consistent with reliable service as required by Subparagraph 3(b) (iii) of the *Electrical Control Act, 1994*;

(b) Justified under tests consistent with generally accepted sound public utility practice as required by Section 4 of the *Electrical Power Act, 1994*; and

(c) Reasonable and prudent and properly chargeable to operating account in accordance with Subsection 80(2)

8. On October 29, 2008 Newfoundland Power applied to the Board for approval of the creation of a deferral account to provide for the deferred recovery of 2009 costs related to the implementation of the Plan.

9. Hydro makes Application that the Board make an Order approving the creation of a deferral account to provide for the deferred recovery of an estimated $1.8 million in 2009 costs to implement the Plan.

DATED AT St. John's in the Province of Newfoundland and Labrador this 21st day of November 2008.

Geoffrey P. Young
Senior Legal Counsel
Newfoundland and Labrador Hydro,
500 Columbus Drive, P.O. Box 12400
St. John's, Newfoundland, A1B 4K7

IN THE MATTER OF the *Public Utilities Act*, (the Act); and

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro (Hydro) for the approval, pursuant to Section 58 and 80 of the Act, of a deferral account to provide for the deferred recovery of certain conservation program costs proposed to be incurred in 2009.

TO: The Board of Commissioners of Public Utilities (the Board)

AFFIDAVIT

I, Robert J. Henderson, Professional Engineer, of the City of St. John's, in the Province of Newfoundland and Labrador, make oath and swear as follows:

1. THAT I am employed by Newfoundland and Labrador Hydro, the Applicant herein, in the capacity of Manager, System Operations and Customer Services, and as such I either have personal knowledge, or I have been so informed and do verily believe, as the case may be, of the matters and things to which I have herein deposed and I make this affidavit in support of the within Application.

2. THAT I have read the contents of the Application and the attached *2009 Conservation Cost Deferral Report* and state they are correct and true to the best of my knowledge, information and belief.

SWORN TO BEFORE ME in the City of St. John's, in the Province of Newfoundland and Labrador this 21st day of November 2008.

A Barrister - Newfoundland and Labrador

R J Henderson

Robert J. Henderson

(DRAFT ORDER)
NEWFOUNDLAND AND LABRADOR
AN ORDER OF THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

NO. **P.U. __ (2008)**

IN THE MATTER OF the *Public Utilities Act*, (R.S.N. 1990, Chapter P-47 (the *Act*), and

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro (Hydro) for the approval, pursuant to Section 58 and 80 of the Act , of a deferral account to provide for the deferred recovery of certain conservation program costs proposed to be incurred in 2009.

WHEREAS Hydro is a corporation continued and existing under the *Hydro Corporation Act*, is a public utility within the meaning of the *Act* and is also subject to the provisions of the *Electrical Power Control Act, 1994*; and

WHEREAS the Board in Order No. P.U. 8 (2007) required Hydro to file, no later than June 30, 2008, a report outlining its five-year strategic plan with respect to energy conservation initiatives, which was include a copy of the Potential Study; and

WHEREAS on March 20, 2008, the Conservation and Demand Management Potential Study, prepared by Marbek Resource Consultants Ltd. for Hydro and Newfoundland Power, was filed with the Board.; and

WHEREAS on June 27, 2008, a Five-Year Energy Conservation Plan: 2008-2013 (the Plan), pursuant to Order No. P.U. 8 (2007), was filed with the Board; and

WHEREAS the costs to implement the Plan, estimated to be $1.8 million in 2009, were not included in the conservation and demand management costs which comprised a portion of Hydro's 2007 Test Year approved expenses for rates set by Order No. P.U. 8 (2007); and

WHEREAS the estimated cost of $1.8 million in 2009 to implement the Plan are:

(a) Consistent with the management and operation of sources and facilities for the production, transmission and distribution of power in a manner that results in power being delivered to consumers in the province at the lowest possible cost consistent with reliable service as required by Section 3(b) (iii) of the Electrical Control Act, 1994; and

(b) Justified under tests consistent with generally accepted sound public utility practice as required by Section 4 of the Electrical Power Act, 1994; and

WHEREAS Hydro has applied for approval of the creation of a deferral account to provide for the deferred recovery of an estimated $1.8 million in 2009 costs to implement the Plan; and

WHEREAS the Board has considered Hydro's application and the materials filed therewith.

IT IS THEREFORE ORDERED THAT:

1. The creation of a deferral account to provide for the deferred recovery of 2009 costs to implement the Plan is approved.
2. Hydro shall pay the expenses of the Board incurred in connection with this Application.

DATED at St. John's, Newfoundland and Labrador, this __ day of 2008.

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

2009 Conservation Cost Deferral Report

NEWFOUNDLAND AND LABRADOR HYDRO

NOVEMBER 2008

Table of Contents

1 INTRODUCTION

The purpose of this Application is to seek approval from the Board of Commissioners of Public Utilities (the Board) for the deferral of the costs to be incurred by Newfoundland and Labrador Hydro (Hydro) that are associated with the 2009 implementation of the Conservation and Demand Management (CDM) Programs outlined in the Five Year Conservation Plan: 2008-2013 (the Plan).[1] Hydro and Newfoundland Power (NP) (the Utilities) will cooperate in the administration and promotion of these CDM programs. However, this Application will address only those costs to be incurred by Hydro associated with the delivery of the programs. The program costs to be incurred by NP are subject to a separate application by NP. The costs for which Hydro is requesting a deferral are estimated to be $1.8 million in 2009 and were not included in the conservation and demand management costs which comprised a portion of Hydro's 2007 Test Year approved expenses for rates set by Order No. P.U. 8 (2007).

[1] The Five-Year Energy Conservation Plan: 2008-2013 was filed with the Board on June 27, 2008.

2 BACKGROUND

Energy Conservation Initiatives were a topic of discussion during Hydro's 2006 GRA. At that time, Hydro, in cooperation with NP, was in the process of issuing a request for proposals for the completion of a Conservation and Demand Management Potential Study (the Potential Study) that would provide information to assist the Utilities in identifying cost-effective conservation programs. From the Potential Study a five-year strategic plan with respect to energy conservation initiatives would be completed.

Marbek Resource Consultants Limited (Marbek) was commissioned to complete the Potential Study. In January 2008 the Potential Study was completed. It identified the potential contribution of specific technologies and measures in reducing forecast electricity consumption. The Potential Study was filed with the Board on March 20, 2008 and the Plan was filed with the Board on June 27, 2008 (Both the Potential Study and the Plan were filed with the Board by Newfoundland Power as attachments to its October 29, 2008 CDM Cost Deferral filing. Upon the Board's request, these would be re-filed by Hydro in this matter.)

The Plan outlined proposed energy conservation initiatives to be implemented jointly by the Utilities, including technologies, programs, support elements and cost estimates that promote a long term goal of an established conservation culture with sustained reductions in electricity consumption. The Plan followed the methodological guidance contained in the Potential Study and is consistent with a focus of the Government of Newfoundland and Labrador's 2007 Energy Plan to create a culture of conservation.[2]

[2] Focusing Our Energy, Newfoundland and Labrador Energy Plan, page 62.

3 THE PROGRAM PORTFOLIO

3.1 Portfolio Overview

The Plan outlined initial electricity conservation program offerings for residential, commercial and industrial sectors. Its implementation is estimated to reduce provincial customer energy consumption by 70 GWh per year by 2013 at a cost of $ 27.7 million.

As the Utilities move forward it is expected that the listed portfolio of programs will change and expand beyond the initial five year planning horizon, reacting to program evaluation results, market changes, electrical system changes, and advances in energy conservation and efficiency technologies. The Plan engages all sectors (residential, commercial and industrial) and provides for incentives, outreach and awareness and other supports. It will address marketplace barriers to the implementation of energy efficiency technologies, ranging from financial to education and awareness.

3.2 Portfolio Philosophy

The goal is to ensure emphasis on the right technologies within the right market conditions. In order for a program to be chosen, it must be cost effective, have strong savings potential, and address an existing barrier in the market place. Other considerations are to focus on proven technologies being addressed by utilities in other jurisdictions[3] and to make programs available to each sector. The initial portfolio outlined in the Plan addresses this, focusing

[3] Residential thermostat programs are currently being offered by Hydro Quebec. Residential insulation and Energy Star windows programs are being offered by Manitoba Hydro and Fortis BC. Commercial lighting programs are being offered by Nova Scotia Power, and BC Hydro. This data was gathered through the respective utility websites.

on residential electric space heating, commercial lighting and providing flexible opportunities for industrial customers.

There may be other opportunities examined that are specifically appropriate for certain customer groups within a sector, for example, isolated diesel communities where electricity is more expensive to generate. In subsequent planning periods, the program mix will be re-examined to ensure a continued emphasis on appropriate end uses and delivery methods.

3.3 Programs

The CDM programs included in the costs to be deferred in this Application are:

- Residential Windows;
- Residential Thermostats;
- Residential Insulation;
- Commercial Lighting; and
- Industrial Customer Custom Projects.

Appendix A contains the program descriptions associated with the 2009 CDM portfolio.

These programs are designed to assist the Utilities' respective customers in reducing energy consumption. The primary benefit is expected to be fuel savings in the supply of energy for Island Interconnected customers. Further fuel savings are anticipated to be achieved from participating customers in the Isolated Systems. The programs are a combination of information-based and cost-recovery programs, whereby the customer receives a contribution towards the purchase and installation of energy efficient devices.

The residential sector technologies focus on reductions to heating energy, the prime driver of residential electricity use.[4] Increased insulation, Energy Star windows and high accuracy thermostats provide for a complementary suite of technologies that focus the homeowner on their heating usage and building envelope improvements for the greatest conservation impact.[5]

For the commercial sector the single largest end use is lighting.[6] There are many lighting technologies used in commercial settings and the program outlines incentives for a range of efficient technologies to address these applications. This program has had significant refinement since the filing of the Plan resulting in an expansion to the range of technologies offered for rebate to target increased savings and better meet the needs of the commercial sector[7]. This program will follow the model of programs currently being offered in New Brunswick and Nova Scotia.

[4] Marbek indicated in the Potential Study, Residential Sector, Exhibits 2.19 and 2.21, p 28-30, that 41% of residential electricity consumption is for space heating in the Island and Isolated service region and in the Labrador Interconnected service region. Exhibits 6.16 through 6.19, p 130-131, indicate 16% to 32% of achievable energy savings in the Island and Isolated service region and 48% to 66% in the Labrador Interconnected service region is in space heating. Note that in the Potential Study the Island Interconnected and Isolated systems were combined and referred to as the "Island and Isolated service region".

[5] As a result of the focus on electric heating, residential customers on the Island Interconnected and Isolated systems utilizing other primary heating sources will generally not be eligible for these programs.

[6] Marbek indicated in the Potential Study, Commercial Sector, Exhibits 2.7 and 2.8, p 15-16 that 35% of commercial electricity consumption is for lighting applications in the Island and Isolated service region and 33% in the Labrador Interconnected service region. Exhibits 6.17 through 6.19, p 109-110, indicate 45% to 57% of achievable energy savings in the Island and Isolated service region and 48% to 58% in the Labrador Interconnected service region is in lighting applications. Note that in the Potential Study the Island Interconnected and Isolated systems were combined and referred to as the "Island and Isolated service region".

[7] It is anticipated that all general service customers in all systems will eligible for this program.

The Industrial sector has a complex end use profile and faces specific challenges and opportunities when implementing conservation projects. A customized approach, allowing industrial customers to work with Hydro to explore a range of technologies and opportunities, is best suited to dealing with their unique situations, and is common among other utilities.[8] This approach would be based on the analysis of specific engineering proposals.

[8] Customized Industrial programs are currently being offered by Nova Scotia Power and Manitoba Hydro.

4 PROGRAM COSTS

4.1 Energy Savings and Program Costs

For the technologies proposed to be implemented and from the anticipated level of customer participation, by 2013 energy savings are estimated to be 70 GWh per year (see Table 1). In the residential and commercial sectors savings will begin in the first year of the program. However, due to the scale and scope of the industrial program retrofit initiatives, savings in that sector will start later in the program life cycle. The total estimated Hydro and Newfoundland Power program costs are $3.9 million in 2009 (see Table 2).

Table 1: CDM Program Savings

CDM Program Portfolio
Energy Conservation Estimates: 2009-2013
by Sector
(MWh)

	2009	2010	2011	2012	2013
Residential					
Insulation Program	2,472	5,191	8,181	11,170	14,160
Thermostat Program	292	677	1,103	1,622	2,181
ENERGY STAR Windows Program	346	730	1,154	1,653	2,207
Commercial					
Lighting Rebate Program	722	1,720	2,988	4,518	6,333
Industrial					
Customer Retrofit Project Rebate Program			20,000	45,000	45,000
Total	3,832	8,317	33,427	63,963	69,881

Table 2: CDM Program Costs

CDM Program Portfolio Program Cost Estimates: 2009-2013 by Sector ($000s)	2009	2010	2011	2012	2013
Residential					
Insulation Program	884	827	966	862	912
Thermostat Program	424	378	459	397	441
ENERGY STAR Windows Program	668	566	666	646	730
Commercial					
Lighting Rebate Program	439	433	517	478	550
Industrial					
Customer Retrofit Project Rebate Program	1,466	2,638	4,266		
Total	3,881	4,843	6,875	2,384	2,634

Both the energy savings estimates and program costs have changed from those described in the Plan for the Residential and Commercial sectors. Any changes to the Industrial sector are a result of rounding. Table 3 and Table 4 quantify, by sector, the change in savings estimates and program costs.

Table 3: Change in CDM Program Savings

CDM Program Portfolio Energy Conservation Changes: 2009-2013 Difference from Five-Year Energy Conservation Plan by Sector (MWh)	2009	2010	2011	2012	2013
Residential					
Insulation Program	-2,718	-4,539	-6,539	-9,050	-12,100
Thermostat Program	22	27	-107	-288	-469
ENERGY STAR Windows Program	116	160	134	-47	-273
Commercial					
Lighting Rebate Program	132	-40	58	1,588	3,403
Total Change	-2,448	-4,392	-6,454	-7,797	-9,439

Table 4: Change in CDM Program Costs

CDM Program Portfolio Program Cost Changes: 2009-2013 Difference from Five-Year Energy Conservation Plan by Sector ($000s)	2009	2010	2011	2012	2013
Residential					
Insulation Program	-326	-383	-434	-568	-678
Thermostat Program	124	158	179	167	171
ENERGY STAR Windows Program	248	166	166	136	120
Commercial					
Lighting Rebate Program	149	123	177	478	550
Total Change	195	64	88	213	163

Estimated residential program energy savings are less than those shown in the Plan. These reduced energy savings estimates reflect the improved energy modeling[9] and market information gathered as the programs were refined.[10] The commercial program energy savings have increased since the Plan. These increased estimates reflect changes in the targeted lighting technologies, which will result in greater energy savings, and changes in the delivery mechanism[11], which are anticipated to increase program participation. Cost estimates within these programs have changed as a result of further refinement in concept development.

4.2 Economic Justification

The primary test for economic viability is the Total Resource Cost (TRC) test which includes both the participants' and Utility's costs and benefits as factors in the net value of the program.[12] Each program outlined in the Plan has a positive TRC, which means that the total program benefits exceed the total costs of the program.

[9] These changes reflect further research into the targeted uninsulated spaces (basements and attics), and the age of housing stock. Newer homes tend to be better insulated, providing less opportunity. As well further exploration of current program participation shows insulation projects tend to address portions of the home, not full basements. These factors reduce the energy savings and costs associated with this program.

[10] New housing forecasts are lower than originally forecasted, thereby reducing forecast participation and energy savings estimates.

[11] The primary change to the delivery mechanism is the extensive use of trade allies (commercial lighting distributers) which will provide easier access to the program for a wide range of commercial end users rather than a mass market commercial promotion.

[12] Marbek, Evaluation Guidelines, p. 16

The Newfoundland and Labrador context for utility CDM is unique in that there has been integration of the development process across two utilities. The overall program planning, economic analysis and implementation strategies are being developed collaboratively to address the service areas of both Hydro and NP. This collaboration has allowed the Utilities to reduce duplication of effort in the development stage and ensured the creation of a portfolio of programs that is able to address all electricity sectors with a range of cost effective CDM activities.

As a result of this integrated approach, the TRC analysis for the residential and commercial sectors has reflected the cost structures of the Island Interconnected system where the strong majority of the savings are expected to be achieved and the costs to be expensed.[13] Due to the higher avoided costs in the Isolated Diesel systems, any savings would result in a stronger economic justification, and therefore have not been analyzed separately. However, because of the low avoided costs in the Labrador Interconnected system the savings are lower for any program implementation.[14] The level of participation on the Labrador Interconnected system is expected to be low due to lower potential customer cost savings with lower rate structures creating a lesser economic driver. However, the costs to support the program in this system will also be minimal, consisting primarily of the actual rebates issued to participating customers. Hydro has compared the Cost of Conserved Energy (CCE) for each technology against the cost screen for the Labrador

[13] The Marbek study, Residential Sector, Exhibit 2.3, p. 11 indicated that 94% of the target customer group (Single Family Detached, electrically heated homes) customers are on the Island Interconnected and 6% on the Labrador Interconnected service regions. The Commercial Sector report, Exhibit 2.6, p.14, shows that 91% of the target commercial space is found on the Island Interconnected and 9% on the Labrador Interconnected service region.

[14] The costs screens used in the Marbek study analysis draw on the results of the earlier study conducted by NERA Economic Consulting, entitled: Marginal Costs of Generation and Transmission, completed in May 2006 for NL Hydro. The cost screens used in the Marbek study include generation, transmission and distribution.

Interconnected system and it confirms its economic viability on that system.[15] Also, given the low incremental costs and the low anticipated participation, these programs will be offered provincially to all customers on a fairness and equity basis.

For the Industrial sector, TRC analysis has been completed using a blended avoided cost for the Island and Labrador systems and includes potential savings from both regulated and non-regulated Industrial customers. The amount of energy savings to be realized and the degree of program participation for any industrial customer can be greatly influenced by many externalities in their business environment, making the direct costs associated with the non-regulated Labrador Industrials uncertain. This analysis has been conducted to determine the appropriateness of the programs at a provincial level and clearly indicate success for this sector.

Costs for the Labrador and Island Industrial customers will be tracked separately to ensure that only the appropriate costs are recovered through regulatory mechanisms. Industrial program development costs will be handled similarly to current Hydro functions serving both Labrador and Island systems.

In addition to the TRC test, a Rate Impact Measure (RIM) was developed for each program. The RIM test measures the impact on customer rates that occurs due to changes in a utility's revenues and costs caused by the program. The Potential Study indicated that the RIM test was useful to ensure that a potential portfolio of utility programs does not impose an undue rate increase

[15] Marbek, Summary Report, p.4, describes the definition and use of the CCE in determining technologies that are economic based on the comparison of the cost of savings to avoided costs of generation. This analysis is appropriate where there is not expected to be incremental program costs associated with reaching these customers.

on an individual customer or class of customers.[16] The RIM test assesses the impact of programs upon non-participants and therefore is a useful measure to ensure equity across rate payers. The total aggregate RIM of 1.28 for the residential and commercial sectors and RIM of 1.42 for the Industrial sector indicates that these programs will not tend to increase rates.

4.3 Hydro's Costs

Hydro has been working to educate customers on the benefits and methods to save energy since the inception of the HYDROWISE program in 2004. In 2006, the Utilities began pursuing an expansion of conservation activity through coordinated efforts and increased partnership. The costs included in this Application reflect a coordinated and collaborative approach to electricity conservation for the Province.

It is important to note that the costs associated with Hydro's delivery of this portfolio of programs reflect economies of scale in many cost categories as a result of the collaboration on a provincial level. The partnered approach will enable the provision of a cost effective portfolio, reaching the provincial marketplace with a single brand and suite of programs. The delivery of the programs will be offered by each utility to its own customers to ensure that the existing customer relationships are utilized and the Utilities can respond to the needs of their customers as they change. For example, there may be additional cost-effective opportunities or program delivery mechanisms that Hydro can implement to readily address Isolated Diesel areas or other more rural settings.

The main areas of costs are Program and Program Support. Program costs are directly associated with the delivery, evaluation and on-going operation

[16] See Marbek Evaluation Guidelines, page 16.

and promotion of a specific program. The Program Support costs involve a range of education, support and planning functions that cannot be directly associated with a particular program but are a foundation for the CDM portfolio and are critical to its success. The emphasis of effort will be on the direct programs planned by the Utilities. However it is important that customers continue to be engaged on conservation tips and opportunities on a wider scale than the specific technologies addressed by the CDM portfolio. The Program Support costs include continued communications and engagement of customers on a wide range of conservation opportunities, provision of management support and customer support functions, and provision of additional outreach opportunities. These costs are relatively stable and are expected to remain so throughout the planning period. Table 5 contains Hydro's Program Support costs.

Table 5: Hydro's Program Support Costs

Newfoundland and Labrador Hydro 2009 CDM Program Support Costs ($000s)	
Education	196
Support	66
Planning	195
Total	457

Program costs are not stable in that they are driven by program participation, which can be affected by a number of factors outside the utility's control, and estimates have been made as to the activity levels for each year in the planning period.

It should be noted that the industrial sector costs are significant within the provincial portfolio. These costs are reasonable because of the difference in approach, the unique customers involved, and the magnitude of the savings to be achieved. As outlined in the Industrial Custom Program Description in Appendix A, the current program is a pilot. A long term delivery mechanism will be developed once the pilot program has been evaluated.

In accordance with Board Order P.U. 8 (2007), an industrial rate review report has been field with the Board which may have impacts on the rebate levels for this program. While it is unclear as to the impact this will have on the long term rebate levels, there should be no impact in 2009.

The program design for the industrial sector was developed with the assistance of Willis Energy Services Ltd.[17] and identifies an approach specific to the realities of this complex sector. The following excerpt from the concept report[18] prepared by Willis[19] provides an overview of the main program cost drivers:

The overall program strategy will be built on the following major components:

- Capital incentives for verifiable energy savings;
- Enabling incentives to enable energy savings by offering a suite of energy management initiatives to identify and investigate opportunities;
- Proactive program management to market, originate, follow-up, and process participant applications;

[17] Willis Energy Services Ltd. is an energy consulting firm with more than 20 years experience offering engineering, regulatory, planning, and public consultation services to utilities, energy consumers, and renewable power developers. They were engaged by Hydro to provide a conceptual design of an industrial conservation program.

[18] Due to the sensitive nature of confidential industrial customer data included in the Willis Energy Services Ltd. report "Large Industrial Program Concept Design" the report cannot be released publicly and is not provided here.

[19] "Large Industrial Program Concept Design", Willis Energy Services Ltd., p. 18

- Active program monitoring to ensure compliance and reporting including measurement and verification protocols;
- Best practices for program evaluations including both process and impact evaluations; and
- Program delivery model will be determined during the detail design phase.

2009 CDM Program Portfolio Costs by program are shown in Table 6.

Table 6: Hydro's Estimated Program costs

Newfoundland and Labrador Hydro **2009 CDM Program Portfolio Costs** **(by program)** ($000s)	
Residential	
Thermostat	65
Insulation	132
Windows	96
Commercial	
Lighting	78
Industrial	
Custom	1,466
Total	1,837

5 JUSTIFICATION

Hydro is seeking approval for deferring the CDM program costs it will incur in 2009 and for the deferred recovery of these amounts in a manner to be determined by the Board at a later time. Hydro's 2009 program costs are estimated to be $1.8 million. These costs were not forecast in Hydro's 2007 Test Year to be recovered in rates as set by Order No. P.U. 8 (2007). Hydro had not, at that time, completed the research and analysis required to determine the level of CDM programs and costs.

Hydro is not, at this time, seeking approval to defer non-program costs it will incur in 2009, estimated to be $450,000, which is approximately $50,000 more than the amount of CDM costs included in 2007 forecast costs in Hydro's last GRA.

If the 2009 CDM program costs are not deferred they must be recognized as expenses incurred in 2009. This will have a significant impact on Hydro's income in that year. The 2009 CDM program costs are being incurred for the enduring system benefits, in the nature of energy reductions, which they provide. The particular duration of the energy savings benefits from these programs and the appropriate regulatory treatment of these costs will be the subject of further applications by Hydro.

6 CONCLUSION

Hydro has estimated that it will incur $1.8 million in Conservation and Demand Management (CDM) Program expenses in 2009. These expenses are in excess of Hydro's forecast costs used to set rates by Order P.U. 8 (2007). Therefore, Hydro is requesting approval from the Board for the deferral of the costs to be incurred by Hydro that are associated with the 2009 implementation of the CDM Programs outlined in the Plan and further described in this report.

APPENDIX A: 2009 CDM Portfolio Program Descriptions

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, based on annual kWh usage.

Eligible Measures

Eligible measures in this program are *ENERGY STAR* qualified windows.

Delivery Strategy

Through partnering with trade allies, such as retailers of *ENERGY STAR* windows and home building and renovation contractors, customers will be encouraged to purchase *ENERGY STAR* windows. Communications will incorporate the *ENERGY STAR* brand and related marketing support. 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. To facilitate the application process and to ensure that customers purchase qualifying products, a pre-approval process may be utilized.

Market Considerations

ENERGY STAR qualified windows make up approximately 10% 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 price premium of approximately $2.50 - $3.00 per square foot. Eligible windows are widely available. Local manufacturers produce approximately 50% of provincial window sales. Assistance in obtaining *ENERGY STAR* product qualification may be considered, since one local manufacturer does not offer qualified products.

Incentive Strategy

Incentives for this program include rebates and financing. Rebates are based on $2.00 per square foot of window installed.

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 every two years during operation.

Estimated Costs & Energy Savings

	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	$ 668	$ 566	$ 666	$ 646	$ 730	$3,277
Estimated Cumulative Energy Savings (MWh)	346	730	1,154	1,653	2,207	
Total Resource Cost	1.71					
Rate Impact Measure	0.86					

Residential Thermostats

Program Description

The existing thermostat rebate program will be revised based on the CDM Potential Study and market research. The objective of this program is to increase the installation of high-performance thermostats which accurately control room temperature, and programmable thermostats which automatically set back room temperature, in order to save space heating energy. The program provides rebates and financing.

Target Market: Residential

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

Eligible Measures

Eligible measures in this program include both programmable and high performance thermostats (those which control within +/- 0.5C.) Eligibility for programmable thermostats will be based on *ENERGY STAR* qualified products.

Delivery Strategy

Marketing initiatives include partnering with manufacturers, retailers, electrical contractors and homebuilders to educate consumers regarding the energy savings and comfort benefits of programmable and high performance thermostats. Communications to homeowners will utilize mass media advertising and website materials. Tools and tactics will also include retail and model home point-of-sale materials, tradeshows, community outreach and trade ally activities.

Rebates will be issued directly by authorized dealers and through consumer-submitted coupons.

Market Considerations

Sales of programmable and high performance thermostat types make up less than 20% 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. Consumer price premiums are approximately $15 per unit for high performance thermostats and $33 per unit for programmable thermostats. Availability of 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. Rebates are based on $5.00 for each high performance thermostat and $10.00 for each programmable thermostat.

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 every two years during operation.

Estimated Costs & Energy Savings

	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	$ 425	$ 378	$ 459	$ 397	$ 441	$2,100
Estimated Cumulative Energy Savings (MWh)	292	677	1,103	1,622	2,181	
Total Resource Cost	1.48					
Rate Impact Measure	0.95					

Residential Insulation

Program Description

The existing *Wrap Up for Savings* program will be revised based on the CDM Potential Study and market research. The objective of this program is to build on the existing program to increase the insulation level in basements, crawl spaces 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, based on annual kWh usage.

Eligible Measures

Eligible measures in this program include insulation upgrades to basements, crawl spaces and attics. Minimum R-value requirements will be specified. Rebates for new homes are limited to basement insulation beyond building code compliance.

Delivery Strategy

Marketing initiatives will include partnering with trade allies in the retail and home building and renovation industry to target both do-it-yourself and professional installers. Communications to homeowners will utilize mass media advertising and website materials. Tools and tactics will also include retail and model home point-of-sale materials, tradeshows, community outreach and trade ally activities. Rebates and financing will be processed through customer application. To facilitate the application process and to ensure that customers complete the work to a minimum R-value, a pre-approval process may be utilized.

Market Considerations

Older homes and small homes often have inadequate insulation levels. For example, ove 45% of homes in the province built before 1950 have uninsulated basements. Most nev homes constructed in the province do not have insulation installed on the concrete portion o basement walls. Initial cost is a barrier to increased market penetration, as is awareness o 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 based on insulating value (R-value) rather than a prescriptive product list as is currently offered. Rebates will be based on $0.02 per R-value per square foot of insulation installed in basements and crawl spaces (minimum requirement of R12), and $0.01 per R-value per square foot of insulation installed in attics. Maximum rebated R-values will be specified.

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 every two years during operation.

Estimated Costs & Energy Savings

	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	$884	$827	$966	$862	$912	$4,451
Estimated Cumulative Energy Savings (MWh)	2,472	5,191	8,181	11,170	14,160	
Total Resource Cost	2.96					
Rate Impact Measure	1.54					

Commercial Lighting

Program Description

The objective of this program is to increase the installation of more efficient lighting technologies in commercial buildings resulting in energy savings from reducing lighting loads. The program provides rebates to lighting distributors to cover the incremental cost of high performance T8 lighting as well as an added incentive for each lamp to encourage these distributors to recommend and sell high performance T8 lighting rather than standard T8 or T12 lighting products. The program also promotes the installation of LED exit signs and occupancy sensors for commercial buildings.

Target Market: Commercial

This program targets commercial customers, including retrofit or new installation of lighting equipment commercial buildings.

Eligible Measures

The eligible measures in this program are modeled on programs in New Brunswick and Nova Scotia. These include high performance T8 (HPT8) fluorescent electronic ballasts, lamps and fixtures, occupancy sensors and *ENERGY STAR* LED exit signs.

Delivery Strategy

This program is modeled on the New Brunswick program launched in April 2007 and recently adopted in Nova Scotia. The program focuses on lighting distributors and incents them to sell high performance T8 lighting and ballasts, rather than standard T8 and T12 technologies. Participating distributors provide sales and customer data in exchange for rebates. Commercial customers receive a more efficient product for the same cost, and benefit from ongoing reduced energy use and costs.

Market Considerations

The largest portion of the market opportunity in commercial lighting is in standard T12 fluorescent tube lighting with electromagnetic ballasts. Federal regulations will remove the electromagnetic ballast from new sales starting in 2010, which is expected to drive additional replacements of standard T12 lighting. By eliminating the incremental cost between standard T8 and HPT8 equipment, the program is expected to shift the market beyond the standard T8, and thus increase the use of HPT8 for replacement of T12 lighting. 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

Rebates are based on elimination of the full incremental cost of high performance T8 lamps and ballasts over standard T8 lighting, along with an added incentive of $0.25 per lamp and $0.50 per ballast for each high performance T8 product sold by the distributor. Rebates are also provided for LED exit signs and occupancy sensors.

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 every two years during operation.

Estimated Costs & Energy Savings

	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	$ 439	$433	$517	$478	$550	$2,416
Estimated Cumulative Energy Savings (MWh)	722	1,720	2,988	4,518	6,333	
Total Resource Cost	3.84					
Rate Impact Measure	1.05					

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 Industrial Class of customers served by NL 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 NL, this program will launch as a three-year program using a single call for proposals and full evaluation cycle.

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

	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	$1,466	$2,638	$4,266	$ -	$ -	$8,370
Estimated Cumulative Energy Savings (MWh)	-	-	20,000	45,000	45,000	
Total Resource Cost	2.89					
Rate Impact Measure	1.42					

NEWFOUNDLAND POWER
A FORTIS COMPANY

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HAND DELIVERED

February 26, 2010

Board of Commissioners
of Public Utilities
P.O. Box 21040
120 Torbay Road
St. John's, NL A1A 5B2

Attention: G. Cheryl Blundon
Director of Corporate Services
and Board Secretary

Ladies & Gentlemen:

In accordance with Order No. P.U. Order No. P.U. 7 (1996-97), enclosed are the original and 8 copies of the 2009 Conservation and Demand Management Report.

If you have any questions, please do not hesitate to call me at the number listed below.

Yours very truly,

Peter Alteen
Vice President, Regulation
& Planning

Enclosures

c. Geoff Young
Newfoundland & Labrador Hydro

2009 Conservation and Demand Management Report

February 26, 2010

(filed in compliance with Order No. P.U. 7 (1996-97))

NEWFOUNDLAND POWER
A FORTIS COMPANY

Table of Contents

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1.0 Introduction

In Order No. P.U. 7 (1996-97), the Board ordered, in effect, that Newfoundland Power (the "Company") file annual progress reports on its demand management activities, including conservation.

This report is filed in compliance with Order No. P.U. 7 (1996-97) and outlines the Company's ongoing conservation and demand management ("CDM") activities.

During 2009, the Company accelerated its conservation activities under the *takeCHARGE* brand, launched in November 2008, to provide customers with advice and assistance to manage their energy usage.

Jointly with Newfoundland and Labrador Hydro ("Hydro"), the Company introduced four new conservation programs under *takeCHARGE*, while continuing to broaden its community outreach activities and industry partnerships. The *takeCHARGE* conservation programs are available throughout the province of Newfoundland and Labrador as a result of this joint utility action. This report, however, focuses on Newfoundland Power's programs.

In 2009, Newfoundland Power also continued to work with the Provincial Government to coordinate *takeCHARGE* activities with Government initiatives, such as EnerGuide for Houses.

2.0 CDM Planning and Coordination

2.1 Energy Conservation and Efficiency Partnership

The Provincial Government's Energy Plan, released in September 2007, announced the establishment of the Energy Conservation and Efficiency Partnership ("ECEP") to coordinate planning and delivery of energy conservation programs in the province. During 2009, responsibility for ECEP moved to the new Climate Change Office of the Executive Council. The Climate Change Office provides policy development and analysis on climate change, energy efficiency and emissions trading. Newfoundland Power and Hydro will continue to participate in the ECEP advisory group.

During 2009, the Company also continued its relationship with Government in the delivery of conservation programs. For example, the Company coordinates with the Department of Natural Resources and Newfoundland & Labrador Housing regarding the EnerGuide for Houses and low income residential energy efficiency programs.

2.2 Five-Year Energy Conservation Plan

In 2008, Newfoundland Power and Hydro jointly developed the *Five-Year Conservation Plan:2008-2013* (the "Plan"), which was filed with the Board in June 2008. The Plan provides an overview of the conservation marketplace in the province of Newfoundland and Labrador and outlines a strategy to be implemented by the utilities for joint conservation activities.

In 2009, the first four programs outlined in the plan were introduced. Three residential programs were launched in June, followed by the commercial lighting program in August. As outlined below, the Company and Hydro collaborated throughout the year to increase awareness and

participation in these programs as well as provide energy conservation information and advice to their respective customers.

3.0 Energy Conservation Promotion and Education

During 2009, Newfoundland Power expanded its customer education and conservation awareness activities including promotion of its *takeCHARGE* programs. These education and awareness activities involved a mass media marketing campaign, community outreach, and trade ally development. The impacts of these activities are reflected in the level of customer contacts and program participation, as well as in the results of customer surveys.

3.1 Mass Media Advertising

The Company used a range of advertising media, including newspaper, radio and online campaigns to increase awareness of the *takeCHARGE* brand and programs. Three new television advertisements were aired on CBC and NTV province-wide from September to December 2009. These advertisements were also featured in local cinemas and through online video websites. Billboard and ice rink board advertisements were also utilized throughout the year.

Five *takeCHARGE* newsletters were distributed to customers with electricity bills during the year. These newsletters offer energy efficiency information and encourage participation in the Company's incentive programs. The Company also promoted the *takeCHARGE* programs through two customer contests: the "What's Out Your Window" contest during the summer season and the "Warm Up to Win" ENERGY STAR® electronics contest in November.

In November, Hydro and Newfoundland Power jointly hosted Energy Efficiency Week. Mall displays were held in eight communities across the province, and a five part *takeCHARGE* television series highlighted the most common ways to reduce energy usage at home.

3.2 Community Outreach

During 2009, the Company participated in 122 community outreach events across the province, up from 94 events in 2008. Energy efficiency information was presented to diverse groups including the Federal Pensioners Association, Remax, the Armed Forces, the Stephenville Trail Committee and Municipalities Newfoundland and Labrador. *takeCHARGE* information booths were displayed at 55 home shows, shopping malls and trade fairs across the island. Through all of these outreach activities, members of the *takeCHARGE* team assisted customers with their energy questions, and raised awareness of energy conservation and the *takeCHARGE* programs.

3.3 Trade Allies

Newfoundland Power expanded its network of trade allies across the island. For example, *takeCHARGE* team members visited more than 150 retailers on two occasions in 2009 to provide point of purchase display material promoting *takeCHARGE* programs, and educate the retail staff on the particulars of the various programs offered. Retailers and other trade allies play an important role in helping customers make good decisions regarding energy conservation improvements in their homes.

4.0 Customer Interest and Awareness

Customers' interest in energy conservation programs and information increased during 2009 as awareness of the *takeCHARGE* campaign grew.

4.1 Customer Contacts

Table 1 shows the number of customer-initiated contacts with the Company for energy conservation information from 2005 to 2009.

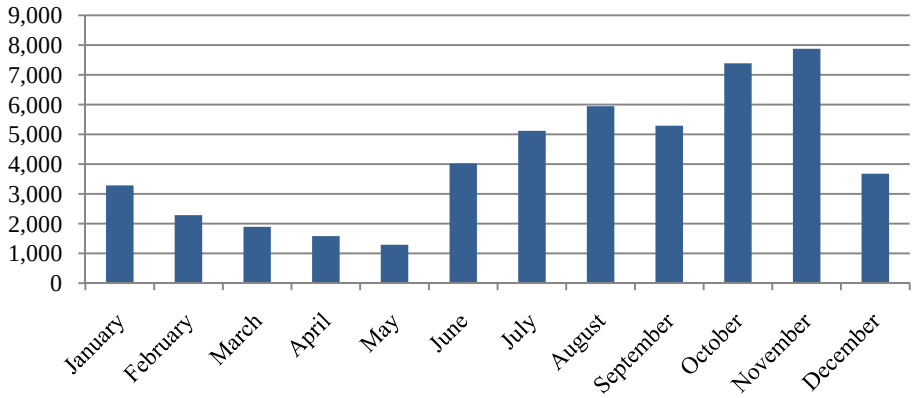
Table 1
Customer Contacts for
Energy Conservation Information

	2005	2006	2007	2008	2009
Contact Centre Inquiries	8,392	9,150	14,207	13,795	14,823
Website Visits[1]	11,078	18,026	31,673	23,444	49,648

During 2009, customer calls to the Company's Contact Centre related to energy conservation were consistent with that experienced over the previous two years. Website visits more than doubled in 2009 over 2008. Over 38,000 individual visitors availed of the website during the year to obtain energy efficiency information and details on how to participate in the *takeCHARGE* rebate programs.[2]

Figure 1 shows the website visits by month during 2009.

Figure 1
***takeCHARGE* Website Visits by Month**
2009



[1] Total includes visits to Newfoundland Power's Bright Ideas website prior to the November 2008 launch of the *take*Charge website.

[2] 38,000 individual visitors accessed the website in 2009 for a total of 49,648 visits.

Figure 1 shows that a significant increase in website visits occurred following the June *takeCHARGE* program launch and also in October and November following the implementation of a province-wide advertising campaign.

4.2 Customer Surveying

The Company conducted its annual customer attitude and awareness survey on energy efficiency in November 2009. Consistent with prior years, the results confirm that customers want to receive information on using electricity more efficiently and that they expect the Company to provide this information.

The survey results also indicate that customers' awareness of *takeCHARGE* is strong, with nearly eight in ten respondents recalling the campaign one year after its inception. The television campaign had the highest level of recall at 79%, followed by bill inserts at 42% and newspapers at 14%. Over 40% of respondents said that they had tried to reduce their electricity usage as a result of the *takeCHARGE* campaign.

Customer interest in participating in the *takeCHARGE* programs within the next 12 months varied from 17% for programmable thermostats to 8% for ENERGY STAR® windows. These results indicate that the Company's advertising and promotions have increased customers' awareness and interest in energy conservation.

5.0 CDM Programs

The Company provides its residential and commercial customers with conservation and demand management programs which result in quantifiable energy and demand savings. The following describes these programs and the results obtained during 2009.

5.1 Residential Energy Conservation

The Company implemented three conservation programs for residential customers in 2009. These programs were bundled for marketing as the *takeCHARGE* "Energy Savers". These programs focus on reducing energy consumption but also provide reductions in peak demand.

Insulation Rebate Program
This program targets efficiencies in home heating by providing customers with incentives to improve insulation levels in basements and attics. Upgrading the insulation of existing homes and insulating foundations in new homes are included. Eligibility is limited to electrically heated homes, based on annual kWh usage. Customers can receive an incentive of two cents per R value per square foot of insulation added to basement walls or ceilings, and one cent per R value per square foot for insulation added to their attics. Rebates and financing are processed through customer applications.

This program replaces the Wrap Up for Savings program which existed until the launch of the new program in June 2009. This program is promoted in partnership with trade allies in the retail, home building and renovation industries.

Thermostat Rebate Program
This program assists customers to better control the temperature of their homes and to set back the temperature during the night and when away from home. This will reduce the heating requirement of their electric heating system. Rebates and financing are available for both the home retrofit market and new homes. Incentives of $10 for each ENERGY STAR® programmable thermostat and $5 for each electronic high performance thermostat are offered. Rebates are issued through authorized dealers and through customer-submitted coupons.

This program replaces the Company's previous thermostat rebate program. This program is promoted in partnership with manufacturers, retailers, electrical contractors and home builders.

ENERGY STAR® Window Rebate Program
This program encourages customers purchasing new or replacement windows to choose ENERGY STAR® rated windows over standard windows. Eligibility is limited to electrically heated homes, based on annual kWh usage. Customers who purchased ENERGY STAR® windows receive a rebate of two dollars per square foot of window installed. Rebates and financing are processed through customer application.

This program is promoted in partnership with trade allies, such as retailers, manufacturers, and home building and renovation contractors.

Residential Program Results
Table 2 shows the 2009 customer participation levels achieved and the energy and peak demand savings results.

Table 2
Residential Program Participation and Savings[3]

Program	Customer Participation	Estimated Annual Energy Savings (MWh)	Estimated Peak Demand Savings (kW)
Insulation Rebate Program	607	1,588	488
Thermostat Rebate Program	915	470	145
ENERGY STAR® Window Rebate Program	478	405	125
Total	**2,000**	**2,463**	**758**

Details of residential program cost effectiveness in 2009 are provided in Appendix A.

5.2 Commercial Energy Conservation

The Company implemented one conservation program for commercial customers in 2009. This program focuses on reducing energy consumption but also provides reductions in peak demand.

[3] Estimated savings are those that will accrue to participants on an annual basis. Actual savings during 2009 may have been less depending on when the customer completed their construction / renovation during the year.

Commercial Lighting Incentive Program

The commercial lighting program targets energy reductions through more efficient lighting technologies in commercial buildings. The commercial lighting program offers sales incentives to participating lighting distributors to sell high performance T8 lighting fixtures, ballasts and lamps to their customers, instead of selling standard T8 or T12 lighting systems. The incentive of $1.25 for lamps and $4.25 for ballasts eliminates the cost differential from upgrading to the higher efficiency lighting systems and provides a sales incentive for the distributor. High performance T8 lighting systems use 25% to 40% less energy than standard T8 and T12 systems.

The program is promoted through lighting distributors and through engineering groups who develop building specifications. Participating lighting distributors provide the Company with sales and customer data in exchange for rebates.

Commercial Program Results

Table 3 shows the 2009 customer participation levels achieved and the energy and peak demand savings results.

Table 3
Commercial Programs Participation and Savings[4]

Program	Customer Participation	Estimated Annual Energy Savings (MWh)	Estimated Peak Demand Savings (kW)
Commercial Lighting Incentive Program	168	217	85

Details of commercial program cost effectiveness in 2009 are provided in Appendix A.

5.3 Demand Management

The Company has one customer program, the Curtailable Service Option, which is focused on Demand Management.

Curtailable Service Option

The Curtailable Service Option (the "Option") provides an incentive to large customers to reduce electrical demand at the request of the Company during the winter peak season. The Option is available to general service customers billed on Rate 2.3 or 2.4 who can reduce their demand by at least 330 kVA. Participants who curtail their load at the request of the Company receive an annual credit on their electricity bills at the end of the winter season.

Twenty three general service customers participated in the Option during the 2008-2009 winter season providing a load reduction of approximately 10 MW. This load reduction is exercised to reduce demand to manage purchased power costs and to minimize customer outages. Detailed results for the 2008-2009 winter peak season were submitted to the Board in the *2009 Curtailable Service Option Report* dated April 30, 2009.

[4] Estimated savings are those that will accrue to participants on an annual basis. Actual savings during 2009 may have been less depending on when the customer completed their construction / renovation during the year.

6.0 CDM Costs

The Company's CDM costs for 2009 are reflective of its expanded *takeCHARGE* initiative and the introduction of four new customer incentive programs.

Table 4 summarizes Newfoundland Power's costs associated with CDM activities from 2005 to 2009.

Table 4
Conservation and Demand Management Costs
($000s)

	2005	2006	2007	2008	2009
General Conservation Costs					
Education & Outreach	134	121	226	272	404
Support	122	93	93	104	183
Planning	35	64	150	204	225
Total General Conservation Costs	291	278	469	580	812
Conservation Program Costs					
Residential					
Wrap up for Savings	90	97	155	126	12
Thermostat Rebates	5	9	20	44	8
Energy Savers Program					
General[5]	-	-	-	-	750
Insulation	-	-	-	-	138
Thermostats	-	-	-	-	77
Windows	-				254
Commercial					
Lighting	-	-	-	-	117
Total Conservation Program Costs	95	106	175	170	1,356
CDM Capital Expenditures[6]				50	156
Demand Management Program Costs					
Curtailable Service Option	153	269	254	277	225
Total	**539**	**653**	**898**	**1,077**	**2,549**

[5] General costs are those program related costs which cannot be assigned to a single program, such as advertising and retail point-of-purchase materials which include multiple programs.

[6] Capital expenditures associated with takeCHARGEnl.ca, the rebate processing and tracking system and the employee toolkit.

7.0 Outlook

Newfoundland Power will continue to promote and encourage participation in its *takeCHARGE* incentive programs through 2010. As contemplated in the Plan, joint planning has commenced with Hydro for additional program offerings, with potential implementation in late 2010.

The Company will continue joint conservation awareness initiatives with Hydro to provide advice and information for customers on managing their energy usage. Community outreach and industry partnerships will be key components of the Company's customer education approach. The takeCHARGEnl.ca website will be enhanced with additional interactive tools and information to help customers save energy and money.

Newfoundland Power will also continue to work with the Provincial and Federal Governments in promoting awareness of energy conservation programs that benefit customers.

Appendix A

***takeCHARGE* Programs**
2009 Cost Effectiveness Results

takeCHARGE Programs
2009 Cost Effectiveness Results

The costs and benefits of the *takeCHARGE* programs were analyzed from the perspective of participants, non-participants and total resources.[1] For 2009, the DSM program tests indicated benefit to cost ratios as follows:

	Participants Test [2]	Rate Impact Test [3]	Total Resource Cost Test [4]
Insulation Rebate Program	1.89	1.42	2.13
Thermostat Rebate Program	4.31	0.87	1.44
ENERGY STAR® Window Rebate Program	3.73	0.58	0.89
Total Residential Portfolio	2.29	1.09	1.68
Commercial Lighting Incentive Program	9.16	0.64	1.61
Total Program Portfolio	2.48	1.05	1.68
Provincial Residential Portfolio[5]	2.28	1.08	1.64
Provincial Commercial Portfolio[5]	9.16	0.62	1.50

The *takeCHARGE* program portfolio passes each of these economic cost effectiveness tests based on 2009 program results. Since the programs were implemented mid-year in 2009, cost effectiveness results can be expected to improve in future years.

1 Analysis is based on the Company's 2007 marginal cost study updated with recent fuel cost forecasts. Benefit to cost ratio results of greater than 1.0 indicate the program has positive economic effect.
2 A *Participants Test* is used to determine if a DSM program minimizes the overall costs for participants.
3 A *Rate Impact Test* is used to determine whether the program minimizes rates for non-participants.
4 A *Total Resource Cost Test* is used to determine if a DSM program minimizes the overall cost of supplying energy.
5 Provincial portfolio cost benefit tests include program results of both Newfoundland Power and Hydro. Details regarding costs and benefits of Hydro's 2009 programs were filed with the Board as part of Hydro's 2010 CDM cost deferral application in January 2010.

NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

ST. JOHN'S OFFICE
120 Torbay Road
P.O. Box 21040
St. John's, Newfoundland and Labrador
Canada, A1A 5B2
Fax: (709) 726-9603

GRAND FALLS-WINDSOR OFFICE
18 High Street
Grand Falls-Windsor
Newfoundland and Labrador
Canada, A2A 1C6
Fax: (866)-489-8879

2009 03 25

Newfoundland and Labrador Hydro
P. O. Box 12400
St. John's, NL
A1B 4K7

Attention: Geoffrey P. Young
Senior Legal Counsel

Dear Mr. Young:

RE: Application for approval of a deferral account for the deferred recovery of Hydro's Conservation and Demand Management program costs proposed to be incurred in 2009

Attached are two copies of Order No. P. U. 14(2009) issued by the Board in connection with Newfoundland and Labrador Hydro's above noted application.

If you have any questions, please do not hesitate to contact the undersigned.
Yours truly,

Cheryl Blundon
Director of Corporate Services
and Board Secretary

Attachments

c.c. Newfoundland Power Inc. –Peter Alteen and Gerard Hayes
Consumer Advocate – Thomas Johnson
Industrial Customers – Joseph S. Hutchings, Q.C. and Paul Coxworthy

NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

AN ORDER OF THE BOARD
NO. P. U. 14(2009)

IN THE MATTER OF the *Electrical Power Control Act*, RSNL 1994, Chapter E-5.1 (the *"EPCA")* and the *Public Utilities Act*, RSNL 1990, Chapter P-47 (the *"Act")*, as amended;

AND

IN THE MATTER OF an application by Newfoundland and Labrador Hydro ("Hydro") for approval of a deferral account to allow the deferred recovery of certain 2009 costs associated with an energy conservation program to be implemented in 2009.

WHEREAS Hydro is a corporation continued and existing under the *Hydro Corporation Act*, is a public utility within the meaning of the *Act*, and is subject to the provisions of the *EPCA;* and

WHEREAS on November 21, 2008 Hydro filed an application with the Board requesting approval of the deferred recovery of the actual 2009 costs to be incurred by Hydro in association with the implementation of an energy conservation program in 2009, which are estimated to be approximately $1.8 million (the "Application"); and

WHEREAS the Application was circulated to the Consumer Advocate, Hydro's Island Industrial Customers and Newfoundland Power; and

WHEREAS on January 14, 2009 and February 5, 2009 the Board issued requests for information to Hydro and these questions were answered on January 20, 2009 and February 9, 2009; and

WHEREAS Newfoundland Power confirmed in correspondence dated January 29, 2009 that it supports Hydro's Application; and

WHEREAS the Board did not receive submissions from the Consumer Advocate or Hydro's Island Industrial Customers in relation to the Application; and

WHEREAS the energy conservation program to be implemented by Hydro in 2009 flows from a conservation program initiative which is ongoing jointly with Newfoundland Power; and

WHEREAS on March 20, 2008 Hydro and Newfoundland Power jointly filed with the Board a conservation and demand management potential study prepared by Marbek Resource Consultants which identified the potential contribution of specific technologies and measures in reducing forecast electricity consumption (the "Potential Study"); and

WHEREAS on June 27, 2008, pursuant to Order No. P.U. 7(2008), a Five-Year Energy Conservation Plan: 2008-2013 (the "Conservation Plan") was filed with the Board which sets out the customer energy conservation programs proposed to be jointly implemented by Hydro and Newfoundland Power; and

WHEREAS the Potential Study and the Conservation Plan were outstanding at Hydro's last general rate application and in Order No. P.U. 8 (2007) the Board concluded that it was prudent and practical at the time to await the results of the joint initiative noting that the results would be valuable in determining what energy conservation programs should be employed by each utility; and

WHEREAS in the Application Hydro proposes to defer its 2009 costs in relation to the implementation of the Conservation Plan as does Newfoundland Power in a separate application before the Board; and

WHEREAS the Board is satisfied that the 2009 costs to be incurred by Hydro in connection with the proposed 2009 Conservation Plan are reasonable and prudent costs which were not reflected in Hydro's 2007 test year costs approved in Order No. P.U. 8(2007) and therefore the Board will approve the creation of a deferral account as proposed by Hydro in the Application (the "Conservation Cost Deferral Account") to provide for the deferred recovery of Hydro's 2009 costs associated with the implementation of the Conservation Plan in 2009.

IT IS THEREFORE ORDERED THAT:

1. The Board approves the creation of a Conservation Cost Deferral Account to provide for the deferred recovery, until a further Order of the Board, of 2009 costs related to the implementation of the Conservation Plan, estimated to be $1.8 million.

2. Hydro shall file a definition of the Conservation Cost Deferral Account with the Board within 30 days of this Order.

3. Hydro shall provide, as part of its 2009 annual report, a report on the Conservation Plan initiatives implemented in 2009, including a description of specific initiatives, the results and the associated costs.

4. Hydro shall pay all expenses of the Board arising from this Application.

DATED at St. John's, Newfoundland and Labrador, this 25th day of March 2009.

Andy Wells
Chair & Chief Executive Officer

Darlene Whalen, P.Eng.
Vice-Chair

Dwanda Newman, LL.B
Commissioner

Cheryl Blundon
Board Secretary

newfoundland labrador hydro
a nalcor energy company

Hydro Place. 500 Columbus Drive.
P.O. Box 12400. St. John's. NL
Canada A1B 4K7
t. 709.737.1400 f. 709.737.1800
www.nlh.nl.ca

January 26, 2010

Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL
A1A 5B2

ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: An Application by Newfoundland and Labrador Hydro for the approval of the deferred recovery of Hydro's Conservation and Demand Management program costs proposed to be incurred in 2010.

In June 2008, a Five-Year Energy Conservation Plan: 2008-2013 (the Plan) was filed with the Board of Commissioners of Public Utilities (the Board) pursuant to Order No. P.U. 8 (2007). The Plan outlined a proposed energy conservation plan to be implemented jointly by Hydro and Newfoundland Power and reflected the methodological guidance contained in Marbek Resource Consultant Inc.'s January 2008 study of conservation potential which was filed with the Board on March 20, 2008.

Implementation of the Plan commenced in 2009. Costs to implement the Plan were not included in the conservation and demand management costs which comprised a portion of Hydro's 2007 approved expenses for rates set by Order No. P.U. 8 (2007). As such, the electricity rates charged to Hydro's customers will not recover the costs of the energy efficiency programs outlined in the Plan.

On March 25, 2009 Hydro received approval from the Board in Order No. P.U. 14 (2009) for the deferred recovery of the 2009 costs, estimated to be $1.8 million, related to the implementation of the Plan. Hydro's 2009 costs were approximately $160,000, a significant decrease from the original estimate. This difference is attributed to three factors. First, the original Residential program launch date of February 2009 was delayed to June 2009 and as such costs were not for a full year of programming as originally estimated. Second, the Industrial program, estimated to cost $1.4 million in 2009, has not been launched. Third, the uptake on the programs in rural communities has not been to the level estimated. Details are included in the attached 2010 Conservation Cost Deferral Report.

Hydro is now applying to the Board for the deferral of the 2010 costs, estimated to be $2.3 million, to be incurred by Hydro that are associated with the conservation and demand management programs outlined in the Plan.

Please find enclosed the original and eight copies of the above-noted Application, plus supporting affidavit and draft order, as well as the 2010 Conservation Cost Deferral Report. The aforementioned Plan and the Marbek Resource Consultant Inc. Report, which are incorporated into this Application by reference, are not attached to this Application.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Geoffrey P. Young
Senior Legal Counsel

GPY/jc

cc: Gerard Hayes – Newfoundland Power
Paul Coxworthy – Stewart McKelvey Stirling Scales
Joseph S. Hutchings, Q.C. – Poole Althouse
Thomas Johnson – Consumer Advocate

IN THE MATTER OF the *Public Utilities Act,* (R.S.N. 1990, Chapter P-47 (the Act)*; and*

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro, pursuant to Sections 58 and 80 of the Act, for the approval of the deferred recovery of Hydro's 2010 Conservation and Demand Management program costs.

TO: The Board of Commissioners of Public Utilities (the Board)

THE APPLICATION OF NEWFOUNDLAND AND LABRADOR HYDRO (Hydro) STATES THAT:

1. Hydro is a corporation continued and existing under the *Hydro Corporation Act, 2007*, is a public utility within the meaning of the Act and is subject to the provisions of the *Electrical Power Control Act, 1994*.

2. The issue of energy conservation was discussed during Hydro's 2006 General Rate Application. As part of its energy conservation initiatives, Hydro, with the co-operation of Newfoundland Power, had issued a request for proposals for a study, referred to as a Conservation and Demand Management (CDM) Potential Study (the Potential Study) to determine the potential for energy conservation in the Province and to examine what types of programs could be implemented to yield positive results in terms of energy conservation. A five-year strategic plan with respect to energy conservation initiatives was developed from the Potential Study.

3. In Order No. P.U. 8 (2007) the Board concluded that it was prudent and practical at the time to await the results of the joint initiative noting that the results would be valuable in determining what energy conservation programs should be employed by each utility and required Hydro to file, no later than June 30, 2008, a report outlining its five-year strategic plan with respect to energy conservation initiatives, which was to include a copy of the Potential Study.

4. On March 20, 2008, the Potential Study, prepared by Marbek Resource Consultants Ltd. for Hydro and Newfoundland Power, was filed with the Board. The Potential Study identified the potential contribution of specific technologies and measures in reducing forecast electricity consumption.

5. On June 27, 2008, a Five-Year Energy Conservation Plan: 2008-2013 (the Plan) pursuant to Order No. P.U. 8 (2007) was filed with the Board. The Plan outlined energy efficiency programs to be implemented jointly by Hydro and Newfoundland Power. The Plan reflects the results of the Potential Study.

6. On October 29, 2008 Newfoundland Power applied to the Board for approval of the creation of a deferral account to provide for the deferred recovery of 2009 costs related to the implementation of the Plan. The Board approved Newfoundland Power's application in Order No. P.U. 13 (2009).

7. On November 21, 2008, Hydro filed an application with the Board requesting approval of the deferred recovery of actual 2009 costs to be incurred by Hydro in association with the implementation of an energy conservation program in 2009, which were estimated to be $1.8 million. The Board approved Hydro's application in Order no. P.U. 14 (2009) and ordered Hydro to file a definition of the Conservation Cost Deferral Account with the Board within 30 days of the Order.

8. As directed in Order No. P.U. 14 (2009), Hydro filed its proposed definition of the Conservation Cost Deferral Account with the Board on April 22, 2009. The Board acknowledged receipt of the proposed definition of the Conservation Cost Deferral Account in a letter dated June 24, 2009.

9. Costs to implement the Plan, estimated to be $2.3 million in 2010, were not included in the conservation and demand management costs which comprised a portion of Hydro's 2007 Test Year approved expenses for rates set by Order No. P.U. 8 (2007). As such, the electricity rates charged to Hydro's customers in 2009 and 2010 will not recover the costs of the energy efficiency programs outlined in the Plan.

10. The estimated cost of $2.3 million in 2010 to implement the Plan is:

(a) Consistent with the management and operation of sources and facilities for the production, transmission and distribution of power in a manner that results in power being delivered to consumers in the province at the lowest possible cost consistent with reliable service as required by Subparagraph 3(b) (iii) of the Electrical Control Act, 1994;

(b) Justified under tests consistent with generally accepted sound public utility practice as required by Section 4 of the Electrical Power Act, 1994; and

(c) Reasonable and prudent and properly chargeable to operating account in accordance with Subsection 80(2).

11. The attached 2010 Conservation Cost Deferral Report provides the details of the 2010 CDM Program costs that Hydro is seeking Board approval to defer and provides an update on the CDM activities undertaken in 2009.

12. Hydro now makes Application that the Board make an Order approving the deferred recovery of the 2010 costs to be incurred by Hydro in association with the energy conservation program in 2010, which are estimated to be approximately $2.3 million.

DATED AT St. John's in the Province of Newfoundland and Labrador this 26th day of January, 2010.

Geoffrey P. Young
Counsel for the Applicant
Newfoundland and Labrador Hydro,
500 Columbus Drive, P.O. Box 12400
St. John's, Newfoundland, A1B 4K7
Telephone: (709) 737-1277
Facsimile: (709) 737-1782

IN THE MATTER OF the *Public Utilities Act,* (R.S.N.L. 1990, C. P-47) (the Act)*; and*

IN THE MATTER OF an Application by Newfoundland and Labrador Hydro for the approval, pursuant to Section 58 and 80 of the Act, of the deferred recovery of Hydro's 2010 Conservation and Demand Management program costs.

AFFIDAVIT

I, James R. Haynes, Professional Engineer, of St. John's in the Province of Newfoundland and Labrador, make oath and say as follows:

1. I am Vice-President, Regulated Operations, of Newfoundland and Labrador Hydro, the Applicant named in the attached Application.

2. I have read and understand the foregoing Application.

3. I have personal knowledge of the facts contained therein, except where otherwise indicated, and they are true to the best of my knowledge, information and belief.

SWORN at St. John's in the)
Province of Newfoundland and)
Labrador)
this 26th day of January 2010,)
before me:)

Barrister – Newfoundland and Labrador

James R. Haynes

(DRAFT ORDER)
NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

AN ORDER OF THE BOARD

NO. P.U. __ (2010)

IN THE MATTER OF the *Electrical Power Control Act*, RSNL 1994, Chapter E-5.1 (the "*EPCA*") and the *Public Utilities Act*, RSNL 1990, Chapter P-47 (the "*Act*") as amended;

AND

IN THE MATTER OF an Application by Newfoundland and Labrador Hydro ("Hydro") for approval of a deferral account to allow the deferred recovery of certain 2010 costs associated with the energy conservation program implemented in 2009.

WHEREAS Hydro is a corporation continued and existing under the *Hydro Corporation Act, 2007,* is a public utility within the meaning of the Act and is subject to the provisions of the *EPCA;* and

WHEREAS on January 26, 2010 Hydro filed an application with the Board requesting approval of the deferred recovery of the actual 2010 costs to be incurred by Hydro in association with the energy conservation program implemented in 2009, which are estimated to be $2.3 million (the "Application"); and

WHEREAS the energy conservation program implemented by Hydro in 2009 flows from a conservation program initiative which is ongoing jointly with Newfoundland Power; and

WHEREAS on March 20, 2008 Hydro and Newfoundland Power jointly filed with the Board a conservation and demand management potential study prepared by Marbek Resource Consultants which identified the potential contribution of specific technologies and measures in reducing forecast electricity consumption (the "Potential Study"); and

WHEREAS on June 27, 2008, pursuant to Order No. P.U. 7(2008), a Five-Year Energy Conservation Plan: 2008-2013 (the "Conservation Plan") was filed with the Board which sets out the customer energy conservation programs proposed to be jointly implemented by Hydro and Newfoundland Power; and

WHEREAS the Potential Study and the Conservation Plan were outstanding at Hydro's last general rate application and in Order No. P.U. 8 (2007) the Board concluded that it was prudent and practical at the time to await the results of the joint initiative noting that

the results would be valuable in determining what energy conservation programs should be employed by each utility; and

WHEREAS on November 21, 2008 Hydro filed an Application with the Board for approval of the deferred recovery of the actual 2009 costs to be incurred by Hydro in association with the implementation of the energy conservation program in 2009 as did Newfoundland Power in a separate application dated October 29, 2008; and

WHEREAS in Order No's. P.U. 13 (2009) and P.U. 14 (2009) respectively the Board approved Newfoundland Power's and Hydro's applications; and

WHEREAS on April 22, 2009 Hydro filed a proposed definition of the Conservation Deferral Account as directed by the Board in Order No. P.U. 14 (2009), the receipt of which was acknowledged by the Board on June 24, 2009; and

WHEREAS in the Application Hydro proposes to defer its 2010 costs in relation to the Conservation Plan; and

WHEREAS the Board is satisfied that the 2010 costs to be incurred by Hydro in connection with the proposed 2010 Conservation Plan are reasonable and prudent costs which were not reflected in Hydro's 2007 Test Year costs approved in Order No. P.U. 8 (2007) and therefore the Board will approve the deferred recovery of Hydro's 2010 costs associated with the Conservation Plan in 2010.

IT IS THEREFORE ORDERED THAT:

1. The Board approves the deferred recovery of 2010 costs related to the Conservation Plan, estimated to be $2.3 million.

2. The Applicant shall pay all expenses of the Board arising from this Application.

DATED at St. John's, Newfoundland and Labrador, this day of , .

_____

_____

_____ _____

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

2010 CONSERVATION COST DEFERRAL REPORT

Newfoundland and Labrador

January 2010

newfoundland labrador hydro
a nalcor energy company

Table of Contents

1 INTRODUCTION

Hydro is applying to the Board of Commissioners of Public Utilities (the Board) for approval to defer the costs to be incurred by Newfoundland and Labrador Hydro (Hydro) that are associated with the 2010 implementation of the Conservation and Demand Management (CDM) Programs outlined in the Five Year Conservation Plan: 2008-2013 (the Plan)[1]. The purpose of this report is to provide the details of the 2010 CDM Program costs that Hydro is seeking Board approval to defer and to provide an update on the CDM activities undertaken in 2009.

The Plan outlined a provincial strategy for CDM activities to be undertaken in partnership with Newfoundland Power, however this report will discuss only the Hydro portion of that strategy.

Hydro is requesting a deferral of an estimated $2.3 million to be incurred in 2010, which was not included in Hydro's 2007 Test Year approved expenses for rates set by Order No. P.U. 8 (2007).

[1] The Five-Year Energy Conservation Plan: 2008-2013 was filed with the Board on June 27, 2008.

2 BACKGROUND

Energy Conservation Initiatives were a topic of discussion during Hydro's 2006 General Rate Application (GRA). Since that time, Marbek Resource Consultants Limited (Marbek) was commissioned and completed a potential study that provided information to assist in identifying cost-effective conservation programs and the potential contribution of specific technologies and measures in reducing forecast electricity consumption. From the potential study a five-year strategic plan was completed which outlined proposed energy conservation initiatives to be implemented jointly by Newfoundland Power and Hydro , including technologies, programs, support elements and cost estimates that promote a long term goal of an established conservation culture with sustained reductions in electricity consumption. The potential study was filed with the Board on March 20, 2008 and the Plan was filed with the Board on June 27, 2008.

The focus for the Plan is on energy savings through the development of a culture of conservation. The activities in the Plan include rebate programs for each major sector – residential, commercial and industrial – and supporting activities for awareness, education and community engagement to stimulate attitude change.

An application to defer the recovery of actual 2009 costs to be incurred by Hydro in association with the implementation of the Energy Conservation Program was filed on November 21, 2008. This filing addressed forecasted costs for delivering the programs to Hydro customers in 2009. The Board approved the application in Order No. P.U. 14 (2009), and ordered Hydro to file a definition 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.

In 2009, Hydro and Newfoundland Power took significant steps towards encouraging a culture of conservation among customers. The takeCHARGE brand was launched in November, 2008 and was the start of the implementation of the Plan. The takeCHARGE programs and activities provide education and awareness, as well as rebates and support for customers to engage in

energy conservation and efficiency. The takeCHARGE Energy Savers Rebate programs were launched in June 2009 for the residential and commercial markets (further details on the takeCHARGE approach can be found in Section 3.1 of this document). During 2009, significant development work was completed on the Industrial Custom Program in preparation for a program launch.

3 THE PROGRAM PORTFOLIO

The program portfolio for 2010 includes the same programs as outlined in the 2009 Conservation Cost Deferral Report which was filed with the Board on November 21, 2008 as part of Hydro's application to defer 2009 CDM Program costs. The residential and commercial programs have been branded as the Energy Savers Rebate programs. They are:

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

The Industrial Custom Program is part of the takeCHARGE portfolio of rebate programs, but will not be included as part of the Energy Savers Rebate program branding.

As discussed in the 2009 Cost Deferral Report, rebate programs will change to reflect changing market conditions, technology standards and customer behaviours. The Residential Thermostat program for 2010 has been altered to reflect a recent market change, in that Energy Star rating for Programmable Thermostats is no longer being provided by the Energy Star program[2]. Therefore, the Residential Thermostat program will now be providing rebates for all programmable thermostats. This change will not result in any changes to forecast energy savings or participation levels for the program.

The present Energy Savers Rebate programs address the primary end use for each of the residential and commercial sectors. Home heating is a major driver of residential sector electricity use and an assessment demonstrated large savings potential. The commercial sector represents a wide range of customers, from small retail to large institutional customers. For this diverse group, lighting is a significant common end use. The Commercial Lighting Program focuses on moving the market to a premium efficiency lighting product by offering financial assistance directly to the lighting distributors to enable them to decrease the incremental cost of the more efficient product to the customer. The Industrial Customers require a customizable

[2] Energy Star is a labeling program for energy efficient products that promotes the top energy efficient products in many residential and commercial product categories, including home electronics, appliances, commercial and industrial equipment, and others. The Energy Star program ended the current labeling standard for programmable thermostats because there are no longer significant differences between products warranting the labeling of top performers within the product category.

approach as they are large, transmission-level customers with complex end use profiles, with different opportunities for conservation depending on industry specific processes.

3.1 takeCHARGE Approach

The target for the Plan is an annual savings of 70 GWh by 2013. The goal for takeCHARGE is sustained reductions in energy use and the adoption of a culture of conservation among the people of Newfoundland and Labrador. To achieve sustained behaviour and attitude change and create the desired conservation levels, a multi-pronged approach is necessary.

The joint utility approach under the takeCHARGE brand has benefits from both an economic and implementation perspective. Economically, there are economies of scale achieved from a single mass market campaign and from working on a coordinated approach to reaching customers across both utility's service areas. Combining efforts and expertise across two organizations has also created a strong intra-utility team on conservation that has benefits to customers through joint planning and implementation of the programs.

Rebate programs encourage the markets to move towards more efficient technologies through education and financial incentive. The Energy Savers Rebate programs have strong savings potential and address existing barriers to implementation in the market, usually financial limitations and low awareness of the product benefits. All programs have also been verified as cost effective through standard utility economic screening[3].

In addition to rebate programs targeting specific technologies, a wider approach is necessary to create customer awareness of the benefits of conservation. This will in turn result in customer behavioural changes and the consideration of other conservation technologies. These approaches include providing tips and information, and engaging the general public and community leaders in innovative ways to conserve energy.

Finally, key stakeholders must be brought together to move markets, change attitudes and create sustained energy savings. These stakeholders include the two utilities, provincial government departments, key organizations in the retail supply chain and like-minded

[3] The primary test for economic viability is the Total Resource Cost (TRC) test which includes both the participants' and Utility's costs and benefits as factors in the net value of the program. As outlined in the Plan, each program has a positive TRC, which means the total program benefits exceed the total costs of the program.

community organizations. It is critical to build a strong network with these partners to leverage funds, information and resources to reach the widest audience in a coordinated approach.

The activities undertaken in 2009 addressed each of these areas: rebates, awareness, and stakeholder engagement. There has been a strong focus on developing brand awareness with customers for the takeCHARGE program. This has been primarily through mass marketing on a provincial scale. Community outreach events have been held to provide one-on-one interaction with customers and provide a face to the program. Communication with key stakeholders including retailers and government is ongoing.

In 2009, takeCHARGE activities encouraged behaviour changes through education and awareness initiatives by publicizing the issues and engaging community leaders on a wide range of conservation and efficiency topics. In particular, community leaders were engaged through trade shows, presentations and other outreach activities, providing a local presence on conservation with the implementation of Energy Efficiency Week activities and other direct community programs such as the Coastal Labrador Community Energy Efficiency Pilot Program[4]. In addition to reaching customers directly, the takeCHARGE team has been strengthening the network on the issue of energy conservation by working with various provincial government departments, federal departments, national agencies, and local program delivery agents to ensure strong information sharing and wider partnering opportunities.

3.2 Program Highlights and Growth Opportunities

Program participation in Hydro's service areas fell short of expectations in 2009. There are challenges in reaching rural customers that require activities in addition to mass market communications. A mass market awareness and promotion campaign will continue to be the foundation of promotional activities for the takeCHARGE program. However, additional activities have been and will continue to be used to reach smaller communities, including providing materials at community events and to community groups, hosting information booths

[4] This program is funded by Provincial Department of Natural Resources and is a community based initiative that focused on two diesel supplied communities on the coast of Labrador. Local residents were trained to provide residential and commercial building energy conservation information and offered homeowners a free energy walkthrough for their home and provided a kit of energy conservation devices for immediate energy savings for participating homes.

at hardware retail outlets and during conferences, and targeting community specific opportunities for promotions through radio stations, municipal signage and non-governmental organizations' email lists.

Rural customers also rely significantly on a do-it-yourself approach to home renovations rather than contractors, meaning benefits and instructions on how to use and properly install these technologies must target these individuals. A one-on-one approach is a challenge in a geographically diverse region, but Hydro has been working to reach customers in this way through supplying education and enhancing awareness to employees in the region and to community partners to create a local capacity for promoting the program.

Retailers are critical participants in the purchase decision and Hydro and Newfoundland Power have worked to ensure retailers have the necessary point of purchase materials for promotion. A network of retailers has also been reached to ensure they have the tools and information necessary to provide customers with good information on the technologies, their energy and comfort benefits and on the rebate programs themselves. Providing retailer employees with detailed technical information is challenging with rural retailers because they have smaller staff teams who provide customer support in many product categories rather than specializing in one.

A major driver for energy savings is the cost savings for customers on their energy bills and rate structures impact those savings. Hydro's residential, electrically-heated customers have different degrees of economic drivers depending on whether their rates are Island Interconnected (or based thereon) or Labrador Interconnected rates[5]. This is not a barrier that can be changed, but is a reality in serving a wide range of customers.

2010 provides opportunity to continue to learn and improve tactics to increase participation in the programs. Through the partnership with Newfoundland Power, takeCHARGE will begin aggressive marketing efforts early in 2010 that will coincide with the beginning of the purchases for the residential home renovations market and will also result in higher awareness of the takeCHARGE program in general[6]. This will move Hydro's customer program participation along the path towards the Plan targets.

[5] There are few diesel system homes with electricity as their primary heat source.
[6] Early 2010 costs associated with the mass market campaign will be fully funded by Newfoundland Power.

The participation in the Commercial Lighting Program was also lower than expected in 2009 and planning is underway to address new challenges identified in the market[7]. This program is modeled on a program that has been in place in New Brunswick and Nova Scotia for some time and work with utility contacts in those jurisdictions to find ways to increase uptake will continue. Technical workshops have been held with major buyers of energy efficient lighting to encourage adoption of the rebated technologies in their purchasing specifications.

The Industrial Custom Program will be launched in 2010, providing rebates and support to Hydro's Industrial Customers. This program has been delayed from the original Plan to allow for thorough research on the program design prior to customer consultation. Consultation is felt to be critical to having a successful program launch. Delays in the consultation occurred due to a vacancy in the industrial program lead position. While recruitment for a replacement occurs, the remaining staff's duties have been adjusted to allow for the final work to be completed for the program launch. The consultation process has begun and the launch is expected to occur in the first half of 2010.

[7] Communications with lighting distributors have uncovered additional key roles in the purchase decision for efficient lighting and efforts are now being made to widen communications on the program. The potential target market has also widened to include the many sales made through a competitive bidding process rather than a traditional sales interaction. This type of transaction requires promotion of the benefits of efficient lighting and must be focused on the end purchaser of the product in writing their specifications for bidding rather than those bidding on the contract.

4 PROGRAM COSTS

4.1 Energy Savings and Program Costs

For the proposed technologies and the anticipated level of customer participation, the energy savings are estimated to be 70 GWh per year by 2013. In the residential and commercial sectors, savings were expected to begin in the first year of the program. The timing in the Plan for incurring the costs and energy savings has been delayed by the mid-2009 launch of the residential and commercial programs and the delays in the launch of the Industrial Custom program. These delays affected short term projections, but over the life of the Plan the projected savings targets remain attainable.

Delays in the launch of the residential and commercial programs until mid-year (due primarily to the fact that approval for the deferral of costs was not obtained until March 25, 2009) resulted in less participation than forecast for 2009. Also, these are the first programs under the takeCHARGE program, and as such there was little knowledge in the marketplace about the takeCHARGE initiative and the availability of the rebates. An aggressive mass marketing effort, supplemented with community focused outreach and work with retailers and distributors, has begun to increase customer awareness of the takeCHARGE brand and programs in general as well as the specific technologies being rebated.

Savings assumptions made in the 2009 Conservation Cost Deferral Report have been reduced in this application to reflect the delays in movement for uptake in the market, and to reflect lessons learned from current participation[8]. Table 1 contains Hydro's original budget and current forecast CDM Program Savings in MWh for 2009 and 2010 by sector.

[8] For example, residential insulation rebate applications are indicating that Rural Customers are completing smaller projects than originally anticipated. Assumptions were based on projects covering 1,000 square feet, but the average rebate to date has been closer to 500 square feet per project.

Table 1: Hydro's Energy Savings (MWh)

Hydro's Energy Savings 2009 and 2010 by Sector (MWh)				
	2009B	**2009F**	**2010B**	**2010F**
Residential				
Insulation	697	31	765	102
Windows	139	10	153	25
Thermostat	80	5	103	22
Commercial				
Lighting	65	1	73	12
Industrial	0	0	0	0
Total	981	47	1,094	161

As described in the 2009 Conservation Cost Deferral Report, there are costs associated directly with the delivery of a specific rebate program and those are the CDM Program Costs. These costs vary greatly depending on the level of program participation and number of programs being offered and these costs comprise the request to defer. There are also support costs associated with the general awareness, planning functions and other costs incurred regardless of the specific rebate programs currently being offered. These are the CDM Support Costs and are somewhat stable. Hydro's total estimated Program Costs were $0.2 million in 2009 and are forecast to be $2.3 million in 2010 (see Table 2).

Table 2: Hydro's CDM Program Costs

Hydro's CDM Program Portfolio Program Cost Estimates: 2009-2010 by Sector ($000s)	2009B[9]	2009F	2010B[9]	2010F
Residential				
Insulation	132	36	119	100
Windows	96	41	88	93
Thermostat	65	13	58	16
Commercial				
Lighting	78	13	69	41
Industrial	1,466	57	2,638	2,018
Total	1,837	160	2,972	2,268

The CDM Cost Deferral Account Definition[10] states that 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 fuel savings which are not applicable to the Labrador Interconnected System. The incremental costs to provide these programs to this system are not expected to be substantial compared to the costs associated with the island customer base and the provincial portfolio. Table 3 provides a breakout of the costs for the Labrador Interconnected System for 2009. The costs for the Labrador Interconnected System in 2009 were approximately 9% of Hydro's total program costs.

[9] From 2009 Conservation Cost Deferral Report, November 2008. Reflects an update from the 5 Year Plan submitted June 2008.
[10] Definition of the deferral account submitted to the Board on April 22, 2009.

Table 3: Hydro's Labrador Interconnected CDM Program Costs

Hydro's CDM Program Portfolio 2009 Labrador Interconnected Costs by Sector ($000s)	2009
Residential	
Insulation	2.8
Windows	10.5
Thermostat	0.5
Commercial	
Lighting	0.5
Industrial	0.0
Total	14.3

As described in the Plan, CDM Support Costs remain fairly stable, with small movement between categories depending on the focus of activities for the year. 2010 will continue to have a focus on general conservation awareness and promotion of a range of technologies. The utilities will also continue the promotions around Energy Efficiency Week in the fall of 2010 and engage partners in a range of community promotions.

CDM Support Costs are reduced from initial forecast due to reduced costs associated with rebate application processing and an increased emphasis on planning and development of new programs and initiatives in 2010. Planning costs are expected to increase in areas of new technology research, new program development and design and market research costs. Table 4 contains Hydro's Program Support costs.

Table 4: Hydro's CDM Support Costs

Newfoundland and Labrador Hydro 2009-2010 CDM Program Support Costs ($000s)				
	2009B	**2009F**	**2010B**	**2010F**
Education	196	200	205	204
Support	66	53	74	46
Planning	195	189	274	210
Total	457	442	553	460

During 2009, the focus of advertising and promotion was on the takeCHARGE brand and the Energy Savers Rebates programs. This meant a reduced effort on general awareness promotion from the original budget.

Mass market promotion for Energy Efficiency Week was paid for by Newfoundland Power for 2009 as it was included in the mass market approach for 2009 programs. It was decided that Newfoundland Power would support the mass market costs for 2009 and Hydro would support innovative marketing approaches to supplement the mass market effort. The costs associated with the mass market approach for 2009 were lower than initially budgeted because of the mid-year launch.

The Energy Conservation and Efficiency Partnership, chaired by the Provincial Department of Natural Resources was not fully established in 2009 and therefore approximately $30,000 was not incurred in support of joint government and utility programs to promote energy efficiency.

4.2 Program Deferral Costs

The Program Portfolio Costs shown in Table 2 fall within the definition of the CDM Cost Deferral Account[11]. These include such items as detailed program development, promotional materials, measurement and verification, employee training and other costs associated directly with

[11] Definition of the deferral account submitted to the Board on April 22, 2009.

programs in the CDM Program Portfolio. These costs may vary greatly on an annual basis depending on a number of factors including customer uptake, the need for tools, promotions and education in the marketplace for specific technologies[12] and other factors.

Costs for 2009 are lower than originally budgeted due to a number of factors. The delay of the program launch until June was a significant factor. This limited program availability to only six months of the year but there were also substantial opportunities missed in the residential programs because of customer purchase patterns for building envelope and home heating related technologies. The first quarter is a strong sales time for windows, with many retailers offering large discounts for early booking and purchase of windows. takeCHARGE promotions will leverage these retailer promotions in 2010 but missed these opportunities in 2009.

In order to avoid missing this window in 2010, Hydro will continue to offer this program prior to receiving the Board's approval for CDM cost deferral. Newfoundland Power is continuing to offer the programs and is moving ahead on mass market promotions and activities associated with creating awareness during this critical time of year. These efforts will also reach Hydro customers, and it is not practical for Hydro to stop offering these programs to its customers. As well, home heating costs are top of mind for consumers during the winter, driving interest in home insulation upgrade projects. The summer months see activity on these technologies but at a reduced level. Hydro will only spend funds in order to maintain the program while awaiting approval from the Board to defer CDM Program costs. Expansion of marketing and promotions and additional activities to increase participation will be delayed until Board approval is received. As well, spending on the Industrial Program will wait for Board approval.

Related to the program launch timeline, the costs associated with advertising and promotions were less than budgeted. For 2009, the mass market campaign was paid for by Newfoundland Power with additional support needed to reach specific geographic areas paid for by the utility covering that service area.

Customer uptake was lower than anticipated for a number of reasons, largely because of the timing of the program launch and, as previously mentioned, the challenges in reaching the

[12] For example, during delivery of the Energy Star Windows program, there has been a gap identified in the awareness of the benefits of the components of the Energy Star Window program among many retailers as well as customers resulting in additional time spent providing education and support on the technology itself as well as promoting the rebate program.

Rural Customer base that will take time to address. As well, the Commercial Lighting Program has had much lower uptake than anticipated for 2009 and investigation into this is continuing. Table 5 shows by month the number of takeCHARGE rebate applications received from Hydro's customers.

Table 5: 2009 Hydro Customer takeCHARGE Applications by Month

	Hydro's takeCHARGE Applications by Month						
	June	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Residential							
Insulation Program		1	1	2	2	8	2
Thermostat Program		2	1	5		7	3
ENERGY STAR Windows Program				2	3	5	3
Commercial							
Lighting Rebate Program					2	12	7
Total	0	3	2	9	7	32	15

2010 is expected to have increased participation from 2009 estimates due to the improved networks with retailers and program awareness with customers. As these are the first programs offered through takeCHARGE, a building process is expected and the time in the market to date will impact that building process. As well there has been a reduction in the forecasted participation for 2010 to reflect lessons learned from the first months of program delivery.

5 JUSTIFICATION

Hydro is seeking approval to defer the CDM program costs it will incur in 2010 and for the deferred recovery of these amounts in a manner to be determined by the Board at a later time. Hydro's 2010 program costs are estimated to be $2.3 million. These costs were not forecast in Hydro's 2007 Test Year to be recovered in rates as set by Order No. P.U. 8 (2007). Hydro had not, at that time, completed the research and analysis required to determine the level of CDM programs and costs.

Hydro is not, at this time, seeking approval to defer non-program costs it will incur in 2010, estimated to be $460,000, which is approximately $60,000 more than the amount of CDM costs included in 2007 forecast costs in Hydro's last GRA.

If the 2010 CDM program costs are not deferred they must be recognized as expenses incurred in 2010. This will have a significant impact on Hydro's income in that year. The 2010 CDM program costs are being incurred for the enduring system benefits, in the nature of energy reductions, which they provide. The particular duration of the energy savings benefits from these programs and the appropriate regulatory treatment of these costs will be the subject of further applications by Hydro.

6 CONCLUSION

Hydro has estimated that it will incur $2.3 million in CDM Program expenses in 2010. These expenses are in excess of Hydro's forecast costs used to set rates by Order P.U. 8 (2007). Therefore, Hydro is requesting approval from the Board for the deferral of the costs to be incurred by Hydro that are associated with the 2010 CDM Programs outlined in the Plan and further described in this report.

APPENDIX A: CDM Portfolio Program Descriptions as described in the Five Year Plan

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, based on annual kWh usage.

Eligible Measures

Eligible measures in this program are *ENERGY STAR* qualified windows.

Delivery Strategy

Through partnering with trade allies, such as retailers of *ENERGY STAR* windows and home building and renovation contractors, customers will be encouraged to purchase *ENERGY STAR* windows. Communications will incorporate the *ENERGY STAR* brand and related marketing support. 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. To facilitate the application process and to ensure that customers purchase qualifying products, a pre-approval process may be utilized.

Market Considerations

ENERGY STAR qualified windows make up approximately 10% 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 price premium of approximately $2.50 - $3.00 per square foot. Eligible windows are widely available. Local manufacturers produce approximately 50% of provincial window sales. Assistance in obtaining *ENERGY STAR* product qualification may be considered, since one local manufacturer does not offer qualified products.

Incentive Strategy

Incentives for this program include rebates and financing. Rebates are based on $2.00 per square foot of window installed.

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 every two years during operation.

Estimated Costs & Energy Savings

	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	$ 668	$ 566	$ 666	$ 646	$ 730	$3,277
Estimated Cumulative Energy Savings (MWh)	346	730	1,154	1,653	2,207	
Total Resource Cost	1.71					
Rate Impact Measure	0.86					

Residential Thermostats

Program Description

The existing thermostat rebate program will be revised based on the CDM Potential Study and market research. The objective of this program is to increase the installation of high-performance thermostats which accurately control room temperature, and programmable thermostats which automatically set back room temperature, in order to save space heating energy. The program provides rebates and financing.

Target Market: Residential

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

Eligible Measures

Eligible measures in this program include both programmable and high performance thermostats (those which control within +/- 0.5C.) Eligibility for programmable thermostats will be based on *ENERGY STAR* qualified products.

Delivery Strategy

Marketing initiatives include partnering with manufacturers, retailers, electrical contractors and homebuilders to educate consumers regarding the energy savings and comfort benefits of programmable and high performance thermostats. Communications to homeowners will utilize mass media advertising and website materials. Tools and tactics will also include retail and model home point-of-sale materials, tradeshows, community outreach and trade ally activities.

Rebates will be issued directly by authorized dealers and through consumer-submitted coupons.

Market Considerations

Sales of programmable and high performance thermostat types make up less than 20% 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. Consumer price premiums are approximately $15 per unit for high performance thermostats and $33 per unit for programmable thermostats. Availability of 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. Rebates are based on $5.00 for each high performance thermostat and $10.00 for each programmable thermostat.

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 every two years during operation.

Estimated Costs & Energy Savings

	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	$ 425	$ 378	$ 459	$ 397	$ 441	$2,100
Estimated Cumulative Energy Savings (MWh)	292	677	1,103	1,622	2,181	
Total Resource Cost	1.48					
Rate Impact Measure	0.95					

Residential Insulation

Program Description

The existing *Wrap Up for Savings* program will be revised based on the CDM Potential Study and market research. The objective of this program is to build on the existing program to increase the insulation level in basements, crawl spaces 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, based on annual kWh usage.

Eligible Measures

Eligible measures in this program include insulation upgrades to basements, crawl spaces and attics. Minimum R-value requirements will be specified. Rebates for new homes are limited to basement insulation beyond building code compliance.

Delivery Strategy

Marketing initiatives will include partnering with trade allies in the retail and home building and renovation industry to target both do-it-yourself and professional installers. Communications to homeowners will utilize mass media advertising and website materials. Tools and tactics will also include retail and model home point-of-sale materials, tradeshows, community outreach and trade ally activities. Rebates and financing will be processed through customer application. To facilitate the application process and to ensure that customers complete the work to a minimum R-value, a pre-approval process may be utilized.

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 do not have insulation installed 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 based on insulating value (R-value) rather than a prescriptive product list as is currently offered. Rebates will be based on $0.02 per R-value per square foot of insulation installed in basements and crawl spaces (minimum requirement of R12), and $0.01 per R-value per square foot of insulation installed in attics. Maximum rebated R-values will be specified.

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 every two years during operation.

Estimated Costs & Energy Savings

	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	$ 884	$ 827	$ 966	$ 862	$ 912	$4,451
Estimated Cumulative Energy Savings (MWh)	2,472	5,191	8,181	11,170	14,160	
Total Resource Cost	2.96					
Rate Impact Measure	1.54					

Commercial Lighting

Program Description

The objective of this program is to increase the installation of more efficient lighting technologies in commercial buildings resulting in energy savings from reducing lighting loads. The program provides rebates to lighting distributors to cover the incremental cost of high performance T8 lighting as well as an added incentive for each lamp to encourage these distributors to recommend and sell high performance T8 lighting rather than standard T8 or T12 lighting products. The program also promotes the installation of LED exit signs and occupancy sensors for commercial buildings.

Target Market: Commercial

This program targets commercial customers, including retrofit or new installation of lighting equipment commercial buildings.

Eligible Measures

The eligible measures in this program are modeled on programs in New Brunswick and Nova Scotia. These include high performance T8 (HPT8) fluorescent electronic ballasts, lamps and fixtures, occupancy sensors and *ENERGY STAR* LED exit signs.

Delivery Strategy

This program is modeled on the New Brunswick program launched in April 2007 and recently adopted in Nova Scotia. The program focuses on lighting distributors and incents them to sell high performance T8 lighting and ballasts, rather than standard T8 and T12 technologies. Participating distributors provide sales and customer data in exchange for rebates. Commercial customers receive a more efficient product for the same cost, and benefit from ongoing reduced energy use and costs.

Market Considerations

The largest portion of the market opportunity in commercial lighting is in standard T12 fluorescent tube lighting with electromagnetic ballasts. Federal regulations will remove the electromagnetic ballast from new sales starting in 2010, which is expected to drive additional replacements of standard T12 lighting. By eliminating the incremental cost between standard T8 and HPT8 equipment, the program is expected to shift the market beyond the standard T8, and thus increase the use of HPT8 for replacement of T12 lighting. 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

Rebates are based on elimination of the full incremental cost of high performance T8 lamps and ballasts over standard T8 lighting, along with an added incentive of $0.25 per lamp and $0.50 per ballast for each high performance T8 product sold by the distributor. Rebates are also provided for LED exit signs and occupancy sensors.

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 every two years during operation.

Estimated Costs & Energy Savings

	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	$ 439	$ 433	$ 517	$ 478	$ 550	$2,416
Estimated Cumulative Energy Savings (MWh)	722	1,720	2,988	4,518	6,333	
Total Resource Cost	3.84					
Rate Impact Measure	1.05					

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 Industrial Class of customers served by 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.

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

	2009	2010	2011	2012	2013	Total
Estimated Costs ($000s)	$ 1,466	$2,638	$4,266	$ -	$ -	$8,370
Estimated Cumulative Energy Savings (MWh)	-	-	20,000	45,000	45,000	
Total Resource Cost	2.89					
Rate Impact Measure	1.42					

APPENDIX B: Conservation and Demand Management (CDM) Cost Deferral Account Definition

Conservation and Demand Management (CDM) Cost Deferral Account
Proposed 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.

NEWFOUNDLAND POWER
A FORTIS COMPANY

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HAND DELIVERED

February 28, 2011

Board of Commissioners
of Public Utilities
P.O. Box 21040
120 Torbay Road
St. John's, NL A1A 5B2

Attention: G. Cheryl Blundon
Director of Corporate Services
and Board Secretary

Ladies & Gentlemen:

In accordance with Order No. P.U. 7 (1996-97), enclosed are the original and 8 copies of the 2010 Conservation and Demand Management Report.

If you have any questions, please do not hesitate to call me at the number listed below.

Yours very truly,

Gerard M. Hayes
Senior Counsel

Enclosures

c. Geoff Young
Newfoundland & Labrador Hydro

2010 Conservation and Demand Management Report

February 28, 2011

(filed in compliance with Order No. P.U. 7 (1996-97))

NEWFOUNDLAND POWER
A FORTIS COMPANY

Table of Contents

1.0 Introduction

In Order No. P.U. 7 (1996-97), the Board ordered, in effect, that Newfoundland Power (the "Company") file annual progress reports on its demand side management activities, including conservation.

This report is filed in compliance with Order No. P.U. 7 (1996-97) and outlines the Company's ongoing conservation and demand management ("CDM") activities.

Newfoundland Power continues to work jointly with Newfoundland and Labrador Hydro ("Hydro") under the *takeCHARGE* brand to provide customers with assistance and advice to manage their energy usage. 2010 was the first full year of offering joint utility customer energy conservation programs under *takeCHARGE*. The utilities also worked together to develop new customer energy conservation programs and commenced a review of program evaluation procedures. Activities to raise customer awareness of energy conservation were extended in 2010 as well, including broadened community outreach and industry partnerships.

The Company and Hydro continued to work with the Provincial Government regarding conservation programs, such as *EnerGuide for Houses* offered through the Department of Natural Resources, as well as policy development through the Office of Climate Change, Energy Efficiency and Emission Trading ("CCEEET").

While conservation initiatives under *takeCHARGE* are available throughout the province of Newfoundland and Labrador as a result of joint utility action, this report focuses on Newfoundland Power's programs.

2.0 CDM Planning and Coordination

2.1 Energy Conservation and Efficiency Partnership

The Provincial Government's Energy Plan, released in September 2007, announced the establishment of the Energy Conservation and Efficiency Partnership ("ECEP") to coordinate planning and delivery of energy conservation programs in the province. During 2009, responsibility for ECEP moved to the new CCEEET within Executive Council. The CCEEET provides policy development and analysis on climate change, energy efficiency and emissions trading.

During 2010, CCEEET formed a Government-Utilities Working Group on Energy Efficiency which includes Newfoundland Power and Hydro. This working group meets on an ongoing basis to exchange views, discuss programs and review methodologies for evaluating the impact of policies and programs.

The Company and Hydro continued their relationship with Government in the delivery of conservation programs in 2010. The Company meets regularly with the Department of Natural Resources and Newfoundland and Labrador Housing to exchange information and provide updates on the progress of their respective programs. Information regarding energy conservation programs offered by both Government and the utilities is shared and promoted to ensure consumers have the opportunity to maximize their savings.

2.2 Five-Year Energy Conservation Plan

In 2008, Newfoundland Power and Hydro jointly developed the *Five-Year Conservation Plan:2008-2013* (the "Plan"), which was filed with the Board in June 2008. The Plan provides an overview of the conservation marketplace in the province of Newfoundland and Labrador and outlines a strategy to be implemented by the utilities for joint conservation activities.

In 2009, the first four programs outlined in the Plan were introduced. The program portfolio included three residential programs and a commercial lighting program. In 2010, the Company and Hydro continued to collaborate to increase awareness and participation in these programs, develop new programs, and provide energy conservation information and advice to their respective customers.

3.0 Energy Conservation Promotion and Education

During 2010, Newfoundland Power continued its customer education and conservation awareness activities including promotion of its *takeCHARGE* rebate programs. These education and awareness activities involved a mass media marketing campaign, community outreach and trade ally development. The impacts of these activities are reflected in the level of program participation and customer contacts, as well as in the results of customer surveys.

3.1 Mass Media Advertising

Throughout 2010, the Company used a range of advertising media, including television, newspaper, radio and online campaigns to increase awareness of the *takeCHARGE* brand and rebate programs. Three new "Get Behind the $avings" television advertisements were produced and aired province-wide on CBC and NTV. These advertisements were also featured in online websites and billboards.

Five *takeCHARGE* newsletters were distributed with electricity bills during the year. These newsletters offered energy efficiency information and encouraged participation in the Company's rebate programs.

The 2nd annual *takeCHARGE* Energy Efficiency Week was held from October 2nd – 8th, with *takeCHARGE* teams hosting events at building supply stores across the province, providing energy efficiency advice to consumers and promoting the *takeCHARGE* Energy Savers rebate programs. A mass media campaign during Energy Efficiency Week promoted these events and encouraged customers to make wise energy choices.

Energy efficiency education and awareness also expanded to include the use of social media with the launch of Facebook and YouTube as new avenues to reach consumers. The *takeCHARGE* Facebook page currently has over 700 fans.

3.2 Community Outreach

During 2010, the Company participated in over 170 community outreach events across the province, up from 122 events in 2009. Energy efficiency information was presented to diverse groups including retailers and suppliers, senior citizens and youth. Interactive *takeCHARGE* information booths were displayed at 106 home shows, shopping malls and trade fairs across the island. Through all of these outreach activities, members of the *takeCHARGE* team assisted customers with their energy questions, and raised awareness of energy conservation and the *takeCHARGE* rebate programs.

At the 2010 Municipalities Newfoundland and Labrador Annual Convention, the first ever *takeCHARGE of Your Town Challenge* was launched to increase energy conservation awareness and practice in homes and businesses, and throughout communities. Over 100 communities pledged to take action to reduce the energy they used.

3.3 Trade Allies

Newfoundland Power expanded its network of trade allies across the island in 2010. Retailers and other trade allies play an integral role in assisting customers make wise energy conservation decisions and home improvements. *takeCHARGE* team members visited more than 150 retailers in 2010. These visits focused on expanding the training provided in 2009 and getting feedback from retailers aimed at improving the effectiveness of point of purchase material. This feedback also helped identify opportunities to increase customer awareness of the rebate programs and visits to the website through new marketing materials.

4.0 Customer Interest and Awareness

Customers' interest in energy conservation programs and information remained strong during 2010 as awareness of the *takeCHARGE* campaign increased.

4.1 Customer Contacts

Table 1 shows the number of customer-initiated contacts with the Company for energy conservation information from 2006 to 2010.

Table 1
Customer Contacts for
Energy Conservation Information

	2006	2007	2008	2009	2010
Contact Centre Inquiries	9,150	14,207	13,795	14,823	11,704
Website Visits	18,026	31,673	23,444	49,648	52,013
Total	**27,176**	**45,880**	**37,239**	**64,471**	**63,717**

The number of customer contacts related to energy conservation in 2010 was comparable to 2009. In each year, there were approximately 64,000 customer contacts through the *takeCHARGE* website and the Company's customer contact centre, which reflects an increase of about 72% over 2008. During 2010, customers increasingly chose electronic means of communication with the Company to obtain energy conservation information and details on how to participate in rebate programs. More than 52,000 visits to the *takeCHARGE* website were recorded throughout the year, a 4.6% increase over 2009. This increase reflects the strategy to promote the website as a primary source for customer information.

4.2 Customer Surveying

Newfoundland Power conducted its annual customer attitude and awareness survey on energy efficiency in November 2010. Results show that the Company's advertising and promotions have influenced customers' awareness and interest in energy conservation. Nearly half of respondents said that they had tried to reduce their electricity usage as a result of the *takeCHARGE* campaign.

The survey results indicate that customers' awareness of *takeCHARGE* remains strong, with seven in ten respondents recalling the campaign. The television campaign had the highest level of recall at 78%, followed by bill inserts at 54%. Customer interest in participating in the *takeCHARGE* programs within the next 12 months varied from 14% for programmable thermostats to 9% for ENERGY STAR® windows.

Newfoundland Power also conducted an energy end use survey. This survey provides the Company with information such as customers' fuel usage, main heating systems and certain aspects of energy efficiency. This customer energy use information supports load forecasting and customer energy conservation program planning and evaluation.

5.0 CDM Programs

The CDM program portfolio provides residential and commercial customers with conservation and demand management incentives which result in quantifiable energy and demand savings. 2010 was the first full year of activity for the *takeCHARGE* conservation programs. The programs substantially increased participation and savings from 2009.

The following describes the *takeCHARGE* rebate programs and the results obtained during 2010.

5.1 Residential Energy Conservation

The Company continued to offer three energy conservation programs for residential customers in 2010. These programs were bundled for marketing as the *takeCHARGE* "Energy Savers". These programs focus on reducing space heating energy consumption, and also provide reductions in peak demand.

Insulation Rebate Program
This program targets efficiencies in home heating by providing customers with incentives to improve insulation levels in basements and attics. Upgrading the insulation of existing homes and insulating foundations in new homes are included. Eligibility is limited to electrically-

heated homes, determined on the basis of annual kWh usage. Customers can receive an incentive of two cents per R-value per square foot of insulation added to basement walls or ceilings, and one cent per R-value per square foot for insulation added to their attics. Rebates and financing are processed through customer applications.

This program replaces the Wrap Up for Savings program which existed until the launch of the new program in June 2009. This program is promoted in partnership with trade allies in the retail, home building and renovation industries.

Thermostat Rebate Program

This program assists customers to better control the temperature of their homes and to set back the temperature during the night and when away from home. This will reduce the heating requirement of their electric heating system. Rebates and financing are available for both the home retrofit market and new homes. Incentives of $10 for each programmable thermostat and $5 for each electronic high performance thermostat are offered. Rebates are issued through authorized dealers and through customer-submitted coupons.

This program replaces the Company's previous thermostat rebate program. This program is promoted in partnership with manufacturers, retailers, electrical contractors and home builders.

ENERGY STAR® Window Rebate Program

This program encourages customers purchasing new or replacement windows to choose ENERGY STAR® rated windows over standard windows. Eligibility is limited to electrically-heated homes, determined on the basis of annual kWh usage. Customers who purchase ENERGY STAR® windows receive a rebate of two dollars per square foot of window installed. Rebates and financing are processed through customer applications.

This program is promoted in partnership with trade allies, such as retailers, manufacturers, and home building and renovation contractors.

Residential Program Results

Table 2 shows the 2010 customer participation levels achieved, and the energy and peak demand savings results.

Table 2
2010 Residential Program Participation and Savings [1]

Program	Customer Participation	Estimated Annual Energy Savings (MWh)	Estimated Peak Demand Savings (kW)
Insulation Rebate Program	661	2,177	674
Thermostat Rebate Program	1538	1,186	366
ENERGY STAR® Window Rebate Program	899	989	305
Total	**3,098**	**4,352**	**1,345**

[1] Estimated savings are those that will accrue to participants on an annual basis. Actual savings during 2010 may have been less depending on when the customer completed their construction / renovation during the year.

Residential Program Planning and Evaluation
This year, the Company undertook planning for new residential programs and a review of its processes for evaluating programs.

The Company reviewed a number of technologies for potential new programs. Based on that review, mini-split (ductless) heat pumps will be investigated further through a technology evaluation program. Also a rebate program for high efficiency heat recovery ventilators will be considered for implementation in 2011.[2]

Since the implementation of the residential programs in 2009, there has been strong customer participation in urban markets and weaker participation in rural markets. To address this problem, Hydro implemented a pilot Customer Coupon Program in November 2010. Results of that program will be used to determine if it should be expanded to include other rural areas in the Province.

In December 2010, the CADMUS Group Inc., an energy consultant, was contracted to conduct a process review of the Company's programs and make recommendations for improvement of the Company's program evaluation methods. This review is ongoing.

Details of residential program cost effectiveness in 2010 are provided in Appendix A.

5.2 Commercial Energy Conservation

Newfoundland Power continued to offer a commercial lighting incentive program in 2010. This program focuses on reducing energy consumption, but also provides reductions in peak demand.

Commercial Lighting Incentive Program
The commercial lighting program targets energy reductions through more efficient lighting technologies in commercial buildings. The commercial lighting program offers sales incentives to participating lighting distributors to sell high performance T8 lighting fixtures, ballasts and lamps to their customers, instead of selling standard T8 or T12 lighting systems. The incentive of $1.25 for lamps and $4.25 for ballasts eliminates the cost differential from upgrading to the higher efficiency lighting systems and provides a sales incentive for the distributor. High performance T8 lighting systems use 25% to 40% less energy than standard T8 and T12 systems.

The program is promoted through lighting distributors and through engineering firms who develop building specifications. Participating lighting distributors provide the Company with sales and customer data in exchange for rebates.

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[2] An investigation of the market for ENERGY STAR® dishwashers and clothes washers indicated an already high level of penetration of these products in the province.

Commercial Program Results
Table 3 shows the 2010 customer participation levels achieved, and the energy and peak demand savings results.

Table 3
2010 Commercial Programs Participation and Savings[3]

Program	Customer Participation	Estimated Annual Energy Savings (MWh)	Estimated Peak Demand Savings (kW)
Commercial Lighting Incentive Program	232	707	296

Commercial Program Planning and Evaluation
This year, consideration was given to expanding the commercial lighting program. Based on this review, it was decided to proceed with rebates for LED exit signs. This expansion was envisioned during the initial development of the commercial lighting program. It will be implemented during 2011.

The commercial lighting incentive program is also included in the Company's review of its processes for evaluating programs which began in 2010.

Details of commercial program cost effectiveness in 2010 are provided in Appendix A.

5.3 Demand Management

The Company has one customer program, the Curtailable Service Option, which is focused on Demand Management.

Curtailable Service Option
The Curtailable Service Option (the "Option") provides an incentive to large customers to reduce electrical demand at the request of the Company during the winter peak season. The Option is available to general service customers billed on Rate 2.3 or 2.4 who can reduce their demand by at least 330 kVA. Participants who curtail their load at the request of the Company receive an annual credit on their electricity bills at the end of the winter season.

Twenty four general service customers participated in the Option during the 2009-2010 winter season, providing a load reduction of approximately 9.5 MW. This load reduction is exercised to reduce demand to manage purchased power costs and minimize customer outages. Detailed results for the 2009-2010 winter peak season were submitted to the Board in the *2010 Curtailable Service Option Report* dated April 29, 2010.

[3] Estimated savings are those that will accrue to participants on an annual basis. Actual savings during 2010 may have been less depending on when the customer completed their construction / renovation during the year.

6.0 CDM Costs

The Company's CDM costs for 2010 are reflective of its expanded *takeCHARGE* initiative and the four customer energy conservation incentive programs.

Table 4 summarizes Newfoundland Power's costs associated with CDM activities from 2006 to 2010.

Table 4
Conservation and Demand Management Costs
($000s)

	2006	2007	2008	2009[4]	2010
General Conservation Costs					
Education & Outreach	121	226	272	404	380
Support	93	93	104	183	158
Planning	64	150	204	225	249
Total General Conservation Costs	278	469	580	812	787
Conservation Program Costs					
Residential					
Wrap up for Savings	97	155	126	12	0
Thermostat Rebates	9	20	44	8	0
Energy Savers Program					
General[5]	-	-	-	750	1,398
Insulation	-	-	-	157	241
Thermostats	-	-	-	77	100
Windows				285	320
Commercial					
Lighting	-	-	-	67	83
Total Conservation Program Costs	106	175	170	1,356	2,142
CDM Capital Expenditures[6]			50	156	53
Demand Management Program Costs					
Curtailable Service Option	269	254	277	225	278
Total	**653**	**898**	**1,077**	**2,549**	**3,260**

[4] Program costs for 2009 have been updated to better reflect rebate accruals for each program. The 2009 reported costs originally attributed all rebate cost accruals to the commercial lighting program.

[5] General costs are those program related costs which cannot be assigned to a single program, such as advertising and retail point-of-purchase materials that include multiple programs.

[6] Capital expenditures associated with takeCHARGEnl.ca, the rebate processing and tracking system, and the employee toolkit.

7.0 Outlook

In 2011, Newfoundland Power will continue to promote and encourage customer participation in the *takeCHARGE* incentive programs. Newfoundland Power and Hydro also plan to introduce and enhance program offerings in 2011. Incentive programs will be expanded to include LED exit signs for commercial customers and high efficiency heat recovery ventilators for residential customers. The Companies will also begin a pilot study to assess mini-split heat pumps.

Newfoundland Power will continue joint conservation awareness initiatives with Hydro to provide advice and information for customers on managing their energy usage. Community outreach and industry partnerships will be key components of the Company's customer education approach. The takechargenl.ca website will continue to be enhanced with additional interactive tools and information to help customers save energy and money.

Newfoundland Power will also continue to work with the Provincial and Federal Governments in promoting awareness of energy conservation and programs that benefit customers.

Newfoundland Power will also review its customer energy conservation programs, taking into account recommendations of the ongoing process review evaluation.

Appendix A

takeCHARGE Programs
2010 Cost Effectiveness Results

takeCHARGE Programs
2010 Cost Effectiveness Results

The costs and benefits of the *takeCHARGE* programs were analyzed from the perspective of participants, non-participants and total resources.[1] For 2010, the DSM program tests indicated benefit to cost ratios as follows:

	Participants Test [2]	Rate Impact Test [3]	Total Resource Cost Test [4]
Insulation Rebate Program	2.17	1.12	1.86
Thermostat Rebate Program	5.28	0.98	2.20
ENERGY STAR® Window Rebate Program	3.97	0.64	1.24
Total Residential Portfolio	2.84	0.97	1.79
Commercial Lighting Incentive Program	8.40	1.62	9.78
Total Program Portfolio	3.05	1.02	2.00
Provincial Residential Portfolio[5]	2.85	0.96	1.76
Provincial Commercial Portfolio[5]	8.44	1.59	8.77

The *takeCHARGE* program portfolio passes each of these economic cost effectiveness tests based on 2010 program results.

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1 Analysis is based on the Company's 2007 marginal cost study updated with recent fuel cost forecasts. Benefit to cost ratio results of greater than 1.0 indicate the program has positive economic effect.

2 A *Participants Test* is used to determine if a DSM program minimizes the overall costs for participants.

3 A *Rate Impact Test* is used to determine whether the program minimizes rates for non-participants.

4 A *Total Resource Cost Test* is used to determine if a DSM program minimizes the overall cost of supplying energy.

5 Provincial portfolio cost benefit tests include program results of both Newfoundland Power and Hydro. Details regarding costs and benefits of Hydro's 2010 programs were filed with the Board as part of Hydro's 2011 conservation cost deferral report in February 2011. The Provincial residential portfolio cost tests do not include the pilot Customer Coupon Program.

NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

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2010 05 12

Newfoundland and Labrador Hydro
P. O. Box 12400
St. John's, NL
A1B 4K7

Attention: Geoffrey P. Young
Senior Legal Counsel

Dear Sir:

RE: Newfoundland and Labrador Hydro - Application for approval of the deferral recovery of Hydro's Conservation and Demand Management program costs proposed to be incurred in 2010

Attached for your information are two copies of Order No. P.U. 13(2010) issued by the Board in connection with the above captioned matter.

If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

Cheryl Blundon
Director of Corporate Services
and Board Secretary

Attachments

c.c. Newfoundland Power Inc. –Gerard Hayes, E-mail: ghayes@newfoundlandpower.com
Consumer Advocate – Thomas Johnson, E-mail: tjohnson@odeaearle.nf.ca
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A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

2011 CONSERVATION COST DEFERRAL REPORT

Newfoundland and Labrador

February 2011

newfoundland labrador hydro
a nalcor energy company

Table of Contents

1 Introduction

The purpose of this Application is to seek approval from the Board of Commissioners of Public Utilities (the Board) for the deferral of costs to be incurred by Newfoundland and Labrador Hydro (Hydro) associated with the 2011 implementation of the Conservation and Demand Management (CDM) programs and approach as outlined in the Five Year Conservation Plan: 2008-2013 (the Plan)[1]; to provide an update of activities undertaken in 2010 and highlight opportunities for 2011; and to outline the program costs that Hydro is seeking Board approval to defer.

The Plan outlines the joint utility approach undertaken in partnership with Newfoundland Power. This Application describes the provincial approach but only focuses on the costs and reach of initiatives for Hydro's portion of program implementation that is addressed by the deferral request.

Hydro is requesting a deferral of an estimated $840,000 to be incurred in 2011, which was not included in Hydro's 2007 Test Year approved expenses for rates set by Order No. P.U. 8 (2007).

[1] The Five-Year Energy Conservation Plan: 2008-2013 was filed with the Board on June 27, 2008.

2 Background

Energy conservation initiatives were a topic of discussion during Hydro's 2006 General Rate Application (GRA). Since that time, Marbek Resource Consultants Limited (Marbek) was commissioned and completed a potential study that provided information to assist in identifying cost-effective conservation programs and the potential contribution of specific technologies and measures in reducing forecast electricity consumption. From the potential study, a five-year strategic plan was completed which outlined proposed energy conservation initiatives to be implemented jointly by Newfoundland Power and Hydro (the Utilities), including technologies, programs, support elements and cost estimates that promote a long term goal of an established conservation culture with sustained reductions in electricity consumption. The potential study was filed with the Board on March 20, 2008 and the Plan was filed with the Board on June 27, 2008.

The focus for the Plan 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. An application to defer the recovery of actual 2009 costs to be incurred by Hydro in association with the implementation of the Energy Conservation Program was filed on November 21, 2008. That filing addressed forecasted costs for delivering the programs to Hydro customers in 2009. The Board approved the application in Order No. P.U. 14 (2009), and ordered Hydro to file a definition 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.

Electricity conservation and efficiency programming in Newfoundland and Labrador is primarily delivered by the utilities through a joint utility effort. The Utilities plan and develop a portfolio of rebate programs jointly, with each utility delivering to their own customers. This approach creates economies of scale on a variety of program costs to ensure the widest reach of

conservation programming with lower cost to all electricity users. The Utilities use community outreach, rebates and incentives, education and other tools to create a stronger awareness of energy efficiency opportunities and to develop a culture of conservation within the province.

2010 was the first full year of activity for the takeCHARGE Energy Savers Rebate programs and there has been continued growth in participation and uptake from the launch year of 2009. In 2010, efforts increased to reach residential customers including producing new advertising campaigns, website resources, engaging in social media through Facebook awareness efforts and providing training to retailers' staff to assist them in selling efficient technologies to their customers. Hydro also continued to engage with commercial lighting distributors to increase participation in the commercial lighting program, as well as engaging additional participants in the market including retailers, contractors and building operators. Hydro also launched the Industrial Energy Efficiency Program (IEEP), providing customized approaches for energy savings for Hydro's large transmission level Industrial Customers.

As well, Hydro has built a team in its Energy Efficiency group to support the planning, development and implementation of programming. This group coordinates outreach, analyzes technical data and provides support for the ongoing program implementation and growth. Hydro has also made strong steps towards reducing energy use in its own facilities in an effort to increase internal energy efficiency and conservation. An Internal Energy Efficiency Advisor works with employees, facility and asset managers and an assortment of technical staff to find opportunities and implement strategies to reduce Hydro's own energy use.

3 Program Portfolio

The existing Energy Savers Rebate programs offered through the takeCHARGE program launched in June 2009 will continue to be offered in 2011. These programs have shown energy savings and continue to move 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 customized IEEP will also continue to be available to transmission level Industrial Customers.

In addition to these programs, there will be projects and pilot initiatives implemented to address specific opportunities to generate further energy savings and further move towards the development of a culture of conservation.

The Energy Savers Rebate programs are offered provincially, however the costs associated with delivery in the Labrador Interconnected System are tracked and expensed differently than those in other systems. Outside the Labrador Interconnected System, the dominant economic driver is the avoided fuel cost. In the Labrador Interconnected System the dominant economic driver is export market sales. To ensure the costs of conservation are associated with those who see the primary benefits, the costs of conservation and efficiency on the Labrador Interconnected System are charged to Hydro's non-regulated business.

The following tables describe Hydro's total CDM budget and energy savings from 2009 to 2011 across all of Hydro's systems. This report will provide further detail and breakdown of those

costs that will be recovered through the deferral account and the associated savings in avoided fuel costs.

Table 1: Hydro's New Annual Energy Savings 2009-2011 (MWh)

	2009	2010 (A)	2011 (B)[2]
Residential			
Insulation	31	84	105
Windows	12	27	26
Thermostat	6	25	17
Hydro Customer Coupon Program		64	292
Subtotal	*49*	*200*	*440*
Commercial			
Lighting	3	10	41
Industrial	0	0	4,750
Total	52	210	5,231

Table 2: Hydro's CDM Program Costs 2009-2011 ($000's)

Residential	**2009**	**2010 (A)**	**2011 (B)**
Insulation	40	60	88
Windows	44	48	69
Thermostat	13	19	22
Hydro Customer Coupon Program	0	140	136
Subtotal	*97*	*267*	*315*
Commercial			
Lighting	13	12	36
Industrial	57	221	830
Total	167	500	1,181

3.1 takeCHARGE Approach

The takeCHARGE approach was described in detail in Hydro's 2010 Conservation Cost Deferral Report. The joint utility effort allows for economies of scale to be achieved where possible 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

[2] Savings data will be further refined in 2011 with updated tracking designed to account for energy savings from the date of the approved rebate application rather than assuming a full year's installation. The development and implementation of this type of tracking is an effort to provide increased quality of data on energy savings. Due to this tracking process change, the numbers of rebates are expected to increase from 2010 but the savings expectations appear reduced due to many applications being submitted in the fourth quarter where there will be limited savings for that calendar year.

standard utility economic screening[3]. In addition, a range of education efforts around efficiency in a wider sense have also been implemented to develop a culture of conservation.

While the current portfolio of Energy Savers Rebate programs remains relatively new in the market, the Utilities are working to expand the reach and impact of the CDM effort and will complete an updated Five Year Plan in 2011.

Program offerings will continue to target significant end uses (e.g. residential home heating), but will also work to provide a wider range of savings options for customers to reduce their electricity consumption across a wider range of end uses. The Utilities will continue to reach out through traditional methods of advertising and promotions, and to expand reach into communities, participate in community events, work with community leaders and utilize social media opportunities. This holistic approach to addressing technology, the end user and their community creates the best option for sustainable behaviour and attitude change.

In the work to implement a provincial portfolio, the Utilities have developed a strong joint utility team of conservation and efficiency professionals. Through joint utility collaboration there have been opportunities to deliver the same programs (Energy Saver Rebates) and also to coordinate efforts to address the unique challenges and opportunities of each utility's customer base. For example, in Hydro's rural communities, promotions at local community events have been effective while in Newfoundland Power's more urban market, displays and booths at box stores have been utilized. The existing offering of rebated technologies will be supported by the implementation of additional, targeted programs and initiatives, such as the Hydro Customer Coupon Program Pilot implemented by Hydro in November 2010[4].

[3] The primary test for economic viability is the Total Resource Cost (TRC) test which includes both the participants' and utility's costs and benefits as factors in the net value of the program. As outlined in the Plan, each program has a positive TRC, which means the total program benefits exceed the total costs of the program.
[4] Documentation describing the project was filed with the Board on October 27, 2010.

3.2 Program Highlights and Growth Opportunities

Program participation continues to have slow, but steady, growth in Hydro's primarily rural customer areas. There are a number of factors contributing to this. Economic challenges are present for some consumers because of the potentially large up front cost of many home renovation projects, and the lack of awareness of how quickly the customer can gain financial benefits from this type of investment[5]. Retailers continue to be key partners in reaching customers, but outreach and non-traditional promotions and awareness building have also shown to have impact in reaching this diverse market. For example, the takeCHARGE program has used community events, web-based contests, school-based outreach and other methods to reach customers in a variety of ways.

In the commercial lighting market, lighting distributors are critical in working to promote the more efficient technology. However, in working with these distributors, it has been discovered that there are additional key stakeholders involved in reaching the larger commercial lighting purchases of government and institutions. In Hydro's service area, larger commercial lighting opportunities are primarily found in government projects. Hydro has worked with provincial government departments and has had significant success with the inclusion of the high efficient lighting in two new schools completed in 2010.

The IEEP has become active in 2010. Baseline energy end use audits were conducted for Industrial Customers[6] to assist in identifying opportunities for capital projects and employee engagement opportunities. These baselines indicate priority areas for electricity efficiency for the Industrial Customers and are useful in Hydro's validation of savings from completed projects. The Industrial Customers have been engaged in discussions regarding IEEP

[5] From the rebate applications received to date, many customers have under-insulated basement walls and ceiling, which will not result in significant energy savings and is not eligible for rebates. Retailers continue to describe customer discussions regarding the perceived difficulties of using programmable thermostats and the lack of awareness of the energy savings from Energy Star windows.

[6] An audit for North Atlantic Refining Limited (NARL) was not completed due to work being completed by NARL in 2010 and 2011 that would significantly change the baseline.

opportunities including financial cost share arrangements for feasibility studies for identified opportunities and capital projects. The IEEP also provides funding for training and employee awareness projects to create the culture of conservation within the employee base and encourage innovation on conservation and efficiency. The program economics have been updated since the submission of the 2010 Conservation Cost Deferral Report to reflect the changes in the Industrial Customer base and they remain strong[7]. The updated program profile is found in Appendix A.

Hydro has expanded its program offerings to its residential customers with the implementation of a new program to provide energy savings through smaller residential technologies to a wider group of customers than those eligible for the home heating based rebates[8]. The current residential Energy Savers[9] rebate portfolio is based on savings from home heating therefore customers must be electrically heated to be eligible for these rebates. Hydro's rural market has a significant number of other fuel heat customers[10] and a new program was developed to reach all customers. This coupon-based program was implemented in November 2010. It provides rebates for numerous technologies used in all residential homes. This program is a pilot effort and is being offered only to Hydro customers.

Hydro continues to work with Newfoundland Power and other partners to determine emerging opportunities for CDM programming and to develop appropriate strategies. Should significant additional programs be developed through this partnership, supplementary documentation will be provided at that time to the Board, following the pattern of information sharing conducted with the Hydro Customer Coupon Program.

[7] The updated TRC is 2.94, which shows that the benefits well exceed the costs of the program.
[8] See Coupon Program profile in Appendix A for additional detail.
[9] There is a variety of rebates, events and education and awareness initiatives offered through the takeCHARGE brand, but the Energy Savers brand is used only for joint utility residential rebate programs. This encompasses the insulation, Energy Star windows and thermostat programs, but not the Hydro Customer Coupon Program, for example.
[10] Approximately 50% of residential customers use sources other than electricity for their home heating, according to Newfoundland and Labrador Hydro's Domestic Customer Survey 2010.

4 Program Costs

4.1 Hydro Energy Savings and Program Costs

The energy savings have grown, since the 2009 program launch across both residential and commercial programs as shown in Table 3 below. The heating season is expected to see continued high levels of activity in the residential sector due to the programs' home heating focus through 2010 and into 2011.

The Hydro Customer Coupon Program was implemented in November and will continue to offer rebates until February 2011.

The industrial program, IEEP, is expected to see its first projects resulting in savings in 2011.

Program costs associated with this deferral request for 2011[11] are shown in Table 4.

Table 3: Energy Savings from Deferral Account Activity (MWh)

	2009	2010 (A)	2011 (B)
Residential			
Insulation	31	50	48
Windows	12	16	11
Thermostat	6	15	8
Hydro Customer Coupon Program	0	47	213
Subtotal	49	128	280
Commercial			
Lighting	3	0	13
Industrial	0	0	3,563
Total	52	128	3,856

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 greatly depending on the uptake of the program, and the number of

[11] The proposed definition of the deferral account was submitted to the Board on April 22, 2009.

programs offered. Hydro's program costs in 2010 related to the deferral account were $480,000 and are forecast to be $840,000 in 2011.

The costs for 2010 are lower than estimates in the 2010 Conservation Cost Deferral Report as a result of a number of factors. Rebate activity continues to grow but at a slower than anticipated rate, reducing the cost of rebates to customers. There were also additional savings to Hydro from a review of the cost sharing arrangement between the Utilities to better reflect the market share of residential customers with electric heat, which is the eligible market for the current portfolio of residential rebate programs. This resulted in a decrease in Hydro's costs in that area. The most significant variance is a result of the IEEP activity not beginning until mid-year and that it primarily involved conducting baseline energy audits required before moving to specific feasibility and capital work.

Table 4: Program Costs from Deferral Account Activity 2010-2011

	2009	2010 (A)	2011 (B)
Residential			
Insulation	40	53	64
Windows	44	41	49
Thermostat	13	18	19
Hydro Customer Coupon Program	0	113	109
Subtotal	*97*	*225*	*241*
Commercial			
Lighting	13	0	34
Industrial	57	190	564
Total	167	415	839

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 5 below. The reduction in education costs from 2009 to 2010 is primarily due to rebate program launch being mid-year 2009. Once the rebate programs were launched, a significant amount of labour resources were engaged in the direct program delivery. The increase in 2011 is due to an increase in education efforts to demonstrate the successes in Hydro's internal energy efficiency efforts. The planning costs reflect an increase due primarily to consultant costs associated with the development of new program and outreach efforts.

Table 5: Hydro's Support Costs 2009-2011 ($000's)

	2009	2010 (A)	2011
Education	262	106	217[12]
Support	53	48	45
Planning	176	180	228[13]
Total	491	334	490

5 Justification

Hydro is seeking approval for deferring the CDM program costs it will incur in 2011 and for the deferred recovery of these amounts in a manner to be determined by the Board at a later time. Hydro's total program costs to be deferred are forecast to be $840,000. These costs were not forecast in Hydro's 2007 Test Year to be recovered in rates as set by Order No. P.U.8 (2007). Hydro is not seeking approval to defer non-program costs for 2011, estimated to be $524,000, which is approximately $74,000 more than the CDM costs included in Hydro's 2007 test year as approved by the Board.

If the 2011 CDM program costs are not deferred, they must be recognized as expenses incurred in 2011. This will have significant impact on Hydro's income in that year. The CDM costs incurred provide ongoing system benefits, through energy reductions and associated fuel

[12] Increase in Education is due to the addition of the component of an Internal Efficiency Advisory salary to the Energy Efficiency group.
[13] Increase in Planning is due to the increase in consultant support for new program design for rebate and outreach efforts.

savings. The appropriate regulatory treatment of these costs will be the subject of further applications by Hydro.

6 Conclusion

Hydro has estimated that it will incur $840,000 in CDM Program expenses in 2011 associated with the deferral account. These expenses are in excess of Hydro's forecast costs used to set rates by Order P.U. 8 (2007). Therefore, Hydro is requesting approval from the Board for the deferral of the costs to be incurred by Hydro that are associated with the implementation of the joint utility CDM approach as outlined in the Plan and further described in this report.

APPENDIX A: CDM Portfolio Program Descriptions as described in the Five Year Plan

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 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, based on annual kWh usage.

Eligible Measures

Eligible measures in this program are *ENERGY STAR* qualified windows.

Delivery Strategy

Through partnering with trade allies, such as retailers of *ENERGY STAR* windows and home building and renovation contractors, customers will be encouraged to purchase *ENERGY STAR* windows. Communications will incorporate the *ENERGY STAR* brand and related marketing support. 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 through customer application.

Market Considerations

ENERGY STAR qualified windows make up approximately 10% 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 price premium of approximately $2.50 - $3.00 per square foot. Eligible windows are widely available. Local manufacturers produce approximately 50% of provincial window sales. Assistance in obtaining *ENERGY STAR* product qualification may be considered, since one local manufacturer does not offer qualified products.

Incentive Strategy

Rebates are based on $2.00 per square foot of window installed.

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 every two years during operation.

Estimated Costs & Energy Savings

Provincial Program TRC – 1.63

2011 Hydro estimated:
Costs - $69,000
Savings estimates 2011 – 26 MWh

Residential Thermostats

Program Description

The objective of this program is to increase the installation of high-performance thermostats which accurately control room temperature, and programmable thermostats which automatically set back room temperature, in order to save space heating energy.

Target Market: Residential

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

Eligible Measures

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

Delivery Strategy

Marketing initiatives include partnering with manufacturers, retailers, electrical contractors and homebuilders to educate consumers regarding the energy savings and comfort benefits of programmable and high performance thermostats. Communications to homeowners will utilize mass media advertising and website materials. Tools and tactics will also include retail and model home point-of-sale materials, tradeshows, community outreach and trade ally activities.

Rebates will be issued through consumer-submitted coupons.

Market Considerations

Sales of programmable and high performance thermostat types make up less than 20% 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. Consumer price premiums are approximately $15 per unit for high performance thermostats and $33 per unit for programmable thermostats. Availability of high performance thermostats is currently limited in most areas, though programmable types are widely available.

Incentive Strategy

Rebates are based on $5.00 for each high performance thermostat and $10.00 for each programmable thermostat.

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 every two years during operation.

Estimated Costs & Energy Savings

Provincial Program TRC – 1.35

2011 Hydro estimated:
Costs - $22,000
Savings estimates 2011 – 17 MWh

Residential Insulation

Program Description

The objective of this program is to build on the existing program to increase the insulation level in basements, crawl spaces and attics, resulting in savings in space heating energy. The program components include rebates 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, based on annual kWh usage.

Eligible Measures

Eligible measures in this program include insulation upgrades to basements, crawl spaces and attics. Minimum R-value requirements will be specified. Rebates for new homes are limited to basement insulation beyond building code compliance.

Delivery Strategy

Marketing initiatives will include partnering with trade allies in the retail and home building and renovation industry to target both do-it-yourself and professional installers. Communications to homeowners will utilize mass media advertising and website materials. Tools and tactics will also include retail and model home point-of-sale materials, tradeshows, community outreach and trade ally activities. Rebates will be processed through customer application.

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 do not have insulation installed on the concrete portion of basement walls. Initial cost is a barrier to increased market penetration, as are awareness of the impact on space heating energy, and the practical difficulties of renovating an existing living space. Recent experience with the former *Wrap Up for Savings* program has shown participation to be responsive to awareness-building marketing activities.

Incentive Strategy

The rebate value will be based on insulating value (R-value) rather than a prescriptive product list as is currently offered. Rebates will be based on $0.02 per R-value per square foot of insulation installed in basements and crawl spaces (minimum requirement of R12), and $0.01 per R-value per square foot of insulation installed in attics. Maximum rebated R-values will be specified.

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 every two years during operation.

Estimated Costs & Energy Savings

Provincial Program TRC – 2.96

2011 Hydro estimated:
Costs - $88,000
Savings estimates 2011 – 105 MWh

Commercial Lighting

Program Description

The objective of this program is to increase the installation of more efficient lighting technologies in commercial buildings resulting in energy savings from reducing lighting loads. The program provides rebates to lighting distributors to cover the incremental cost of high performance T8 lighting as well as an added incentive for each lamp to encourage these distributors to recommend and sell high performance T8 lighting rather than standard T8 or T12 lighting products. The program also promotes the installation of LED exit signs for commercial buildings.

Target Market: Commercial

This program targets commercial customers, including retrofit or new installation of lighting equipment commercial buildings.

Eligible Measures

The eligible measures in this program are modeled on programs in New Brunswick and Nova Scotia. These include high performance T8 (HPT8) fluorescent electronic ballasts, lamps and fixtures.

Delivery Strategy

This program is modeled on the program that has been very successful in both New Brunswick and Nova Scotia in recent years. The program focuses on lighting distributors and incents them to sell high performance T8 lighting and ballasts, rather than standard T8 and T12 technologies. Participating distributors provide sales and customer data in exchange for rebates. Commercial customers receive a more efficient product for the same cost, and benefit from ongoing reduced energy use and costs.

Market Considerations

The largest portion of the market opportunity in commercial lighting is in standard T12 fluorescent tube lighting with electromagnetic ballasts. Federal regulations will remove the electromagnetic ballast from new sales starting in 2010, which is expected to drive additional replacements of standard T12 lighting. By eliminating the incremental cost between standard T8 and HPT8 equipment, the program is expected to shift the market beyond the standard T8, and thus increase the use of HPT8 for replacement of T12 lighting. 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

Rebates are based on elimination of the full incremental cost of high performance T8 lamps and ballasts over standard T8 lighting, along with an added incentive of $0.25 per lamp and $0.50 per ballast for each high performance T8 product sold by the distributor.

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 every two years during operation.

Estimated Costs & Energy Savings

Provincial Program TRC – 3.65

2011 Hydro estimated:
Costs - $36,000
Savings estimates 2011 – 13 MWh

Industrial Energy Efficiency Program (IEEP)

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 Industrial Class of customers served by 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 an open call for proposals to Industrial Customers for energy saving projects that meet set eligibility 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 Industrial Customers 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.

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 Industrial Customers 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. Rebates for each approved project will be determined based on energy savings and similar incentive level criteria as used in other jurisdictions.

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.

Estimated Costs & Energy Savings

Provincial Program TRC – 2.94

2011 Hydro estimated:
Costs - $830,000
Savings estimates 2011 – 4,750 MWh

Hydro Customer Coupon Program

Program Description

The objective of this program is to encourage energy efficiency in the purchase of smaller technologies and widen the reach of energy efficient technologies in residences. The program provides instant rebates through cash coupons as well as community based education and awareness building activities.

Target Market: Hydro Residential Rural Customers

This program targets Hydro's residential customers. The program offers rebates on Energy Star appliances to all customers, but instant at cash coupons will be offered in ten geographic locations. Throughout the program, efforts will be made to add additional retail partners and widen the geographic reach.

Eligible Measures

Technologies range from standard CFLs to holiday LED lights, water conservation resources and Energy Star appliances, timers and power bars. The technologies have been selected based on their savings potential, incremental cost from standard products and awareness in the market place.

Delivery Strategy

An external consultant has been engaged to design and facilitate implementation of this program. The consultant, Summerhill Inc, brings knowledge of small technology participant uptake, retailer partnership and logistics and administration of coupon based incentives.

There will be a field representative hired through Summerhill in each target geographic area who will liaise with retailers and promote the program through community events and outreach activities.

Retailers participating in the program have signed agreements to provide a certain selection of energy efficient technologies and to provide tracking and verification documentation. Rebates will be paid to the retailers directly upon verification of their documentation.

Appliance rebates will be administered as credits to the customer account.

Market Considerations

Rural retailers often do not carry a wide range of energy efficient products, meaning this market has limited access to these technologies. The program provides coupons and education and awareness of these opportunities to these target areas.

When promoting smaller investment technologies such as showerheads and lighting, the process must have very few steps for the customer. The instant rebate is the most effective way to ensure strong interest as paperwork for smaller incentives discourages participation.

Incentive Strategy

Incentives for this program include rebates for smaller residential technologies as well as Energy Star appliances.

Program Monitoring & Evaluation

The program will be monitored for participation level, service quality, and cost effectiveness. Additional measures of success for this type of initiative will include responses to a retailer partner survey and effectiveness of community outreach efforts.

Estimated Costs & Energy Savings

Provincial Program TRC – 2.1

2011 Hydro estimated:
- Costs - $136,000
- Savings estimates 2011 – 117 MWh

APPENDIX B: Conservation and Demand Management (CDM) Cost Deferral Account Definition

Conservation and Demand Management (CDM) Cost Deferral Account
Proposed 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.

newfoundland labrador hydro
a nalcor energy company

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Canada A1B 4K7
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February 16, 2011

Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL
A1A 5B2

ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: An Application by Newfoundland and Labrador Hydro for the approval of the deferred recovery of Hydro's Conservation and Demand Management program costs proposed to be incurred in 2011.

The Five-Year Energy Conservation Plan: 2008-2013 (the Plan) was filed with the Board of Commissioners of Public Utilities (the Board) in June 2008 pursuant to Order No. P.U. 8 (2007). The document outlined a proposed energy conservation plan to be implemented jointly by Hydro and Newfoundland Power and reflected the methodological guidance contained in Marbek Resource Consultant Inc.'s January 2008 study of conservation potential which was filed with the Board on March 20, 2008.

Implementation of the Plan commenced in 2009. Costs to implement the Plan were not included in the conservation and demand management costs which comprised a portion of Hydro's 2007 approved expenses for rates set by Order No. P.U. 8 (2007). Therefore, the electricity rates charged to Hydro's customers do not recover the costs of the energy efficiency programs outlined in the Plan.

On May 12, 2010 Hydro received approval from the Board in Order No. P.U. 13 (2010) for the deferred recovery of the 2010 costs, estimated to be $2.3 million, related to the implementation of the Plan. Hydro's 2010 costs were approximately $480,000, a significant decrease from the original estimate as described in the attached report.

Hydro is now applying to the Board for the deferral of the 2011 costs, estimated to be $0.84 million, to be incurred by Hydro that are associated with the conservation and demand management programs outlined in the Plan.

Please find enclosed the original and eight copies of the above-noted Application, plus supporting affidavit and draft order, as well as the 2011 Conservation Cost Deferral Report. Please be advised that only one copy of the aforementioned Plan and the Marbek Resource Consultant Inc. Report,

which are incorporated in this Application by reference, are attached to this Application. Please contact the undersigned should additional copies be required.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Geoffrey P. Young
Senior Legal Counsel

GPY/jc

cc: Gerard Hayes – Newfoundland Power
Paul Coxworthy – Stewart McKelvey Stirling Scales
Dean Porter – Poole Althouse
Thomas Johnson – Consumer Advocate

IN THE MATTER OF the *Electrical Power Control Act*, RSNL 1994, Chapter E-5.1 (the *EPCA*) and the *Public Utilities Act*, RSNL 1990, Chapter P-47 (the *Act*) as amended, and their subordinate regulations;

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro, pursuant to Sections 58 and 80 of the Act, for the approval of the deferred recovery of Hydro's 2011 Conservation and Demand Management program costs.

TO: The Board of Commissioners of Public Utilities (the Board)

THE APPLICATION OF NEWFOUNDLAND AND LABRADOR HYDRO (Hydro) STATES THAT:

1. Hydro is a corporation continued and existing under the *Hydro Corporation Act, 2007*, is a public utility within the meaning of the Act and is subject to the provisions of the *Electrical Power Control Act, 1994*.

2. The issue of energy conservation was discussed during Hydro's 2006 General Rate Application. As part of its energy conservation initiatives, Hydro, with the co-operation of Newfoundland Power, had issued a request for proposals for a study, referred to as a Conservation and Demand Management (CDM) Potential Study (the Potential Study) to determine the potential for energy conservation in the Province and to examine what types of programs could be implemented to yield positive results in terms of energy conservation. A five-year strategic plan

with respect to energy conservation initiatives was developed from the Potential Study.

3. In Order No. P.U. 8 (2007) the Board concluded that it was prudent and practical at the time to await the results of the joint initiative noting that the results would be valuable in determining what energy conservation programs should be employed by each utility and required Hydro to file, no later than June 30, 2008, a report outlining its five-year strategic plan with respect to energy conservation initiatives, which was to include a copy of the Potential Study.

4. On March 20, 2008, the Potential Study, prepared by Marbek Resource Consultants Ltd. for Hydro and Newfoundland Power, was filed with the Board. The Potential Study identified the potential contribution of specific technologies and measures in reducing forecast electricity consumption.

5. On June 27, 2008, a Five-Year Energy Conservation Plan: 2008-2013 (the Plan) pursuant to Order No. P.U. 8 (2007) was filed with the Board. The Plan outlined energy efficiency programs to be implemented jointly by Hydro and Newfoundland Power. The Plan reflects the results of the Potential Study.

6. On October 29, 2008 Newfoundland Power applied to the Board for approval of the creation of a deferral account to provide for the deferred recovery of 2009

costs related to the implementation of the Plan. The Board approved Newfoundland Power's application in Order No. P.U. 13 (2009).

7. On November 21, 2008, Hydro filed an application with the Board requesting approval of the deferred recovery of actual 2009 costs to be incurred by Hydro in association with the implementation of an energy conservation program in 2009, which were estimated to be $1.8 million. The Board approved Hydro's application in Order no. P.U. 14 (2009) and ordered Hydro to file a definition of the Conservation Cost Deferral Account with the Board within 30 days of the Order.

8. As directed in Order No. P.U. 14 (2009), Hydro filed its proposed definition of the Conservation Cost Deferral Account with the Board on April 22, 2009. The Board acknowledged receipt of the proposed definition of the Conservation Cost Deferral Account in a letter dated June 24, 2009.

9. Costs to implement the Plan, estimated to be $0.84 million in 2011, were not included in the conservation and demand management costs which comprised a portion of Hydro's 2007 Test Year approved expenses for rates set by Order No. P.U. 8 (2007). As such, the electricity rates charged to Hydro's customers in 2010 and 2011 will not recover the costs of the energy efficiency programs outlined in the Plan.

10. The estimated cost of $0.84 million in 2011 to implement the Plan is:

(a) Consistent with the management and operation of sources and facilities for the production, transmission and distribution of power in a manner that results in power being delivered to consumers in the province at the lowest possible cost consistent with reliable service as required by Subparagraph 3(b) (iii) of the Electrical Power Control Act, 1994;

(b) Justified under tests consistent with generally accepted sound public utility practice as required by Section 4 of the Electrical Power Control Act, 1994; and

(c) Reasonable and prudent and properly chargeable to operating account in accordance with Subsection 80(2) of the Act.

11. The attached 2011 Conservation Cost Deferral Report provides the details of the 2011 CDM Program costs that Hydro is seeking Board approval to defer and provides an update on the CDM activities undertaken in 2010.

12. Hydro now makes Application that the Board make an Order approving the deferred recovery of the 2011 costs to be incurred by Hydro in association with

the energy conservation program in 2011, which are estimated to be approximately $0.84 million.

DATED AT St. John's in the Province of Newfoundland and Labrador this 16th day of February, 2011.

Geoffrey P. Young
Counsel for the Applicant
Newfoundland and Labrador Hydro,
500 Columbus Drive, P.O. Box 12400
St. John's, Newfoundland, A1B 4K7
Telephone: (709) 737-1277
Facsimile: (709) 737-1782

IN THE MATTER OF the *Electrical Power Control Act*, RSNL 1994, Chapter E-5.1 (the *EPCA*) and the *Public Utilities Act*, RSNL 1990, Chapter P-47 (the *Act*) as amended, and their subordinate regulations;

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro for the approval, pursuant to Section 58 and 80 of the Act, of the deferred recovery of Hydro's 2011 Conservation and Demand Management program costs.

AFFIDAVIT

I, James R. Haynes, Professional Engineer, of St. John's in the Province of Newfoundland and Labrador, make oath and say as follows:

1. I am Vice-President, Regulated Operations, of Newfoundland and Labrador Hydro, the Applicant named in the attached Application.

2. I have read and understand the foregoing Application.

3. I have personal knowledge of the facts contained therein, except where otherwise indicated, and they are true to the best of my knowledge, information and belief.

SWORN at St. John's in the)
Province of Newfoundland and)
Labrador)
this 16th day of February 2011,)
before me:)

Barrister – Newfoundland and Labrador

James R. Haynes

(DRAFT ORDER)
NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

AN ORDER OF THE BOARD

NO. P.U. __ (2011)

IN THE MATTER OF the *Electrical Power Control Act*, RSNL 1994, Chapter E-5.1 (the "*EPCA*") and the *Public Utilities Act*, RSNL 1990, Chapter P-47 (the "*Act*") as amended;

AND

IN THE MATTER OF an Application by Newfoundland and Labrador Hydro ("Hydro") for approval of a deferral account to allow the deferred recovery of certain 2011 costs associated with the energy conservation program.

WHEREAS Hydro is a corporation continued and existing under the *Hydro Corporation Act, 2007,* is a public utility within the meaning of the Act and is subject to the provisions of the *EPCA;* and

WHEREAS on February 16, 2011 Hydro filed an application with the Board requesting approval of the deferred recovery of the 2011 costs to be incurred by Hydro in association with the energy conservation program to be implemented in 2011 which are estimated to be $0.84 million (the "Application"); and

WHEREAS on March 20, 2008 Hydro and Newfoundland Power jointly filed with the Board a conservation and demand management potential study prepared by Marbek Resource Consultants which identified the potential contribution of specific technologies and measures in reducing forecast electricity consumption (the "Potential Study"); and

WHEREAS on June 27, 2008, pursuant to Order No. P.U. 7(2008), a Five-Year Energy Conservation Plan: 2008-2013 (the "Conservation Plan") was filed with the Board which sets out the customer energy conservation programs proposed to be jointly implemented by Hydro and Newfoundland Power; and

WHEREAS in Order P.U. 13 (2010) the Board approved Hydro's application for the deferred recovery of the 2010 costs to be incurred by Hydro in association with the implementation of the energy conservation program in 2010; and

WHEREAS the Board is satisfied that the 2011 costs to be incurred by Hydro in connection with the proposed 2011 Conservation Plan are reasonable and prudent costs which were not reflected in Hydro's 2007 Test Year costs approved in Order No. P.U. 8 (2007); and

WHEREAS the Board approves the deferred recovery of Hydro's 2011 costs associated with the Conservation Plan in 2011.

IT IS THEREFORE ORDERED THAT:

1. The Board approves the deferred recovery of 2011 costs related to the Conservation Plan, estimated to be $.0.84 million.

2. The Applicant shall pay all expenses of the Board arising from this Application.

DATED at St. John's, Newfoundland and Labrador, this day of , .

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

2011 CONSERVATION COST DEFERRAL REPORT

Newfoundland and Labrador

February 2011

newfoundland labrador hydro
a nalcor energy company

Table of Contents

1 Introduction

The purpose of this Application is to seek approval from the Board of Commissioners of Public Utilities (the Board) for the deferral of costs to be incurred by Newfoundland and Labrador Hydro (Hydro) associated with the 2011 implementation of the Conservation and Demand Management (CDM) programs and approach as outlined in the Five Year Conservation Plan: 2008-2013 (the Plan)[1]; to provide an update of activities undertaken in 2010 and highlight opportunities for 2011; and to outline the program costs that Hydro is seeking Board approval to defer.

The Plan outlines the joint utility approach undertaken in partnership with Newfoundland Power. This Application describes the provincial approach but only focuses on the costs and reach of initiatives for Hydro's portion of program implementation that is addressed by the deferral request.

Hydro is requesting a deferral of an estimated $840,000 to be incurred in 2011, which was not included in Hydro's 2007 Test Year approved expenses for rates set by Order No. P.U. 8 (2007).

[1] The Five-Year Energy Conservation Plan: 2008-2013 was filed with the Board on June 27, 2008.

2 Background

Energy conservation initiatives were a topic of discussion during Hydro's 2006 General Rate Application (GRA). Since that time, Marbek Resource Consultants Limited (Marbek) was commissioned and completed a potential study that provided information to assist in identifying cost-effective conservation programs and the potential contribution of specific technologies and measures in reducing forecast electricity consumption. From the potential study, a five-year strategic plan was completed which outlined proposed energy conservation initiatives to be implemented jointly by Newfoundland Power and Hydro (the Utilities), including technologies, programs, support elements and cost estimates that promote a long term goal of an established conservation culture with sustained reductions in electricity consumption. The potential study was filed with the Board on March 20, 2008 and the Plan was filed with the Board on June 27, 2008.

The focus for the Plan 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. An application to defer the recovery of actual 2009 costs to be incurred by Hydro in association with the implementation of the Energy Conservation Program was filed on November 21, 2008. That filing addressed forecasted costs for delivering the programs to Hydro customers in 2009. The Board approved the application in Order No. P.U. 14 (2009), and ordered Hydro to file a definition 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.

Electricity conservation and efficiency programming in Newfoundland and Labrador is primarily delivered by the utilities through a joint utility effort. The Utilities plan and develop a portfolio of rebate programs jointly, with each utility delivering to their own customers. This approach creates economies of scale on a variety of program costs to ensure the widest reach of

conservation programming with lower cost to all electricity users. The Utilities use community outreach, rebates and incentives, education and other tools to create a stronger awareness of energy efficiency opportunities and to develop a culture of conservation within the province.

2010 was the first full year of activity for the takeCHARGE Energy Savers Rebate programs and there has been continued growth in participation and uptake from the launch year of 2009. In 2010, efforts increased to reach residential customers including producing new advertising campaigns, website resources, engaging in social media through Facebook awareness efforts and providing training to retailers' staff to assist them in selling efficient technologies to their customers. Hydro also continued to engage with commercial lighting distributors to increase participation in the commercial lighting program, as well as engaging additional participants in the market including retailers, contractors and building operators. Hydro also launched the Industrial Energy Efficiency Program (IEEP), providing customized approaches for energy savings for Hydro's large transmission level Industrial Customers.

As well, Hydro has built a team in its Energy Efficiency group to support the planning, development and implementation of programming. This group coordinates outreach, analyzes technical data and provides support for the ongoing program implementation and growth. Hydro has also made strong steps towards reducing energy use in its own facilities in an effort to increase internal energy efficiency and conservation. An Internal Energy Efficiency Advisor works with employees, facility and asset managers and an assortment of technical staff to find opportunities and implement strategies to reduce Hydro's own energy use.

3 Program Portfolio

The existing Energy Savers Rebate programs offered through the takeCHARGE program launched in June 2009 will continue to be offered in 2011. These programs have shown energy savings and continue to move 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 customized IEEP will also continue to be available to transmission level Industrial Customers.

In addition to these programs, there will be projects and pilot initiatives implemented to address specific opportunities to generate further energy savings and further move towards the development of a culture of conservation.

The Energy Savers Rebate programs are offered provincially, however the costs associated with delivery in the Labrador Interconnected System are tracked and expensed differently than those in other systems. Outside the Labrador Interconnected System, the dominant economic driver is the avoided fuel cost. In the Labrador Interconnected System the dominant economic driver is export market sales. To ensure the costs of conservation are associated with those who see the primary benefits, the costs of conservation and efficiency on the Labrador Interconnected System are charged to Hydro's non-regulated business.

The following tables describe Hydro's total CDM budget and energy savings from 2009 to 2011 across all of Hydro's systems. This report will provide further detail and breakdown of those

costs that will be recovered through the deferral account and the associated savings in avoided fuel costs.

Table 1: Hydro's New Annual Energy Savings 2009-2011 (MWh)

	2009	2010 (A)	2011 (B)[2]
Residential			
Insulation	31	84	105
Windows	12	27	26
Thermostat	6	25	17
Hydro Customer Coupon Program		64	292
Subtotal	*49*	*200*	*440*
Commercial			
Lighting	3	10	41
Industrial	0	0	4,750
Total	52	210	5,231

Table 2: Hydro's CDM Program Costs 2009-2011 ($000's)

Residential	**2009**	**2010 (A)**	**2011 (B)**
Insulation	40	60	88
Windows	44	48	69
Thermostat	13	19	22
Hydro Customer Coupon Program	0	140	136
Subtotal	*97*	*267*	*315*
Commercial			
Lighting	13	12	36
Industrial	57	221	830
Total	167	500	1,181

3.1 takeCHARGE Approach

The takeCHARGE approach was described in detail in Hydro's 2010 Conservation Cost Deferral Report. The joint utility effort allows for economies of scale to be achieved where possible 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

[2] Savings data will be further refined in 2011 with updated tracking designed to account for energy savings from the date of the approved rebate application rather than assuming a full year's installation. The development and implementation of this type of tracking is an effort to provide increased quality of data on energy savings. Due to this tracking process change, the numbers of rebates are expected to increase from 2010 but the savings expectations appear reduced due to many applications being submitted in the fourth quarter where there will be limited savings for that calendar year.

standard utility economic screening[3]. In addition, a range of education efforts around efficiency in a wider sense have also been implemented to develop a culture of conservation.

While the current portfolio of Energy Savers Rebate programs remains relatively new in the market, the Utilities are working to expand the reach and impact of the CDM effort and will complete an updated Five Year Plan in 2011.

Program offerings will continue to target significant end uses (e.g. residential home heating), but will also work to provide a wider range of savings options for customers to reduce their electricity consumption across a wider range of end uses. The Utilities will continue to reach out through traditional methods of advertising and promotions, and to expand reach into communities, participate in community events, work with community leaders and utilize social media opportunities. This holistic approach to addressing technology, the end user and their community creates the best option for sustainable behaviour and attitude change.

In the work to implement a provincial portfolio, the Utilities have developed a strong joint utility team of conservation and efficiency professionals. Through joint utility collaboration there have been opportunities to deliver the same programs (Energy Saver Rebates) and also to coordinate efforts to address the unique challenges and opportunities of each utility's customer base. For example, in Hydro's rural communities, promotions at local community events have been effective while in Newfoundland Power's more urban market, displays and booths at box stores have been utilized. The existing offering of rebated technologies will be supported by the implementation of additional, targeted programs and initiatives, such as the Hydro Customer Coupon Program Pilot implemented by Hydro in November 2010[4].

[3] The primary test for economic viability is the Total Resource Cost (TRC) test which includes both the participants' and utility's costs and benefits as factors in the net value of the program. As outlined in the Plan, each program has a positive TRC, which means the total program benefits exceed the total costs of the program.
[4] Documentation describing the project was filed with the Board on October 27, 2010.

3.2 Program Highlights and Growth Opportunities

Program participation continues to have slow, but steady, growth in Hydro's primarily rural customer areas. There are a number of factors contributing to this. Economic challenges are present for some consumers because of the potentially large up front cost of many home renovation projects, and the lack of awareness of how quickly the customer can gain financial benefits from this type of investment[5]. Retailers continue to be key partners in reaching customers, but outreach and non-traditional promotions and awareness building have also shown to have impact in reaching this diverse market. For example, the takeCHARGE program has used community events, web-based contests, school-based outreach and other methods to reach customers in a variety of ways.

In the commercial lighting market, lighting distributors are critical in working to promote the more efficient technology. However, in working with these distributors, it has been discovered that there are additional key stakeholders involved in reaching the larger commercial lighting purchases of government and institutions. In Hydro's service area, larger commercial lighting opportunities are primarily found in government projects. Hydro has worked with provincial government departments and has had significant success with the inclusion of the high efficient lighting in two new schools completed in 2010.

The IEEP has become active in 2010. Baseline energy end use audits were conducted for Industrial Customers[6] to assist in identifying opportunities for capital projects and employee engagement opportunities. These baselines indicate priority areas for electricity efficiency for the Industrial Customers and are useful in Hydro's validation of savings from completed projects. The Industrial Customers have been engaged in discussions regarding IEEP

[5] From the rebate applications received to date, many customers have under-insulated basement walls and ceiling, which will not result in significant energy savings and is not eligible for rebates. Retailers continue to describe customer discussions regarding the perceived difficulties of using programmable thermostats and the lack of awareness of the energy savings from Energy Star windows.

[6] An audit for North Atlantic Refining Limited (NARL) was not completed due to work being completed by NARL in 2010 and 2011 that would significantly change the baseline.

opportunities including financial cost share arrangements for feasibility studies for identified opportunities and capital projects. The IEEP also provides funding for training and employee awareness projects to create the culture of conservation within the employee base and encourage innovation on conservation and efficiency. The program economics have been updated since the submission of the 2010 Conservation Cost Deferral Report to reflect the changes in the Industrial Customer base and they remain strong[7]. The updated program profile is found in Appendix A.

Hydro has expanded its program offerings to its residential customers with the implementation of a new program to provide energy savings through smaller residential technologies to a wider group of customers than those eligible for the home heating based rebates[8]. The current residential Energy Savers[9] rebate portfolio is based on savings from home heating therefore customers must be electrically heated to be eligible for these rebates. Hydro's rural market has a significant number of other fuel heat customers[10] and a new program was developed to reach all customers. This coupon-based program was implemented in November 2010. It provides rebates for numerous technologies used in all residential homes. This program is a pilot effort and is being offered only to Hydro customers.

Hydro continues to work with Newfoundland Power and other partners to determine emerging opportunities for CDM programming and to develop appropriate strategies. Should significant additional programs be developed through this partnership, supplementary documentation will be provided at that time to the Board, following the pattern of information sharing conducted with the Hydro Customer Coupon Program.

[7] The updated TRC is 2.94, which shows that the benefits well exceed the costs of the program.
[8] See Coupon Program profile in Appendix A for additional detail.
[9] There is a variety of rebates, events and education and awareness initiatives offered through the takeCHARGE brand, but the Energy Savers brand is used only for joint utility residential rebate programs. This encompasses the insulation, Energy Star windows and thermostat programs, but not the Hydro Customer Coupon Program, for example.
[10] Approximately 50% of residential customers use sources other than electricity for their home heating, according to Newfoundland and Labrador Hydro's Domestic Customer Survey 2010.

4 Program Costs

4.1 Hydro Energy Savings and Program Costs

The energy savings have grown, since the 2009 program launch across both residential and commercial programs as shown in Table 3 below. The heating season is expected to see continued high levels of activity in the residential sector due to the programs' home heating focus through 2010 and into 2011.

The Hydro Customer Coupon Program was implemented in November and will continue to offer rebates until February 2011.

The industrial program, IEEP, is expected to see its first projects resulting in savings in 2011.

Program costs associated with this deferral request for 2011[11] are shown in Table 4.

Table 3: Energy Savings from Deferral Account Activity (MWh)

	2009	2010 (A)	2011 (B)
Residential			
Insulation	31	50	48
Windows	12	16	11
Thermostat	6	15	8
Hydro Customer Coupon Program	0	47	213
Subtotal	49	128	280
Commercial			
Lighting	3	0	13
Industrial	0	0	3,563
Total	52	128	3,856

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 greatly depending on the uptake of the program, and the number of

[11] The proposed definition of the deferral account was submitted to the Board on April 22, 2009.

programs offered. Hydro's program costs in 2010 related to the deferral account were $480,000 and are forecast to be $840,000 in 2011.

The costs for 2010 are lower than estimates in the 2010 Conservation Cost Deferral Report as a result of a number of factors. Rebate activity continues to grow but at a slower than anticipated rate, reducing the cost of rebates to customers. There were also additional savings to Hydro from a review of the cost sharing arrangement between the Utilities to better reflect the market share of residential customers with electric heat, which is the eligible market for the current portfolio of residential rebate programs. This resulted in a decrease in Hydro's costs in that area. The most significant variance is a result of the IEEP activity not beginning until mid-year and that it primarily involved conducting baseline energy audits required before moving to specific feasibility and capital work.

Table 4: Program Costs from Deferral Account Activity 2010-2011

	2009	2010 (A)	2011 (B)
Residential			
Insulation	40	53	64
Windows	44	41	49
Thermostat	13	18	19
Hydro Customer Coupon Program	0	113	109
Subtotal	*97*	*225*	*241*
Commercial			
Lighting	13	0	34
Industrial	57	190	564
Total	167	415	839

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 5 below. The reduction in education costs from 2009 to 2010 is primarily due to rebate program launch being mid-year 2009. Once the rebate programs were launched, a significant amount of labour resources were engaged in the direct program delivery. The increase in 2011 is due to an increase in education efforts to demonstrate the successes in Hydro's internal energy efficiency efforts. The planning costs reflect an increase due primarily to consultant costs associated with the development of new program and outreach efforts.

Table 5: Hydro's Support Costs 2009-2011 ($000's)

	2009	2010 (A)	2011
Education	262	106	217[12]
Support	53	48	45
Planning	176	180	228[13]
Total	491	334	490

5 Justification

Hydro is seeking approval for deferring the CDM program costs it will incur in 2011 and for the deferred recovery of these amounts in a manner to be determined by the Board at a later time. Hydro's total program costs to be deferred are forecast to be $840,000. These costs were not forecast in Hydro's 2007 Test Year to be recovered in rates as set by Order No. P.U.8 (2007). Hydro is not seeking approval to defer non-program costs for 2011, estimated to be $524,000, which is approximately $74,000 more than the CDM costs included in Hydro's 2007 test year as approved by the Board.

If the 2011 CDM program costs are not deferred, they must be recognized as expenses incurred in 2011. This will have significant impact on Hydro's income in that year. The CDM costs incurred provide ongoing system benefits, through energy reductions and associated fuel

[12] Increase in Education is due to the addition of the component of an Internal Efficiency Advisory salary to the Energy Efficiency group.
[13] Increase in Planning is due to the increase in consultant support for new program design for rebate and outreach efforts.

savings. The appropriate regulatory treatment of these costs will be the subject of further applications by Hydro.

6 Conclusion

Hydro has estimated that it will incur $840,000 in CDM Program expenses in 2011 associated with the deferral account. These expenses are in excess of Hydro's forecast costs used to set rates by Order P.U. 8 (2007). Therefore, Hydro is requesting approval from the Board for the deferral of the costs to be incurred by Hydro that are associated with the implementation of the joint utility CDM approach as outlined in the Plan and further described in this report.

APPENDIX A: CDM Portfolio Program Descriptions as described in the Five Year Plan

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 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, based on annual kWh usage.

Eligible Measures

Eligible measures in this program are *ENERGY STAR* qualified windows.

Delivery Strategy

Through partnering with trade allies, such as retailers of *ENERGY STAR* windows and home building and renovation contractors, customers will be encouraged to purchase *ENERGY STAR* windows. Communications will incorporate the *ENERGY STAR* brand and related marketing support. 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 through customer application.

Market Considerations

ENERGY STAR qualified windows make up approximately 10% 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 price premium of approximately $2.50 - $3.00 per square foot. Eligible windows are widely available. Local manufacturers produce approximately 50% of provincial window sales. Assistance in obtaining *ENERGY STAR* product qualification may be considered, since one local manufacturer does not offer qualified products.

Incentive Strategy

Rebates are based on $2.00 per square foot of window installed.

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 every two years during operation.

Estimated Costs & Energy Savings

Provincial Program TRC – 1.63

2011 Hydro estimated:
Costs - $69,000
Savings estimates 2011 – 26 MWh

Residential Thermostats

Program Description

The objective of this program is to increase the installation of high-performance thermostats which accurately control room temperature, and programmable thermostats which automatically set back room temperature, in order to save space heating energy.

Target Market: Residential

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

Eligible Measures

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

Delivery Strategy

Marketing initiatives include partnering with manufacturers, retailers, electrical contractors and homebuilders to educate consumers regarding the energy savings and comfort benefits of programmable and high performance thermostats. Communications to homeowners will utilize mass media advertising and website materials. Tools and tactics will also include retail and model home point-of-sale materials, tradeshows, community outreach and trade ally activities.

Rebates will be issued through consumer-submitted coupons.

Market Considerations

Sales of programmable and high performance thermostat types make up less than 20% 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. Consumer price premiums are approximately $15 per unit for high performance thermostats and $33 per unit for programmable thermostats. Availability of high performance thermostats is currently limited in most areas, though programmable types are widely available.

Incentive Strategy

Rebates are based on $5.00 for each high performance thermostat and $10.00 for each programmable thermostat.

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 every two years during operation.

Estimated Costs & Energy Savings

Provincial Program TRC – 1.35

2011 Hydro estimated:
Costs - $22,000
Savings estimates 2011 – 17 MWh

Residential Insulation

Program Description

The objective of this program is to build on the existing program to increase the insulation level in basements, crawl spaces and attics, resulting in savings in space heating energy. The program components include rebates 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, based on annual kWh usage.

Eligible Measures

Eligible measures in this program include insulation upgrades to basements, crawl spaces and attics. Minimum R-value requirements will be specified. Rebates for new homes are limited to basement insulation beyond building code compliance.

Delivery Strategy

Marketing initiatives will include partnering with trade allies in the retail and home building and renovation industry to target both do-it-yourself and professional installers. Communications to homeowners will utilize mass media advertising and website materials. Tools and tactics will also include retail and model home point-of-sale materials, tradeshows, community outreach and trade ally activities. Rebates will be processed through customer application.

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 do not have insulation installed on the concrete portion of basement walls. Initial cost is a barrier to increased market penetration, as are awareness of the impact on space heating energy, and the practical difficulties of renovating an existing living space. Recent experience with the former *Wrap Up for Savings* program has shown participation to be responsive to awareness-building marketing activities.

Incentive Strategy

The rebate value will be based on insulating value (R-value) rather than a prescriptive product list as is currently offered. Rebates will be based on $0.02 per R-value per square foot of insulation installed in basements and crawl spaces (minimum requirement of R12), and $0.01 per R-value per square foot of insulation installed in attics. Maximum rebated R-values will be specified.

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 every two years during operation.

Estimated Costs & Energy Savings

Provincial Program TRC – 2.96

2011 Hydro estimated:
Costs - $88,000
Savings estimates 2011 – 105 MWh

Commercial Lighting

Program Description

The objective of this program is to increase the installation of more efficient lighting technologies in commercial buildings resulting in energy savings from reducing lighting loads. The program provides rebates to lighting distributors to cover the incremental cost of high performance T8 lighting as well as an added incentive for each lamp to encourage these distributors to recommend and sell high performance T8 lighting rather than standard T8 or T12 lighting products. The program also promotes the installation of LED exit signs for commercial buildings.

Target Market: Commercial

This program targets commercial customers, including retrofit or new installation of lighting equipment commercial buildings.

Eligible Measures

The eligible measures in this program are modeled on programs in New Brunswick and Nova Scotia. These include high performance T8 (HPT8) fluorescent electronic ballasts, lamps and fixtures.

Delivery Strategy

This program is modeled on the program that has been very successful in both New Brunswick and Nova Scotia in recent years. The program focuses on lighting distributors and incents them to sell high performance T8 lighting and ballasts, rather than standard T8 and T12 technologies. Participating distributors provide sales and customer data in exchange for rebates. Commercial customers receive a more efficient product for the same cost, and benefit from ongoing reduced energy use and costs.

Market Considerations

The largest portion of the market opportunity in commercial lighting is in standard T12 fluorescent tube lighting with electromagnetic ballasts. Federal regulations will remove the electromagnetic ballast from new sales starting in 2010, which is expected to drive additional replacements of standard T12 lighting. By eliminating the incremental cost between standard T8 and HPT8 equipment, the program is expected to shift the market beyond the standard T8, and thus increase the use of HPT8 for replacement of T12 lighting. 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

Rebates are based on elimination of the full incremental cost of high performance T8 lamps and ballasts over standard T8 lighting, along with an added incentive of $0.25 per lamp and $0.50 per ballast for each high performance T8 product sold by the distributor.

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 every two years during operation.

Estimated Costs & Energy Savings

Provincial Program TRC – 3.65

2011 Hydro estimated:
Costs - $36,000
Savings estimates 2011 – 13 MWh

Industrial Energy Efficiency Program (IEEP)

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 Industrial Class of customers served by 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 an open call for proposals to Industrial Customers for energy saving projects that meet set eligibility 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 Industrial Customers 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.

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 Industrial Customers 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. Rebates for each approved project will be determined based on energy savings and similar incentive level criteria as used in other jurisdictions.

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.

Estimated Costs & Energy Savings

Provincial Program TRC – 2.94

2011 Hydro estimated:
Costs - $830,000
Savings estimates 2011 – 4,750 MWh

Hydro Customer Coupon Program

Program Description

The objective of this program is to encourage energy efficiency in the purchase of smaller technologies and widen the reach of energy efficient technologies in residences. The program provides instant rebates through cash coupons as well as community based education and awareness building activities.

Target Market: Hydro Residential Rural Customers

This program targets Hydro's residential customers. The program offers rebates on Energy Star appliances to all customers, but instant at cash coupons will be offered in ten geographic locations. Throughout the program, efforts will be made to add additional retail partners and widen the geographic reach.

Eligible Measures

Technologies range from standard CFLs to holiday LED lights, water conservation resources and Energy Star appliances, timers and power bars. The technologies have been selected based on their savings potential, incremental cost from standard products and awareness in the market place.

Delivery Strategy

An external consultant has been engaged to design and facilitate implementation of this program. The consultant, Summerhill Inc, brings knowledge of small technology participant uptake, retailer partnership and logistics and administration of coupon based incentives.

There will be a field representative hired through Summerhill in each target geographic area who will liaise with retailers and promote the program through community events and outreach activities.

Retailers participating in the program have signed agreements to provide a certain selection of energy efficient technologies and to provide tracking and verification documentation. Rebates will be paid to the retailers directly upon verification of their documentation.

Appliance rebates will be administered as credits to the customer account.

Market Considerations

Rural retailers often do not carry a wide range of energy efficient products, meaning this market has limited access to these technologies. The program provides coupons and education and awareness of these opportunities to these target areas.

When promoting smaller investment technologies such as showerheads and lighting, the process must have very few steps for the customer. The instant rebate is the most effective way to ensure strong interest as paperwork for smaller incentives discourages participation.

Incentive Strategy

Incentives for this program include rebates for smaller residential technologies as well as Energy Star appliances.

Program Monitoring & Evaluation

The program will be monitored for participation level, service quality, and cost effectiveness. Additional measures of success for this type of initiative will include responses to a retailer partner survey and effectiveness of community outreach efforts.

Estimated Costs & Energy Savings

Provincial Program TRC – 2.1

2011 Hydro estimated:
- Costs - $136,000
- Savings estimates 2011 – 117 MWh

APPENDIX B: Conservation and Demand Management (CDM) Cost Deferral Account Definition

Conservation and Demand Management (CDM) Cost Deferral Account
Proposed 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.

NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

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2011-03-10

Mr. Geoffrey P. Young
Senior Legal Counsel
Newfoundland and Labrador Hydro
P. O. Box 12400
Hydro Place, Columbus Drive
St. John's, NL A1B 4K7

Dear Mr. Young:

RE: Newfoundland and Labrador Hydro Application for the deferred recovery of 2011 costs associated with the energy conservation program.

Attached for your information are two copies of Order No. P.U. 4(2011) issued by the Board in connection with the above captioned matter.

If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

Cheryl Blundon
Board Secretary

Attachments

e.c. Newfoundland Power Inc., Gerard Hayes, E-mail: ghayes@newfoundlandpower.com
Consumer Advocate, Thomas Johnson, E-mail: tjohnson@odeaearle.nf.ca
Industrial Customers: Dean Porter, Poole Althouse, E-mail: dporter@pa-law.ca
Paul Coxworthy, Steward, McKelvey Stirling Scales, E-mail: pcoxworthy@smss.com

NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

AN ORDER OF THE BOARD

NO. P.U. 4(2011)

IN THE MATTER OF the *Electrical Power Control Act, 1994*, SNL 1994, Chapter E-5.1 (the "*EPCA*") and the *Public Utilities Act*, RSNL 1990, Chapter P-47 (the "*Act*"), and regulations thereunder;

AND

IN THE MATTER OF an application by Newfoundland and Labrador Hydro ("Hydro") for the deferred recovery of 2011 costs associated with the energy conservation program.

WHEREAS Hydro is a corporation continued and existing under the *Hydro Corporation Act*, is a public utility within the meaning of the *Act*, and is also subject to the provisions of the *EPCA*; and

WHEREAS on February 16, 2011 Hydro filed an application with the Board requesting approval of the deferred recovery of the 2011 costs to be incurred by Hydro in association with the energy conservation program in 2011 which are estimated to be $840,000.00 (the "Application"); and

WHEREAS on March 20, 2008 Hydro and Newfoundland Power jointly filed with the Board a conservation and demand management potential study prepared by Marbek Resource Consultants which identified the potential contribution of specific technologies and measures in reducing forecast electricity consumption (the "Potential Study"); and

WHEREAS on June 27, 2008, pursuant to Order No. P.U. 8(2007), a Five-Year Energy Conservation Plan: 2008-2013 (the "Conservation Plan") was filed with the Board which sets out the customer energy conservation programs proposed to be jointly implemented by Hydro and Newfoundland Power; and

WHEREAS in Order No. P.U. 14(2009) and Order No. P.U. 13(2010) the Board approved Hydro's application for the deferred recovery of the costs incurred by Hydro in association with the Conservation Plan in 2009 and 2010; and

WHEREAS the Board approves the deferred recovery of Hydro's 2011 costs associated with the Conservation Plan.

IT IS THEREFORE ORDERED THAT:

1. The deferred recovery of the 2011 costs related to the Conservation Plan, estimated to be $840,000.00 is approved.

2. Hydro shall pay all expenses of the Board arising from this Application.

DATED at St. John's, Newfoundland and Labrador, this 10th day of March, 2011.

Dwanda Newman, LL.B.
Commissioner

James Oxford
Commissioner

G. Cheryl Blundon
Board Secretary