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March 26, 2006

Board Secretary
Ontario Energy Board
P. O. Box 2319
2300 Yonge Street, Suite 2700
Toronto, Ontario M4P 1E4

Re: North Bay Hydro Distribution Limited
RP-2004-0203\EB-2005-0204
Annual Reporting of CDM Initiatives – filing March 31, 2006

1.0 Introduction

This submission is intended to satisfy North Bay Hydro's Conservation and Demand Management Plan reporting requirements for 2005. Enclosed are five hard copies and two electronic copies as per the filing requirements.

On January 13, 2005 North Bay Hydro submitted its Conservation and Demand Management Plan to the Ontario Energy Board. Approval was received from the Board on March 16, 2005. Of the 8 individual programs proposed, the priority was to fully implement the Water Heater Tune Up Program, Fridge Buy Back, Information Based, Commercial/Institutional/Industrial Demand Reduction and LED Traffic Light Pilot (identified as an optional program). The remaining programs would be developed with initial implementation depending on availability of resources and responses to the initial program offering by customers.

Following is a summary of the status of each program as of December 31, 2005:

Table One
Summary of CDM Program Implementation – North Bay Hydro

Program	Description	Status	Total Cost	KWH Savings
Water Heater Tune Up	Installation of insulating blankets, low flow showerhead, aerators, pipe wrap, compact fluorescents and weather-stripping	Mature program with sufficient activity to achieve target results	$47,661	305,795
Fridge Buy Back	Purchase, removal and proper disposal of older second refrigerator	Mature program achieving initial target	$35,107	394,800
EnerGuide For Houses	Promotion of Natural Resources Canada's program with customers with electric heat	Start up program with results from early pilot	$281	71,777
Information Based	Use of various channels to increase awareness of programs and conservation opportunities	Mature program with initial emphasis on residential programs and larger commercial/industrial users	$49,736	N/A
Renewable Energy	Working with customers to study feasibility of renewable energy opportunities	Designated as not started, however specific opportunities promoted with customers	N/A	N/A
Demand Reduction	Use of audits, studies and incentives to help commercial/institutional/industrial customers to reduce peak demand	Start up program with some initiatives completed and several under development. A new program to specifically target lighting was developed and launched recently	$42,594	98,639
System Optimization	Optimization of the electrical distribution system		$8,769	
Optional Programs	Development of several optional programs	Pilot completed on LED traffic lights and research into street lighting program	$8,018	18,515

2.0 Evaluation of the CDM Plan

Appendix A following section 5.0 summarizes all initiatives started or completed during 2005. Assumptions are added as notes at the bottom of the table.

3.0 Discussion of Programs

Appendix B which follows Appendix A provides details for each program as per guidelines. For many energy efficient technologies a proxy is identified with a similar load profile. It is noted in several of the comments that the TRC Benefit is understated as a result of the Ontario Seasonal Average Avoided Energy Cost (2005 Canadian) ending at 20 years for technologies with an equipment life of more than 20 years.

4.0 Lessons Learned

Following is a summary of the lessons learned by North Bay Hydro with respect to developing and implementing the programs over the course of 2005:

- There was a very strong customer response to the Water Heater Tune Up and Fridge Buy Back programs and both are considered a success. Follow up with customers indicated a high degree of satisfaction with the services provided.
- An agreement was structured with a local environmental group, Greening Nipissing to deliver the residential programs. Once a few start-up issues were managed, the relationship has proved an effective means of delivering programs to customers.
- With respect to the EnerGuide for Houses program, initial research indicated that relatively low participation rates were due to a lack of awareness and understanding of this program. A specific marketing initiative was designed in late 2005 for delivery in 2006. It remains unclear at this time whether an incentive is required to offset the costs of blower door installation; costs not covered by Natural Resources Canada, to ensure participation targets are achieved.
- With regard to Information Based programs, breakfast meetings highlighting specific technologies, an energy seminar where the largest 160 customers were invited (42 attended) and customer visits were found as effective means of promoting awareness and understanding energy saving opportunities. Many of the largest commercial, institutional and industrial customers have been contacted and a walk through energy audit completed to increase awareness and understanding of energy saving opportunities.
- With the Demand Reduction program targeted at commercial and industrial customers it has taken time to stimulate interest and participation. Walk through; scoping type energy audits have proved an effective means of ensuring participation. It has taken time to get all the allies required to ensure energy saving technologies are implemented with customers on board with program direction.
- Customers wishing to or participating in the Demand Reduction program expressed a need to have simple programs with streamlined processes and

agreements. North Bay Hydro has been very successful in this area ensuring processes and agreements are effective, yet involve a minimum amount of paperwork and bureaucracy.

- Walk through energy audits have indicated significant opportunities for customers to convert existing lighting systems to more efficient technologies. Work was started on a Lighting Program with implementation targeted for early 2006. This approach provides an incentive on a per fixture basis for energy efficient lighting technologies.
- The LED Traffic Light pilot was deemed a success and the program has been expanded with the objective of having all major intersections in the City converted to LED technology by late 2007.
- Work was initiated on a Streetlighting Pilot when a source for electronic modulating ballasts and light harvesting systems was identified. An existing 150-watt fixture was retrofitted to serve as a prototype for the pilot targeted for implementation in early 2006.

5.0 Conclusions

Very early in the process of developing the CDM Plan, North Bay Hydro stressed the importance of developing a local brand and identity for all conservation initiatives. The brand selected was “Saving Together” and all programs have been marketed within this context.

In 2005 there was a strong response to the residential programs offered by North Bay Hydro. There are a significant number of customers on a waiting list for both the Fridge Buy Back and Water Heater Tune Up programs. A decision will be made in the near future whether to increase spending and continue with these programs.

The Demand Reduction Program targeted at commercial/institutional/industrial customers has attracted significant interest. The question remains whether there is enough time for customers to budget the costs of implementation in their normal cycle to achieve sufficient results targeted by North Bay Hydro prior to September 30, 2007. The ability to create an overwhelmingly positive business for investment by customers in energy conservation has not been assisted with the hold on funding by Natural Resources Canada on the EnerGuide for Existing Buildings program.

Progress on spending and results will be monitored continuously through 2006. There may be a requirement to re-allocate budget to specific programs. Some of the optional programs will be developed and implemented to help gain even more momentum, interest and involvement by more customers.

If there are any questions please contact the undersigned at 705-474-8100.

Yours truly,

_____

Jim Snider
General Manager

Appendix A - Evaluation of the CDM Plan

	Total	Residential	Commercial	Institutional	Industrial	LDC System	LED Lights	Info Based
Net TRC value ($):	**$317,467**	$290,736	$2,353	$28,643		-$8,769	$4,503	
Benefit to cost ratio:	**2.93**	4.42	1.29	1.79		0.00	1.29	
*Number of participants or **units** delivered:*	**1,867**	1,753	41	2		1	70	
Total KWh to be saved over the lifecycle of the plan (kWh):	**9,302,888**	7,531,798	128,000	1,272,776		0	370,314	
Total in year kWh saved (kWh):	**889,970**	772,815	15,000	83,639		0	18,516	
Total peak demand saved (kW):	**308**	250	9	43		0	6	
Total kWh saved as a percentage of total kWh delivered (%):	**0.1486%**	0.1291%	0.0025%	0.0140%		0.0000%	0.0031%	
Peak kW saved as a percentage of LDC peak kW load (%):	**0.2661%**	0.2159%	0.0079%	0.0375%		0.0000%	0.0048%	
Gross in year C&DM expenditures ($):	**$224,298**	$104,811	$8,277	$36,117		$8,769	$16,588	$49,736
Expenditures per KWh saved ($/kWh):*	**$0.16**	$0.11	$0.43	$0.43		$0.00	$0.43	
*Expenditures per KW saved ($/kW)**:*	**$462.74**	$332.60	$711.79	$832.18		$0.00	$1,431.79	

Utility discount rate (%):	7.17%

Assumptions:
1) Information Based Program (Consumer Education) is not included as part of Net TRC or Benefit to Cost Ratio as there are no measurable results.

2) Units are selected as opposed to participants to cover actual numbers of installations.

3)Total Peak Demand (kW) is the winter peak. Same kW used to calculate "Expenditures per kW".

4) Gross C&DM expenditures includes expenditures by both the customer and North Bay Hydro.

5) Percentages of NB Hydro peak kW based on total of peak kW load for 2005 for each category.

6) Percentages of NB Hydro kWh delivered is based on the total kWh sold for all classes during 2005 for each category.

*Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate energy savings.
**Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate capacity savings.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Water Heater Tune-up Program -- Residential

Description of the program (including intent, design, delivery, partnerships and evaluation):

Installation of insulating blanket, low flow showerhead, faucet aerators, hot water pipe wrap, compact fluorescents and weather-stripping in residential dwellings with electric domestic hot water heating. Program also includes details on how to save electricity throughout the home. Program is delivered in partnership with Greening Nipissing, a local non profit environmental group.

Measure(s):

	Measure 1	Measure 2	Measure 3	Measure 4	Measure 5	Measure 6
Base case technology:	No tank Wrap	No Aerator	Regular Showerhead	No Pipe Wrap	Incandescent 100 Watt	Existing Weather-
Efficient technology:	Tank Wrap	Faucet Aerator	Efficient Showerhead	Pipe Wrap	CFL 25	New Weather-stripping
Number of participants or units delivered:	195	229	131	195	549	118
Measure life (years):	6	12	12	6	4.3	25

B. **TRC Results:**

TRC Benefits ($):	$ 171,891.47
TRC Costs ($):	
Utility program cost (less incentives):	$ 46,383.95
Participant cost:	$ -
Total TRC costs:	$ 46,383.95
Net TRC (in year CDN $):	$ 125,507.52
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	3.71

C. **Results:** (one or more category may apply)

Conservation Programs:

		lifecycle	in year
Demand savings (kW):	*Summer*		10.5
	Winter		97.6
Energy saved (kWh):		3,368,573	306,238
Other resources saved :			
Natural Gas (m3):			
*Other (**water - litres**):*		300,690	30,069

Demand Management Programs:

Controlled load (kW)	
Energy shifted On-peak to Mid-peak (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

Dispatchable load (kW):	
Peak hours dispatched in year (hours):	

Power Factor Correction Programs:

Amount of KVar installed (KVar):	
Distribution system power factor at beginning of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

	lifecycle	in year
Peak load savings (kW):		
Energy savings (kWh):		

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):	
Energy generated (kWh):	
Peak energy generated (kWh):	
Fuel type:	

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$12,865.00
	Incremental O&M:	$34,796.00
	Incentive:	$0.00
	Total:	$47,661.00
Utility indirect costs ($):	*Incremental capital:*	$0.00
	Incremental O&M:	$0.00
	Total:	$0.00
Participant costs ($):	*Incremental equipn*	$0.00
	Incremental O&M:	$0.00
	Total:	$0.00

E. Comments:

All measures are included in the Assumptions and Measures List. This program includes two measures not directly related to the Water Heater Tune-up but are to the energy efficiency of the dwelling: up to two compact fluorescent bulbs and weather-stripping were installed by Greening Nipissing. Although weather-stripping has an equipment life of 25 years, the total discounted savings are only calculated for 20 years. The tables provided with the Total Resource Guide ended at 20 years. The additional 5 years would improve the TRC Benefit. The 25 year period is used to calculate the lifecycle energy savings (kWh). Indirect costs are included with the operating costs. All labour and material are provided by North Bay Hydro. This is a highly successful program.

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Fridge Buy-Back

Description of the program (including intent, design, delivery, partnerships and evaluation):

This program is targeted at the removal and proper disposal of a second older refrigerator found in many homes. These units are inefficient and often have leaky doors and seals. Customers are paid an incentive of $50 to encourage participation. The fridges are removed from the customers premises and refrigerant evacuated and unit properly disposed of by a licensed contractor. Program is delivered in partnership with Greening Nipissing, a local non-profit environmental group.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Second Operational Fridge		
Efficient technology:	Removal of 2nd Fridge		
Number of participants or units delivered:	329		
Measure life (years):	6		

B. **TRC Results:**

TRC Benefits ($):		$ 143,025.29
TRC Costs ($):		
	Utility program cost (less incentives):	$ 18,657.00
	Participant cost:	
	Total TRC costs:	$ 18,657.00
Net TRC (in year CDN $):		$ 124,368.29
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		7.67

C. **Results:** (one or more category may apply)

Conservation Programs:

Demand savings (kW):	*Summer*		89.6
	Winter		94.6
		lifecycle	*in year*
Energy saved (kWh):		2,368,800	394,800
Other resources saved :			
	Natural Gas (m3):		
	Other (specify):		

Demand Management Programs:

Controlled load (kW)	
Energy shifted On-peak to Mid-peak (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

Dispatchable load (kW):	
Peak hours dispatched in year (hours):	

Power Factor Correction Programs:

Amount of KVar installed (KVar):	
Distribution system power factor at beginning of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

Peak load savings (kW):		
	lifecycle	*in year*
Energy savings (kWh):		

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):	
Energy generated (kWh):	
Peak energy generated (kWh):	
Fuel type:	

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$ -
	Incremental O&M:	$ 18,657.00
	Incentive:	$ 16,450.00
	Total:	$ 35,107.00
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

The measure is included in the Assumptions and Measures List under recycling. The cost for removal is proving less than the $100 as per the Assumptions and Measures List. The actual cost for 2005 was $56.71. This lower value is used for TRC calculations. Indirect costs are included with the operating costs. This is a highly successful program.

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** EnerGuide for Houses

Description of the program (including intent, design, delivery, partnerships and evaluation):

This program includes the promotion of Natural Resources Canada's EnerGuide for Houses to electrically heated homes in the City of North Bay. This program is delivered in partnership with Greening Nipissing, a local non profit environmental group.

Measure(s):

	Measure 1	Measure 2	Measure 3	Measure 4	Measure 5
Base case technology:	All Electric	Old Caulking	Minimal Basement	Minimal Attic Insulation	Existing Weather-
Efficient technology:	Fuel Substitution to Gas	New Caulking	Efficient Basement	Efficient Attic Insulation	New Weather-stripping
Number of participants or units delivered:	3	1	1	1	1
Measure life (years):	25	25	25	25	25

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B. **TRC Results:**

TRC Benefits ($):	$ 60,727.16
TRC Costs ($):	
Utility program cost (less incentives):	$ 281.00
Participant cost:	$ 19,586.20
Total TRC costs:	$ 19,867.20
Net TRC (in year CDN $):	$ 40,859.96
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	3.06

C. **Results:** (one or more category may apply)

Conservation Programs:

Demand savings (kW):	*Summer*	0
	Winter	57.5
	lifecycle	*in year*
Energy saved (kWh):	1,794,425	71,777
Other resources saved :		
Natural Gas (m3):		
Other :		

Demand Management Programs:

Controlled load (kW)	
Energy shifted On-peak to Mid-peak (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

Dispatchable load (kW):	
Peak hours dispatched in year (hours):	

Power Factor Correction Programs:

Amount of KVar installed (KVar):	
Distribution system power factor at beginning of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

	lifecycle	in year
Peak load savings (kW):		
Energy savings (kWh):		

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):	
Energy generated (kWh):	
Peak energy generated (kWh):	
Fuel type:	

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$0.00
	Incremental O&M:	$281.00
	Incentive:	$0.00
	Total:	$281.00
Utility indirect costs ($):	*Incremental capital:*	$0.00
	Incremental O&M:	$0.00
	Total:	$0.00
Participant costs ($):	*Incremental equipn*	$21,762.45
	Incremental O&M:	$0.00
	Total:	$21,762.45

E. Comments:

Currently there are 45 active projects and 4 complete. For 2005 the savings are related to the 4 complete. Of the 4, 3 were fuel substitution and the fourth one utilized weatherstripping, caulking, attic insulation and basement insulation. The technologies are not included in the Assumptions and Measures List. For fuel substitution the measures for thermal envelope improvements (items 36 to 45 on the Residential worksheet) were used as a proxy. Proration techniques were used to calculate the peak demand (kW) for winter and energy savings for the three winter and two shoulder periods. There are no energy savings during the three summer periods. The equipment cost per house for fuel substitution is $6,000. For weatherstripping, caulking, attic insulation and basement insulation for the fourth home, the results were calculated from the Assumptions and Measures List except the percent savings were increased from 15% to 23.3% for basement insulation (item 43) to match the calculated savings.

Similar to the Water Heater Tune-up program regarding the equipment life of 25 years for weather-stripping, the same argument holds true for EnerGuide for the fourth home. Weather-stripping, caulking, attic insulation, basement insulation and fuel substitution have an equipment life of 25 years, however the total discounted savings are calculated only for 20 years. The tables provided with the Total Resource Guide ended at 20 years. The additional 5 years would improve the TRC Benefit for all five measures. The 25 year period is used to calculate the lifecycle energy savings (kWh). The costs included with this program were incomplete at year-end.

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Information Based (Consumer Education)

Description of the program (including intent, design, delivery, partnerships and evaluation):

Use of various channels including individual customer meetings, group meetings, direct mail, newspaper articles etc to increase awareness of programs and conservation opportunities.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	N/A		
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	
TRC Costs ($):	
Utility program cost (less incentives):	N/A
Participant cost:	N/A
Total TRC costs:	N/A
Net TRC (in year CDN $):	N/A
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	N/A

C. **Results:** (one or more category may apply)

Conservation Programs:

Demand savings (kW):	*Summer*	0	
	Winter	0	
		lifecycle	*in year*
Energy saved (kWh):	*0*	0	
Other resources saved :			
Natural Gas (m3):			
Other (specify):			

Demand Management Programs:

Controlled load (kW)	
Energy shifted On-peak to Mid-peak (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

Dispatchable load (kW):	
Peak hours dispatched in year (hours):	

Power Factor Correction Programs:

Amount of KVar installed (KVar):	
Distribution system power factor at beginning of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

	lifecycle	in year
Peak load savings (kW):		
Energy savings (kWh):		

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):	
Energy generated (kWh):	
Peak energy generated (kWh):	
Fuel type:	

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$ -
	Incremental O&M:	$ 49,736.00
	Incentive:	$ -
	Total:	$ 49,736.00
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

There are no savings related to this consumer education program for all classes of customers.

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Commercial Demand Reduction

Description of the program (including intent, design, delivery, partnerships and evaluation):

Use of audits, feasibility studies and incentives to help commercial customers reduce their peak electrical demand. Delivered together with local allies including consultants and distributors.

Measure(s):

	Measure 1	Measure 2	Measure 3	
Base case technology:	Lighting T12's	Utilized Electricity for Cafeteria Heating		
Efficient technology:	Lighting T8's	Reconfigured to Gas for Cafeteria Heating		
Number of participants or units delivered:	40	1		41
Measure life (years):	5.6	10		

B. **TRC Results:**

TRC Benefits ($):		$ 10,450.67
TRC Costs ($):		
	Utility program cost (less incentives):	$ 6,477.26
	Participant cost:	$ 1,620.00
	Total TRC costs:	$ 8,097.26
Net TRC (in year CDN $):		$ 2,353.41
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		1.29

C. **Results:** (one or more category may apply)

Conservation Programs:

Demand savings (kW):	*Summer*		7.9
	Winter		9.1
		lifecycle	*in year*
Energy saved (kWh):		128,000	15,000
Other resources saved :			
Natural Gas (m3):			
Other :			

Demand Management Programs:

Controlled load (kW)	
Energy shifted On-peak to Mid-peak (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

Dispatchable load (kW):	
Peak hours dispatched in year (hours):	

Power Factor Correction Programs:

Amount of KVar installed (KVar):	
Distribution system power factor at beginning of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

	lifecycle	in year
Peak load savings (kW):		
Energy savings (kWh):		

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):	
Energy generated (kWh):	
Peak energy generated (kWh):	
Fuel type:	

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$0.00
	Incremental O&M:	$6,477.26
	Incentive:	$0.00
	Total:	$6,477.26
Utility indirect costs ($):	*Incremental capital:*	$0.00
	Incremental O&M:	$0.00
	Total:	$0.00
Participant costs ($):	*Incremental equipment:*	$1,800.00
	Incremental O&M:	$0.00
	Total:	$1,800.00

E. Comments:

Neither of the technologies (lights or the plumbing reconfigurations for a series of four water heaters) are included in the Assumptions and Measures List. For the lights the change from T12's to T8's is similar to the lights in the Assumptions and Measures List, thus the lights for items 3, 4 and 5 of the Commercial Worksheet were used as a proxy. Proration of any of the three items (technologies) have the same load profile, thus provide the same results for the change from T12's to T8's. The energy efficient technology for the lamps and ballast resulted in an energy savings of 35 watts per fixture at a cost of $45.00 each. The hours of use were reduced from the 4,000 in the proxy to estimated actual operating time of 3,600. Proration techniques were used to calculate the peak demand (kW) for summer and winter and energy savings (kWh) for each of the winter, summer and shoulder periods. The costs are actual and similar to the others for items 3 to 5 on the Assumptions and Measures List.

For the water heater plumbing configuration the change is similar to upgrading tank insulation (item 19) and installing pipe wrap (item 20) in the Commercial worksheet, thus one or the other can be used as a proxy because both have the same load profile giving the same results. The change in plumbing increased the efficiency of the tanks resulting in less usage of the circulating pump and heating elements. There was no cost paid by the customer to make the change. Proration techniques were used to calculate the peak demand (kW) for summer and winter and energy savings (kWh) for each of the winter, summer and shoulder periods. The operating costs include indirect costs. There are many other projects in the works on this program.

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Institutional Demand Reduction

Description of the program (including intent, design, delivery, partnerships and evaluation):

Use of audits, feasibility studies and incentives to help institutional customers reduce their peak electrical demand. Delivered together with local allies including consultants and distributors.

Measure(s):

	Measure 1	Measure 2	Measure 3
Base case technology:	Stairwell Heating	Utilized Electricity for Cafeteria Heating	
Efficient technology:	Disconnect Stairwell Heating	Reconfigured to Gas for Cafeteria Heating	
Number of participants or units delivered:	1	1	2
Measure life (years):	20	10	

B. **TRC Results:**

TRC Benefits ($):		$ 64,759.61
TRC Costs ($):		
	Utility program cost (less incentives):	$ 36,116.74
	Participant cost:	$ -
	Total TRC costs:	$ 36,116.74
Net TRC (in year CDN $):		$ 28,642.87
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		1.79

C. **Results:** (one or more category may apply)

Conservation Programs:

		lifecycle	in year
Demand savings (kW):	*Summer*		0
	Winter		43.4
Energy saved (kWh):		1,272,776	83,639
Other resources saved :			
	Natural Gas (m3):		
	Other :		

Demand Management Programs:

Controlled load (kW)	
Energy shifted On-peak to Mid-peak (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

Dispatchable load (kW):	
Peak hours dispatched in year (hours):	

Power Factor Correction Programs:

Amount of KVar installed (KVar):	
Distribution system power factor at beginning of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

	lifecycle	in year
Peak load savings (kW):		
Energy savings (kWh):		

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):	
Energy generated (kWh):	
Peak energy generated (kWh):	
Fuel type:	

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$0.00
	Incremental O&M:	$36,116.74
	Incentive:	$0.00
	Total:	$36,116.74
Utility indirect costs ($):	*Incremental capital:*	$0.00
	Incremental O&M:	$0.00
	Total:	$0.00
Participant costs ($):	*Incremental equipment:*	$0.00
	Incremental O&M:	$0.00
	Total:	$0.00

E. Comments:

Neither technology (disconnection of electric heating or resequencing controls to switch electric heating to gas) are included in the Assumptions and Measures List. It is assumed the stairwell heating would have a similar load profile to air sealing for non-profit housing (item 22) of the Commercial Worksheet prior to eliminating infiltration or disconnecting the heaters. Thus item 22 is used as the proxy. This energy efficient technology reduced the connected load substantially at no cost to the customer. Proration techniques for item 22 were used to calculate the peak demand (kW) for summer and winter and energy savings (kWh) for each of the winter, summer and shoulder periods.

It is assumed the resequencing of controls to switch electric heating to gas would have a similar load profile to air sealing for non-profit housing (item 22) of the Commercial Worksheet prior to eliminating infiltration or resequencing the controls. Thus item 22 is used as the proxy. This energy efficient technology eliminated the electrical load for the cafeteria at no cost to the customer. Proration techniques for item 22 were used to calculate the peak demand (kW) for summer and winter and energy savings (kWh) for each of the winter, summer and shoulder periods.

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** System Optimization Study

Description of the program (including intent, design, delivery, partnerships and evaluation):

Optimization of the electrical distribution system.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Existing System		
Efficient technology:	No Results as yet		
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	*$*	-
TRC Costs ($):		
Utility program cost (less incentives):	$	8,769.00
Participant cost:		
Total TRC costs:	$	8,769.00
Net TRC (in year CDN $):	-$	8,769.00
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		0.00

C. **Results:** (one or more category may apply)

Conservation Programs:

Demand savings (kW):	*Summer*	0	
	Winter	0	
	lifecycle	*in year*	
Energy saved (kWh):	*0*	0	
Other resources saved :			
Natural Gas (m3):			
Other (specify):			

Demand Management Programs:

Controlled load (kW)	
Energy shifted On-peak to Mid-peak (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

Dispatchable load (kW):	
Peak hours dispatched in year (hours):	

Power Factor Correction Programs:

Amount of KVar installed (KVar):	
Distribution system power factor at beginning of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

	lifecycle	in year
Peak load savings (kW):		
Energy savings (kWh):		

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):	
Energy generated (kWh):	
Peak energy generated (kWh):	
Fuel type:	

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$ -
	Incremental O&M:	$ 8,769.00
	Incentive:	$ -
	Total:	$ 8,769.00
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

There are no results as yet for this program, only costs.

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Optional Program (LED Traffic Lights & Street Lighting)

Description of the program (including intent, design, delivery, partnerships and evaluation):

A pilot to test LED traffic lighting at a limited number of intersections. Pilot was deemed a success with further installations planned for 2006 and 2007.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Incandescent Lights	Incandescent Lights	Incandescent Lights
Efficient technology:	LED 12" Lenses	LED 8" Lenses	LED 12" Lenses Pedestrian
Number of participants or units delive	14	40	16
Measure life (years):	20	20	20

B. **TRC Results:**

TRC Benefits ($):		$ 20,234.45
TRC Costs ($):		
	Utility program cost (less incentives):	$ 8,018.00
	Participant cost:	$ 7,713.00
	Total TRC costs:	$ 15,731.00
Net TRC (in year CDN $):		$ 4,503.45
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		1.29

C. **Results:** (one or more category may apply)

Conservation Programs:

Demand savings (kW):	*Summer*		5.3
	Winter		5.6
		lifecycle	*in year*
Energy saved (kWh):		370,314	18,516
Other resources saved :			
	Natural Gas (m3):		
	Other (specify):		

Demand Management Programs:

Controlled load (kW)	
Energy shifted On-peak to Mid-peak (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

Dispatchable load (kW):	
Peak hours dispatched in year (hours):	

Power Factor Correction Programs:

Amount of KVar installed (KVar):	
Distribution system power factor at beginning of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

	lifecycle	in year
Peak load savings (kW):		
Energy savings (kWh):		

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):	
Energy generated (kWh):	
Peak energy generated (kWh):	
Fuel type:	

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$ -	
	Incremental O&M:	$ 8,018.00	
	Incentive:		Not Paid at year end
	Total:	$ 8,018.00	
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:		
Participant costs ($):	*Incremental equipment:*	$8,570.00	
	Incremental O&M:	$0.00	
	Total:	$8,570.00	

E. Comments:

LED Traffic Lights are not included in the Assumptions and Measures List. The proxy used in this case is the LED Exit Lights (item 10) shown in the Commercial Worksheet. For the LED Traffic Lights the change from incandescent to LED is similar to the Exit Lights in the Assumptions and Measures List. The operation is different where most traffic lights (red, green and yellow) are on 33% of the time and pedestrian crossings are on 50% of the time. Exit Lights are on 8760 hours per year. The size and numbers of lights varies with each intersection. The customer cost is based on actual installation and material. Proration techniques were used (as per proxy) to calculate the peak demand (kW) for summer and winter and energy savings (kWh) for each of the winter, summer and shoulder periods. The operating cost included is partly LED Traffic Lights and the remainder streetlighting. There are no results reported as yet for street lighting. The operating costs include indirect costs. This program will carry on through 2007. Incentives will be paid after verification of each intersection.

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.