Q. (page 2-4, lines 10-13) Please provide in tabular form for each of the five years of the Conservation Plan the programs, program costs, the impact on peak and energy demand, and the expected benefits and the basis for calculation of the benefits. How will the savings be verified?

A. The costs and benefits of the programs identified in the Conservation Plan are provided in the pre-filed evidence in support of the Company's 2009 Conservation Cost Deferral Application, attached as Attachment A.[1] This evidence presents the estimated aggregate costs and benefits of the customer energy conservation program portfolio for both Newfoundland and Labrador Hydro and Newfoundland Power (the "Utilities") for 2009 through 2013, as well as Newfoundland Power's estimated costs for conservation in 2009.[2]

Tables 1 through 4 provide, for each of the five years of the Conservation Plan, the Utilities' estimated program costs, impact on energy demand, impact on peak demand, and expected benefits respectively.

Table 1
Customer Program Portfolio[3]
Program Cost Estimates: 2009-2013
by Sector
($000s)

	2009	2010	2011	2012	2013
Residential					
Insulation Program	884	827	966	862	912
Thermostat Program	425	378	459	397	441
ENERGY STAR Windows Program	668	566	666	646	730
Commercial					
Lighting Rebate Program	439	433	517	478	550
Total	**2,416**	**2,204**	**2,608**	**2,383**	**2,633**

[1] The 2009 Conservation Cost Deferral Application was filed on October 29, 2008.

[2] Newfoundland Power's evidence filed in support of the 2010 GRA reflects cost and sales impacts of the Company's portion of the Conservation Plan in 2010, with costs and benefits adjusted to reflect a mid-year 2009 program start.

[3] These programs are those outlined in the Conservation Plan for implementation in the near-term, 2009-2010. The last 3 years of the 2009 to 2013 planning horizon, 2011 to 2013, are currently expected to have materially expanded program offerings which are expected to increase program costs. See the *Conservation Plan*, p. 8-9.

1

Table 2
Customer Program Portfolio
Energy Reduction 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
Total	**3,832**	**8,318**	**13,426**	**18,963**	**24,881**

2
3

Table 3
Customer Program Portfolio
Peak Reduction Estimates: 2009-2013
by Sector
(kW)

	2009	2010	2011	2012	2013
Residential					
Insulation Program	380	835	1271	1746	2317
Thermostat Program	45	109	171	254	357
ENERGY STAR Windows Program	53	117	179	258	361
Commercial					
Lighting Rebate Program	112	279	468	713	1048
Total	**590**	**1,340**	**2,089**	**2,971**	**4,083**

4
5

Table 4
Customer Program Portfolio
Program Benefit Estimates: 2009-2013[4]
by Sector
($000)

	2009	2010	2011	2012	2013
Residential					
Insulation Program	763	1602	2524	3446	4369
Thermostat Program	90	209	340	501	673
ENERGY STAR Windows Program	107	225	356	510	681
Commercial					
Lighting Rebate Program	266	639	1118	1699	2391
Total	**1,226**	**2,675**	**4,338**	**6,156**	**8,114**

The estimation of program benefits is based on (i) engineering estimates of the energy and demand savings resulting from implementation of each energy efficient technology, and (ii) estimates of the impact that the reduction in energy and demand will have on the marginal costs of supply.[5]

Please refer to response to Request for Information CA-NP-182 (f) for information regarding how the savings will be verified.

[4] The benefits extend beyond the five year program based on the life of the technology used in the conservation program.

[5] Program benefits are estimated based on avoiding the marginal cost of providing service. The marginal costs used in estimation of benefits were based on results of the *Newfoundland Power Marginal Cost of Electricity of Electricity Study* dated January 29, 2007 adjusted to reflect more recent fuel cost forecasts.

Pre-filed Evidence
2009 Conservation Cost Deferral Application

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

IN THE MATTER OF an application by Newfoundland Power Inc. for the approval of a deferral account to provide for the deferred recovery of certain conservation program costs proposed to be incurred in 2009.

2009 Conservation Cost Deferral Application

Prefiled Evidence

NEWFOUNDLAND POWER
A FORTIS COMPANY

2009 Conservation Cost Deferral Application

Prefiled Evidence

Table of Contents

SECTION 1:
APPLICATION BACKGROUND

Newfoundland Power and Newfoundland and Labrador Hydro are proposing to jointly implement a portfolio of customer energy conservation programs in 2009. The cost of implementing these programs in 2009 is not currently reflected in the electricity rates that Newfoundland Power charges for service.

In this Application, Newfoundland Power is proposing the Board approve a deferral account to provide for the deferred recovery of 2009 costs associated with these customer programs.

This section of the evidence presents an overview of this Application and the background for it.

1.1 Application Overview

Newfoundland Power and Newfoundland and Labrador Hydro ("Hydro") propose to jointly implement a portfolio of customer energy conservation programs (the "Customer Program Portfolio") in 2009.

The Customer Program Portfolio is a formative joint utility effort to influence conservation in all sectors of the provincial electricity market. It represents a material increase in the scope and scale of provincial utility conservation efforts. This increased scope and scale is aimed at achieving the energy conservation potential identified within the provincial electricity market.

In the near-term, the benefits associated with implementing the Customer Program Portfolio will be principally reflected in reduced fuel consumption at Hydro's Holyrood thermal generating station. It is expected that implementation of the Customer Program Portfolio in 2009 will result

in energy savings of 70 GWh per year by 2013. The customer benefits associated with these energy savings are substantial.[1]

The additional cost to Newfoundland Power to implement the Customer Program Portfolio is estimated to be approximately $2 million in 2009. The additional cost could be higher depending upon actual customer participation. If actual customer participation is higher than currently estimated, then the energy savings benefits resulting from implementation of the Customer Program Portfolio can also be expected to be higher.

The additional cost of implementing the Customer Program Portfolio in 2009 is material and not currently reflected in the electricity rates Newfoundland Power charges its customers. In this Application, Newfoundland Power is requesting the Board approve a deferral account to provide for the deferred recovery of the costs of the Customer Program Portfolio proposed to be implemented in 2009.

The proposed deferral account, if approved by the Board, will enable the 2009 implementation of the Customer Program Portfolio. This will, in turn, permit the earliest feasible achievement of the customer benefits resulting from implementation of the Customer Program Portfolio.

[1] At a Holyrood fuel cost of $55.40 bbl, the price currently in base rates, the value of a 70 GWh energy reduction would be approximately $6 million per year. At a fuel cost of $103.06 bbl (Hydro Quarterly Regulatory Report for Period Ending June 30, 2008) it would be approximately $11.5 million per year.

1.2 Application Context

Newfoundland Power's 2008 General Rate Application

Newfoundland Power's 2008 General Rate Application is the basis of current customer rates. The 2008 test year conservation costs totalled $464,000 and included energy services, education, support and advertising as well as costs associated with the Company's existing programming.[2]

At the time of the hearing of its 2008 General Rate Application in October 2007, Newfoundland Power observed that its future approach to conservation and demand management would be influenced by (i) the conservation and demand management potential study (the "Potential Study") which was then incomplete, and (ii) the Energy Conservation and Efficiency Partnership (the "ECEP") announced in the Government of Newfoundland and Labrador's *Energy Plan,* (the "*Energy Plan*") which was then unconstituted.

The Potential Study was completed in January 2008. The ECEP is now formally constituted.

The Provincial Energy Plan

In September 2007, the *Energy Plan* was publicly released. In the *Energy Plan*, the promotion and facilitation of energy efficiency and conservation programs was identified as a priority.[3]

[2] The 2008 test year costs also include demand management costs of $300,000. This includes initiatives such as the Curtailable Rate Option which are continuing but unaffected by the proposed increase in customer energy conservation contemplated by introduction of the Customer Program Portfolio.

[3] For residential consumers a specific *Energy Plan* focus is the reduction of total energy consumption. (See *Energy Plan* p. 60.)

Amongst the specific initiatives set out in the *Energy Plan* was the establishment of the ECEP. A primary purpose of the ECEP is to co-ordinate and assist with energy conservation and efficiency initiatives in the province. The ECEP is chaired by the Provincial Department of Natural Resources (the "Department of Natural Resources").

Newfoundland Power and Hydro are members of the ECEP.[4] Through the ECEP, the Department of Natural Resources has funded or supported conservation initiatives in the electricity sector which are delivered by utilities. The provision of such funding or support may enable conservation activities within the electricity sector which are complementary to utility efforts. An example of this was the *Holiday Light Switch LED Campaign* undertaken in 2007.[5]

In future, it is expected that the ECEP will continue to play a coordinative role in energy efficiency in the province and assist in electricity sector initiatives, where appropriate. It is not expected that the ECEP will displace electrical utility conservation efforts which are undertaken in accordance with current utility practice.

The Potential Study

In January 2008, Marbek Resource Consultants Limited ("Marbek") completed the Potential Study which was a comprehensive review of electricity conservation and demand management

[4] The ECEP operated on an *ad hoc* basis through September 2008. Both Newfoundland Power and Hydro have been participants through this period. In September 2008, the Department of Natural Resources formalized ECEP participation which is indicative of ECEP's emergence from its formative stage.

[5] The Department of Natural Resources provided funding of $150,000 for the *Holiday Light Switch LED Campaign* in 2007. The campaign, which garnered significant media attention, promoted public conservation consciousness. The Department of Natural Resources has indicated it will fund the *Holiday Light Switch LED Campaign* again in 2008.

potential for the province. The Potential Study was jointly commissioned by Newfoundland Power and Hydro.[6]

Conceptually, a potential study both quantifies the theoretical potential for energy and demand savings, and identifies the means through which such potential might be achieved. The means by which the potential savings might be achieved typically include a wide array of technologies, including energy efficient building materials, lighting systems, and electrical appliances. The achievability of potential savings from application of any specific technology will be dependent on a number of factors, including engineering assessment[7], market barriers[8] and practical constraints.[9]

The customer conservation programs proposed to be implemented by Newfoundland Power and Hydro in 2009 target potential savings identified in the Potential Study. Each program employs a specific technology identified in the Potential Study. And each program exceeds the criteria for cost-effectiveness recommended in the Potential Study.[10]

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[6] The Potential Study estimates the potential for energy and peak load savings through 2026, from a base year of 2006. A potential study was last completed for the province in 1991. Potential studies have been completed in other Canadian jurisdictions, including British Columbia (2007), Manitoba (2003), Quebec (2004) and New Brunswick (2002). While potential studies are a relatively common basis for determining appropriate conservation and demand programming, they are not the only basis. Some jurisdictions use integrated resource planning ("IRP") as a basis for determining appropriate programming. Other jurisdictions use potential studies and IRP results.

[7] For example, the energy savings potential estimate from high performance thermostats is based on engineering assessment and relevant research reports (Potential Study, Residential Sector, p. 59).

[8] For example, at p**.** 74 of the Potential Study, Residential Sector, Marbek modeled energy savings potential from standard compact fluorescent lights (CFLs) differently from specialty CFLs (for example, those suitable for dimming and exposed fixtures). This approach is reflective of market barriers for specialty CFLs which are more expensive, not as readily available, and have not achieved wide consumer acceptance.

[9] For example, at p**.** 69 of the Potential Study, Residential Sector, Marbek indicated that the average useful life of a refrigerator is 17 years. This places a practical constraint on the rate of penetration of more energy efficient models, based on the relatively long replacement cycle for major household appliances.

[10] Refer to the Potential Study, *Program Evaluation Guidelines,* p. 16. Marbek recommends a hybrid metric incorporating the total resource cost and societal cost tests. In evaluating 2009 programs, no value was placed on environmental or societal externalities associated with the programs. Any valuation of such factors would likely serve to increase the programs' economic attractiveness.

A copy of the Potential Study can be found in *Volume 2: Supporting Documentation* filed with this Application.

The Conservation Plan

In June 2008, a joint Hydro and Newfoundland Power energy conservation plan for the period through 2013 (the "Conservation Plan") was filed with the Board. The Conservation Plan provided a broad outline of the utilities' approach to conservation through 2013, including the components of the Customer Program Portfolio.

The Conservation Plan is aimed at energy conservation. This addresses current high marginal energy costs on both the Island Interconnected System and isolated systems.[11] The focus of the Conservation Plan is near-term programming through 2010, and it includes all electricity market sectors.[12] Conservation programming for all sectors will be provincial in scope.[13]

Newfoundland Power will play a primary role in development of programs for the residential and commercial sectors, in consultation with Hydro. Conservation programming for the industrial sector will tend to be more customized. Hydro will play a primary role in development of such industrial programs.[14] This division of primary responsibilities reasonably reflects utility responsibilities on the province's electricity system.

[11] See the Conservation Plan, p. 8.
[12] The Potential Study segregated the electricity market into residential, commercial and industrial sectors for analyses purposes.
[13] Programming for Hydro's isolated diesel system customers will vary in order to be responsive to their unique circumstances.
[14] Hydro's experience with large industrial custom programming may inform Newfoundland Power's future custom programming for larger General Service customers.

The collaborative efforts of Hydro and Newfoundland Power in developing the Conservation Plan are consistent with least cost energy conservation customer programming and the coordinative approach indicated in the *Energy Plan*. All of the customer energy conservation programs indicated in the Conservation Plan are economically justified on the bases indicated in the Potential Study and in current Canadian public utility practice.

A copy of the Conservation Plan can be found in *Volume 2: Supporting Documentation* filed with this Application.

SECTION 2:
PROPOSED CUSTOMER PROGRAM PORTFOLIO

In June 2008, Hydro and Newfoundland Power filed the Conservation Plan outlining the Customer Program Portfolio.

Implementation of the Customer Program Portfolio is estimated to reduce energy consumption by 70 GWh per year by 2013 at a total program cost of $20.6 million.

This section of the evidence reviews the Customer Program Portfolio as well as the estimated energy savings and joint utility costs associated with it. In addition, this section of the evidence reviews the economic analysis and test results which justify implementation of the Customer Program Portfolio.

2.1 The Customer Program Portfolio

Portfolio Overview

The programs selected for the Customer Program Portfolio focus on areas of greatest opportunity in each sector, address existing market barriers and are cost effective. Current implementation capability of the utilities was also a consideration for selection.[15] This is consistent with Marbek recommendations regarding initial program offerings, such as addressing more homogeneous markets, using simple financial incentives, and working with trade allies for program delivery.[16]

[15] Over time, the development of increased technical expertise, trade relationships, and customer responsiveness is expected to improve Newfoundland Power's implementation capability for customer conservation programming.

[16] See Potential Study Evaluation Guidelines, CDM Program Lessons Learned, p. 18. The use of trade allies and partnerships was recognized and encouraged by the Board in Order No. P.U. 19 (2003) at p. 111.

In the residential sector, space heating is the single largest use of electricity[17] due largely to the relatively high penetration of electric heating in the province.[18] Programs selected for this sector target high-efficiency thermostats and building envelope improvements through insulation and *ENERGY STAR* windows. This builds upon existing utility capability in this area. In the commercial sector, lighting is the single largest use of electricity and presents the largest source of energy savings potential.[19] Initial conservation programming for the commercial sector will be modeled on lighting programs currently offered in New Brunswick and Nova Scotia. Industrial sector energy conservation programming will facilitate custom projects to address the unique nature of industrial facilities, which is consistent with other Canadian jurisdictions.

In addition to implementing the Customer Program Portfolio, Newfoundland Power expects to continue its efforts in general customer energy awareness and support, as well as those in planning for potential future programs. While such activities are required for the long-term success of utility conservation efforts, they are not associated with the implementation of any *specific* program in the Customer Program Portfolio.

[17] Marbek indicated in the Potential Study, Residential Sector, Exhibit 2.19, p. 28, that 41% of residential electricity consumption is for space heating in the Island and Isolated service region; and in Exhibit 6.16, p. 130, 16% to 32% of achievable energy savings is in space heating.

[18] At 55.8%, Newfoundland and Labrador was one of only three provinces with electric heating penetration rates exceeding the national average of 34.8% in 2006 (see Statistics Canada – Catalogue no. 62-202X, p. 62-63).

[19] Marbek indicated in the Potential Study, Commercial Sector, Exhibit 2.7, p. 15, 32% of commercial electricity consumption is for lighting in the Island and Isolated service region; and in Exhibit 6.16, p. 109, 45% to 57% of achievable energy savings is in lighting.

The Programs

The initial Customer Program Portfolio is proposed to include:[20]

- a residential windows program;
- a residential thermostat program;
- a residential insulation program;
- a commercial lighting program; and
- a custom industrial customer program.

The residential programs are complementary.[21] Each targets a specific technology which can reduce customer electricity consumption for home heating. The new residential windows program will include incentives for the installation of *ENERGY STAR* qualified windows. The new residential thermostats program will include increased incentives and updated product eligibility criteria.[22] This, in turn, will encourage use of the next higher-efficiency technology.[23] The new residential insulation program will be simplified and include increased incentives.[24]

[20] The specific programs proposed for near-term implementation are consistent with the Conservation Plan. Within these programs, refinements have since been made based on further research and concept development.

[21] In addition to being complementary to each other, the residential programs are consistent with the *Energy Plan* focus of reducing residential energy consumption. (See footnote 3.)

[22] For example, proposed residential thermostat program incentives include a $5 rebate per high performance thermostat, with eligibility based on accuracy of heating control within +/- 0.5C. The existing thermostat program rebate value is $4 per thermostat, with eligibility based on accuracy of heating control within +/- 1.0C. (See Exhibit 1, p. 3.)

[23] Current market data provided by trade allies regarding residential thermostat sales in the province indicates that 28% operate within +/- 1.0C, but only 6% within +/- 0.5C. The Potential Study, Residential Sector, p. 59-60, attributes additional energy savings to the more accurate type.

[24] The existing residential insulation program rebates are based on a prescriptive list of products, and vary by product type and package size. The proposed program will rebate based on R-value per square foot of insulated area, regardless of product type. (See Exhibit 1, p. 5.)

The commercial lighting program will focus on specific lighting technologies, providing rebates comparable to the incremental cost of the more efficient products.[25] The program will be offered directly through commercial lighting product distributors, who can influence their customers to adopt the more efficient product. This approach for initial programming is consistent with that recommended in the Potential Study.[26]

Implementation of the proposed programming in the residential and commercial sectors will also include expanded marketing activities through mass media, including television.[27] Expanded marketing and higher incentive levels are expected to increase customer participation. Each proposed program includes development of program tracking and evaluation processes.[28]

Industrial customer custom projects will address the unique nature of industrial facilities with a program based on specific engineering proposals. This is justified given the scale of potential energy savings associated with such facilities.

Exhibit 1 contains the program descriptions for the proposed 2009 Customer Program Portfolio.

[25] Federal regulation changes will begin to remove the least efficient fluorescent lighting products from the market in 2010. The proposed commercial lighting program will encourage customers to install products which are more efficient than the new minimum standard.

[26] See Potential Study Evaluation Guidelines, CDM Program Lessons Learned, p. 18-19. The use of trade allies, ranging from product manufacturers to retailers to construction professionals, adds credibility to utility program delivery. It also helps reduce program delivery costs.

[27] Television advertising is expected to cost $500,000 to develop and place in 2009.

[28] See Potential Study Evaluation Guidelines, CDM Program Design and Evaluation Cycle, Exhibit 2.1, p. 3.

Energy Savings Estimates

It is estimated that implementation of the Customer Program Portfolio will yield energy savings of just under 70 GWh per year by 2013. This represents approximately 8% of forecast growth in provincial energy consumption through 2013.

Table 1 shows the summary of estimated energy savings[29] associated with the proposed Customer Program Portfolio.[30]

Table 1
Customer Program Portfolio
Energy Reduction 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					
Custom Retrofit Project Rebate Program	-	-	20,000	45,000	45,000
Total	**3,832**	**8,318**	**33,426**	**63,963**	**69,881**

The estimated annual energy savings associated with the proposed Customer Program Portfolio are expected to be 3,832 MWh in 2009 and grow to 69,881 MWh by 2013. This, in part, reflects the timing of program implementation, particularly for the industrial sector. It also reflects the

[29] Estimated energy savings is calculated based on an engineering estimate of kWh savings for each energy efficient product installed multiplied by the estimated program participation level, excluding free riders (those participants who would have chosen the more efficient product without the program).

[30] The specific programs proposed for near-term implementation are consistent with the Conservation Plan. Estimated energy reduction estimates within these programs have since been refined based on further research and concept development.

fact that customer energy savings associated with the Customer Program Portfolio are cumulative over time.[31]

Estimated residential program energy savings reflect further program concept development and are lower than those estimated in the Conservation Plan. The reduced estimates principally reflect detailed engineering assessment of achievable energy savings per home based upon targeted uninsulated spaces (basements and attics) and the age of housing stock. [32]

Estimated commercial program energy savings are higher than those shown in the Conservation Plan. The increased estimates reflect changes in the targeted lighting technologies. They also reflect changes in delivery mechanisms, which are expected to increase participation.[33]

Customer Program Portfolio Costs

It is estimated that aggregate Hydro and Newfoundland Power program costs *directly* associated with the Customer Program Portfolio will be approximately $20.6 million through 2013.

[31] Program energy saving impacts persist for the life span of the energy efficient technology installed. The life span of the specific technologies proposed in the Customer Program Portfolio ranges from 7 (commercial lighting) to 25 years (insulation).

[32] A detailed assessment of actual participation data for Newfoundland Power's *Wrap Up for Savings* program indicated reduced square footage of basement areas insulated by participants than originally assumed in the Conservation Plan. This reduced energy savings estimates. In addition, more recent vintage housing stock (particularly since the 1990s) tends to be better insulated. This, in turn, tended to reduce average energy savings estimates associated with additional insulation installation.

[33] The principal change in program delivery is the more extensive use of trade allies (commercial lighting distributors).

Table 2 shows the summary of the estimated Hydro and Newfoundland Power costs associated with the proposed Customer Program Portfolio.[34]

Table 2
Customer Program Portfolio[35]
Program Cost Estimates: 2009-2013
by Sector
($000s)

	2009	2010	2011	2012	2013
Residential					
Insulation Program	884	827	966	862	912
Thermostat Program	425	378	459	397	441
ENERGY STAR Windows Program	668	566	666	646	730
Commercial					
Lighting Rebate Program	439	433	517	478	550
Industrial					
Custom Retrofit Project Rebate Program	1,466	2,638	4,266	-	-
Total	**3,882**	**4,842**	**6,874**	**2,383**	**2,633**

The total estimated Hydro and Newfoundland Power costs of implementing the proposed Customer Program Portfolio are approximately $3.9 million in 2009.

2.2 Economic Justification

Overview

Economic assessment is an integral tool in the development of cost effective customer programs aimed at achieving potential energy and demand savings. Initially, this involves an economic comparison of the cost of the more efficient technology to the avoided cost of energy and/or

[34] The specific programs proposed for near-term implementation are consistent with the Conservation Plan. Cost estimates within these programs have been refined based on further refinement in concept development.

[35] These programs are those outlined in the Conservation Plan for implementation in the near-term, 2009-2010. The last 3 years of the 2009 to 2013 planning horizon, 2011 to 2013, are currently expected to have materially expanded program offerings which is expected to increase program costs. See the Conservation Plan, p. 8-9.

demand. This comparison essentially serves as a *screen* to determine whether implementation of a specific technology is economically viable.[36]

A second economic assessment involves the use of *tests* to determine whether a specific *program* is economically justifiable for a particular utility application. These tests are based upon present value analysis which is common in utility regulatory practice. For example, the Total Resource Cost ("TRC") test seeks to establish a reasonable present value of the *total* costs and benefits of a utility conservation program to the utility and customers that choose to participate in the program. There are several other such tests, each of which differs primarily in terms of perspective.[37]

Exhibit 2 contains a summary of the economic tests commonly used to evaluate utility conservation and demand management programs.

Economic Assessment

In the Potential Study it is recommended that the primary metric for assessing program cost effectiveness be a hybrid of the TRC test and the Societal Cost Test ("SCT"). The TRC test is the most widely used test for assessing utility conservation program cost-effectiveness in

[36] Each of the technologies in the Customer Program Portfolio were determined by Marbek to be economically viable. Other technologies were not. For example, *EnergyStar* qualified freezers were considered but were screened out because the cost per kWh saved of $0.140 was higher than the avoided cost of energy of $0.0980 per kWh used by Marbek. (See Potential Study, Exhibit 5.7, p. 101) Since Marbek's assessment, the avoided cost of energy has risen and, at the time of filing this Application, is in the order of $0.1475 per kWh.

[37] Each test considers the program costs and benefits from the perspective of a different stakeholder. These include a utility test, participant test, non-participant test (also known as rate impact measure) and a societal cost test, which considers the broadest group of stakeholders and externalities. See Exhibit 2.

Canada.[38] The SCT is a variant of the TRC which includes the effect of externalities such as environmental impacts.[39]

The Potential Study also indicated that the rate impact measure ("RIM") was useful to ensure that a portfolio of utility programs does not impose undue rate increases on an individual customer or class of customers.[40] Because the RIM is used to assess potential conservation program impacts on non-participants, it is also conceptually a measure of equity.[41]

In evaluating the Customer Program Portfolio, Newfoundland Power and Hydro used the TRC test as the primary metric. In this evaluation no account was made of environmental or societal externalities associated with the programs.[42] In addition, the RIM was developed for each residential and commercial program and the aggregate residential and commercial components of the Customer Program Portfolio.[43]

[38] In addition to being recommended by Marbek (See Evaluation Guidelines, p. 16), the TRC test is currently used by Nova Scotia Power, New Brunswick Power, Hydro Quebec, Enbridge Gas Distribution, Manitoba Hydro, SaskPower, FortisBC, Terasen Gas and BC Hydro to assess utility conservation program cost-effectiveness.

[39] See the Potential Study, Evaluation Guidelines, p. 16.

[40] See Marbek Evaluation Guidelines, p. 16.

[41] See Marbek Evaluation Guidelines, p. 16. The observation that the RIM is conceptually a measure of equity was made by the British Columbia Utilities Commission in its Decision in Order No. G-96-04, October 29, 2004 at p. 191.

[42] Any valuation of environmental or societal impacts would likely serve to increase the value of the individual programs and the Customer Program Portfolio. Accordingly, the TRC test results can be viewed as relatively conservative.

[43] The Board has directed Newfoundland Power to evaluate conservation and demand management programs with respect to rate impact, as well as to total resource costs (see Order No. P.U. 7 (1996-97)). The Potential Study's recommendations as to evaluating program cost effectiveness are broadly consistent with this direction.

Table 3 shows the results of the economic assessment of the Customer Program Portfolio.

Table 3
Customer Program Portfolio
Economic Assessment Results
2009-2013
by Sector

	TRC	RIM
Residential		
Insulation Program	2.96	1.54
Thermostat Program	1.48	.95
ENERGY STAR Windows Program	1.71	.86
Commercial		
Lighting Rebate Program	3.84	1.05
Residential & Commercial Program Portfolio	**2.65**	**1.28**
Industrial		
Custom Retrofit Project Rebate Program	2.89	-[44]
Total Portfolio	**2.75**	**-**

For the programs in the Customer Program Portfolio, the TRC results range from 1.48 to 3.84. A TRC benefit to cost ratio of 1.0 or greater indicates that a program is cost-effective. All programs in the Customer Program Portfolio have a TRC benefit to cost ratio of greater than 1.0. The total Customer Program Portfolio has a TRC of 2.75.

[44] RIM calculation was not available at the time of filing for the Industrial Custom Retrofit Project Rebate Program.

For the programs in the residential and commercial sectors, the RIM results range from .86 to 1.54. The aggregate RIM result for these sectors is 1.28. A RIM of 1.0 or greater indicates that a program or portfolio will not tend to increase customer rates. A RIM of less than 1.0 indicates that a program or portfolio will tend to increase customer rates and thus increase the costs of non-participants.[45]

The results of economic assessment of the Customer Program Portfolio indicate that the portfolio is economically attractive. The portfolio TRC of 2.75 indicates that implementation will yield a benefit to cost ratio in the order of 2.7 to 1. The aggregate RIM of 1.28 for the residential and commercial components of the Customer Program Portfolio indicates that their implementation should not result in non-participants bearing additional costs.

[45] Current Canadian regulatory practice does not require a program to have a RIM of 1.0 or greater as a condition of implementation, provided that the program's TRC benefit to cost ratio is 1.0 or greater. For example, the BCUC uses a threshold RIM of 0.80 for approval of programs with a TRC benefit to cost ratio of 1.0 or greater (See BCUC Decision in Order No. G-96-04 at p. 191). The OEB considers the RIM as a useful indicator that a *portfolio* of energy conservation programs do not impose an *undue* rate increase on an individual or class of customers (see Marbek, Evaluation Guidelines, p. 17).

SECTION 3:
NEWFOUNDLAND POWER CONSERVATION COSTS

To implement the Customer Program Portfolio in 2009 will require an estimated increase in Newfoundland Power's conservation costs of approximately $2 million in 2009.

This section of the evidence reviews Newfoundland Power's conservation costs from 2006 through 2009 including the estimated 2009 Newfoundland Power costs associated with implementation of the Customer Program Portfolio.

3.1 Introductory

Newfoundland Power's ongoing efforts in conservation have materially increased in recent years. As a result, Newfoundland Power's aggregate conservation costs have increased by approximately $500,000 from 2006 through 2008. In 2009, aggregate conservation costs are proposed to further increase by approximately $2 million. This primarily reflects the costs of the 2009 implementation of the expanded Customer Program Portfolio proposed in this Application.

Newfoundland Power's aggregate conservation costs have two primary components. The first relates to the *general* costs of increasing customer awareness, providing ongoing customer interaction, and conservation planning. The second relates to the costs of *specific* customer programs.[46]

3.2 General Costs: Education, Support and Planning

Newfoundland Power has historically incurred costs to ensure it is reasonably responsive to customer demand for general information on conservation and energy efficiency. These costs

[46] This distinction between *general* conservation costs and *specific* program costs is the norm in current utility conservation practice. Newfoundland Power's historical annual demand side management reporting has been broadly consistent with this practice.

are not associated with specific Newfoundland Power customer programs but are more general in their nature. They would include costs such as those associated with customer information and education, as well as those associated with customer interaction on energy conservation matters. In 2007 and 2008, they have also included costs associated with increased conservation planning, such as those associated with the Potential Study and Conservation Plan.[47]

Table 4 shows Newfoundland Power's general conservation costs associated with education, support and planning for 2006 and 2007 together with forecasts for 2008 and 2009.

Table 4
Newfoundland Power
General Conservation Costs
2006 to 2009F
($000s)

	2006	**2007**	**2008F**	**2009F**
Education	121	226	263	377
Support	93	93	106	140
Planning	64	150	324	397
Total	**278**	**469**	**693**	**914**

The increase in Newfoundland Power's costs related to general activities including customer education and awareness[48], customer support[49], and planning and development[50] substantially reflects the increased customer interest in conservation.[51]

[47] Of the 2008 test year conservation costs of $464,000 referred to at p. 3, line 4 of this Prefiled Evidence, $355,000 were general conservation costs.

[48] *Education* costs include costs associated with providing energy awareness and include advertising, outreach events (such as trade shows or community events) and initiatives with others (such as the *Holiday Light Switch LED Campaign*).

[49] *Support* costs are the costs of customer interaction via call agents or staff visits to customers' premises that are not connected to a specific program.

[50] *Planning* costs include the costs of program planning, research and management.

[51] For example, in 2006, Newfoundland Power recorded 27,176 customer initiated contacts (via the Contact Centre and the website) relating to conservation matters. In 2007, the number of contacts increased to 45,880.

In 2009, Newfoundland Power's general conservation costs are expected to increase by approximately 30 per cent which is broadly consistent with experience since 2006.

3.3 Customer Program Costs

Newfoundland Power's customer conservation program costs from 2006 to 2008 have been associated with residential insulation and thermostat programs introduced in the 1990s.

Table 5 shows Newfoundland Power's customer program costs for 2006 and 2007 together with forecast customer program costs for 2008 and the estimated Newfoundland Power costs of implementing the proposed Customer Program Portfolio in 2009.

Table 5
Newfoundland Power
Customer Program Costs
(by sector)
2006 to 2009P
($000s)

	2006	2007	2008F	2009P
Residential	106	175	181	1,683
Commercial	0	0	0	361
Total	**106**	**175**	**181**	**2,044**

For the period 2006 through 2008, Newfoundland Power's customer conservation *program* costs have been less than $200,000 per year.[52] With implementation of the Customer Program Portfolio *program* costs increase to over $2,000,000 in 2009.[53]

Table 6 shows Newfoundland Power's estimated 2009 costs, by program, associated with implementing the Customer Program Portfolio.

Table 6
Newfoundland Power
2009 Customer Program Portfolio Costs
(by program)
($000s)

Residential	
Thermostats	360
Insulation	751
Windows	572
Commercial	
Lighting	361
Total	**2,044**

The additional costs to Newfoundland Power to implement the Customer Program Portfolio are estimated to be approximately $2 million in 2009. This is material and not currently reflected in the electricity rates Newfoundland Power charges its customers.

[52] Of the 2008 test year conservation costs of $464,000 referred to at p. 3, line 4 of this Prefiled Evidence, $109,000 were customer energy conservation program costs related to residential insulation and thermostat programs.

[53] The total costs for residential and commercial programs proposed for the Customer Program Portfolio in 2009 total approximately $2.4 million (see Table 2, p. 14 of this Prefiled Evidence). Of this amount, it is estimated Newfoundland Power will incur approximately $2 million and Hydro, approximately $400,000. This is broadly reflective of the ratio of 85%/15% of total provincial customers respectively served by Newfoundland Power and Hydro.

3.4 Aggregate Newfoundland Power Conservation Costs: 2006 to 2009

Table 7 shows Newfoundland Power's aggregate conservation costs for 2006 and 2007 together with forecast aggregate costs for 2008 and proposed aggregate costs for 2009 which include implementation of the Customer Program Portfolio[54].

Table 7
Newfoundland Power
Aggregate Conservation Costs
2006 to 2009P
($000s)

	2006	2007	2008F	2009P
General	278	469	693	914
Customer Programs	106	175	181	2,044
Total	**384**	**644**	**874**	**2,958**

Newfoundland Power's aggregate conservation costs, including general conservation and specific program costs, are estimated to be approximately $3 million in 2009.

[54] These costs exclude recurring demand management costs of approximately $300,000 per year related to the Curtailable Service Option and facilities management.

SECTION 4:
PROPOSED CONSERVATION COST DEFERRAL ACCOUNT

To enable implementation of the Customer Program Portfolio in 2009, Newfoundland Power is proposing the Board approve a deferral account to provide for deferred recovery of the 2009 implementation costs.

This section of the evidence outlines the justification for approval of this deferral account as well as a description of the costs to be deferred.

4.1 Justification for Deferred Cost Recovery

Implementation of the Customer Program Portfolio in 2009 is cost-effective and beneficial for customers. In addition, 2009 implementation is consistent with (i) the public policy indicated in the *Energy Plan*, (ii) the approach to conservation and demand management outlined in the Potential Study, and (iii) regulatory policy as set out in the *Electrical Power Control Act, 1994*.[55]

As the Customer Program Portfolio was not conceived at the time of Newfoundland Power's last general rate application, the costs associated with its implementation were not reasonably determinable at that time. Accordingly, those costs are not included in rates established as a result of that application.

Deferred cost recovery will enable the provision of the benefits to customers associated with implementation of the Customer Program Portfolio in a timely way. A general rate application to consider cost recovery is an alternative to deferred cost recovery. However, the time

[55] Because the benefits associated with implementation of the Customer Program Portfolio substantially exceed the costs, its implementation is consistent with the least cost imperative contained in Section 3(b) of the *Electrical Power Control Act, 1994*. In addition, because implementation of the Customer Program Portfolio is not expected to impose costs on non-participants in conservation programs, it is does not violate the prohibition against unjust discrimination contained in Section 3(a) (i) of the *Electrical Power Control Act, 1994*.

associated with a general rate application would be expected to delay implementation until at least 2010.[56]

The costs of effective utility conservation programs which provide benefits to customers should be recoverable by the utility. The deferred cost recovery of 2009 Newfoundland Power costs of implementing the Customer Program Portfolio is appropriate to the current circumstances.[57]

Deferred cost recovery will also provide greater certainty in both the short and long term. In the short term, it will ensure that Newfoundland Power recovers only the *actual* 2009 costs of implementing the Customer Program Portfolio. The actual costs incurred, particularly for residential and commercial programming, will be dependent upon the level of customer participation. By permitting ultimate recovery of actual costs, the Board will effectively eliminate any disincentive to higher customer participation and consequent higher energy savings presented by increased costs associated with higher participation. In the longer term, the experience gained in the 2009 implementation will assist in informing the estimation of future costs and benefits associated with broader scale customer conservation programming.[58]

[56] Detailed program development and implementation preparation for the Customer Conservation Portfolio is expected to take approximately 3 months. A general rate application takes approximately 12 months to prepare, file and process.

[57] A similar approach was adopted by the Nova Scotia Utility and Review Board for Nova Scotia Power's proposed 2008 and 2009 conservation and demand management costs. See 2008 NSUARB 47.

[58] The Conservation Plan currently contemplates a material increase in utility programming over the 2009 through 2013 time horizon. See the Conservation Plan, pg. 8.

4.2 Proposed Conservation Cost Deferral Account

The proposed conservation cost deferral account would provide for the deferred recovery of only those costs associated with implementing the Customer Program Portfolio in 2009.[59]

The proposed account shall be charged with the 2009 costs incurred in implementing the Customer 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 a specific program in the Customer Program Portfolio.

The proposed account shall 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 Customer Program Portfolio.

Transfers to, and from, the proposed account will be tax effected. The actual 2009 costs associated with implementing the Customer Program Portfolio will be deductable for income tax purposes for the 2009 tax year.[60] Accordingly, the 2009 transfer to the proposed account will reflect the net after tax impact of the 2009 implementation costs to Newfoundland Power in the deferral account balance for year-end 2009.

[59] While Newfoundland Power's general conservation costs have increased and are projected to increase further in 2009, these increases in general conservation costs are not intended to be subject to deferred cost recovery.

[60] Ultimately, any aggregate recovery from customers of deferred 2009 costs will have to be grossed up to reflect the fact that in the year of recovery there is no amount deductable for income tax purposes.

Table 8 shows Newfoundland Power's estimated 2009 net cost deferral resulting from implementation of the Customer Program Portfolio.

Table 8
Newfoundland Power
2009 Customer Program Portfolio Costs
Estimated Net Cost Deferral
(000s)

Program Costs	$2,044
Income Tax Effects [61]	(675)
Net Deferral	**$1,369**

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

[61] Reflects 2009 marginal income tax rate of 33%.