



PETERBOROUGH DISTRIBUTION INC.

1867 Ashburnham Drive, PO Box 4125, Station Main
Peterborough ON K9J 6Z5

March 28, 2008

File: File: L69 OEB

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

Re: Peterborough Distribution Inc. RP-2004-0203/EB-2004-0409
Conservation and Demand Management Annual Report

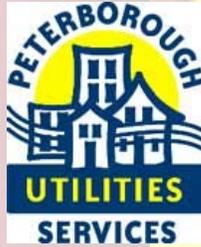
Please find enclosed three (3) hard copies and two (2) electronic copies of our Conservation and Demand Management Annual Report for the year 2007.

Should you have any questions do not hesitate to contact me.

Yours very truly,

Marie Virgoe
Manager, Regulatory and Corporate Services
Telephone (705) 748-9301 ext 1286
e-mail mvirgoe@peterboroughutilities.ca

encls.



Peterborough Distribution Inc.

2007

**Annual
Conservation
And
Demand
Management
Report**

Conservation and Demand Management Program

2007 Annual Report
CDM Third Tranche Funding, Peterborough Distribution Inc.

ED-1999-0238
March 31, 2008

Introduction

We applied for and received \$1,332,276 in funding through the OEB for our Conservation and Demand Management program initiatives. Our commitment has been fulfilled and programs completed as of September 30, 2007.

Additional funding in the amount of \$180,000 was received and allocated for conservation initiative through the Green Municipal Fund providing further benefit to our Customers and Community.

The funding has been apportioned with the following results:

Installation of Thermal Storage Electric Heat – Total Budget \$741,944

- Conversion of Electric Baseboard to Thermal Storage heating in co-operation with the local social housing authority.
- Heating in 124 Peterborough Housing units have been converted
- Savings of 4,123,863 kWh are expected during the life of the units
- Estimated annual electricity cost reduction for Peterborough Housing in the amount of \$47,472
- This project has been completed

Radio Signal Control – Total Budget \$165,698

- A radio signal system to control appliances and shift discretionary use of electricity to off peak, less costly, times.
- 362 appliances are being controlled benefiting 230 Customers
- Estimated Demand Savings on Peak of 281 kW
- We will continue to offer appliance control for existing participants

Lighting for Social Housing a. – Total Budget \$150,000

**Additional Lighting Programs through Utilization of Green Municipal Funding
b. & c. - Total Budget - \$180,000**

- a. Replacement of incandescent light bulbs with compact fluorescent light bulbs in 1763 apartment units including 1688 Social Housing units
- b. In conjunction with the City of Peterborough, we provided funding for the replacement of Incandescent Traffic Signals with LED's.

- c. We also provided funding to the Downtown Business Improvement Area (DBIA) to replace their Incandescent Christmas lights with LED bulbs.
- The estimated life cycle energy savings for all lighting initiatives is 21,466,047 kWh
- Life cycle cost savings for all lighting initiative is estimated at \$2,463,586.057

Energy Star Appliance Promotion – Total Budget \$83,000

- A rebate incentive was provided to customers purchasing new ‘Energy Star’ rated appliances.
- Approximately 1753 Appliances have been replaced
- Savings of 1,521,645 kWh are expected during the life of the appliances
- This promotion was completed in 2007

Appliance Load Monitors – Total Budget \$13,986

- Provided customers the loan of load monitors to measure energy use of various appliances and devices within their home or business.
- This was intended as an educational tool
- As of the end of the program period, approximately 621 customers have benefited from this program
- Estimated energy conserved over lifecycle is 432,452 kWh
- The loan of these Monitors will continue

Public Education Programs – Total Budget \$78,167.56

- Promoting electrical safety, conservation and demand management

Cool Shops (previously ‘EnerGuide’) – Total Budget \$30,104

- Provided business owners in the small commercial sector with the assistance and encouragement to invest in energy conservation
- Approximately 169 customers have benefited from this program
- Estimated Energy Saved over lifecycle 2,923,725 kWh
- This program was completed in 2005

Infra-Red Camera – Total Budget \$82,385

- The original plan of performing heat loss audits for customers was not feasible. The camera will, however, be used to scan for and reduce line loss on our distribution lines.

Evaluation – Discussion - Lessons Learned - Conclusion

Installation of Thermal Storage Electric Heat

1) Description of Program

In co-operation with the local social housing authority, the LDC provided financial, technical and administrative assistance to convert 124 electrically heated units from baseboard electric heating to electric thermal storage heating.

The non-ducted heaters are designed to heat the room or area into which they are placed. During off-peak hours, heaters convert electricity into heat and store that heat in specially designed high-density ceramic bricks capable of storing vast amounts of heat for extended periods of time. A fan inside the unit circulates this stored heat evenly and quietly as the room thermostat calls for heat.

2) Current Status

Total Approved Budget: \$ 741,944

Expenditures to Date: \$ 775,901

Percentage Completed: 100%

3) Challenges Faced

As Social Housing pays for heat in these units, there is a risk of tenants not giving adequate consideration to the savings benefit. ie. Opening a window instead of turning down the heat. Educating the tenants of the overall benefit mitigates this risk

Peterborough Housing was cautious in allowing the implementation of this program. It was a challenge to convince them of the benefits of this initiative without up front documentation and history to substantiate the benefits they could expect. Being new technology, this was unavailable and was a learn as you go experience for both of us.

An upgrade required to the heating service panel was not originally anticipated and cut into the budget

After installation of heaters at the tops of stairs, we were notified that this did not comply with building code as they increased a potential hazard of young children climbing up and over the adjacent retaining wall and falling

into the stairs. This was rectified but building the unit up to the same height as the retaining wall.

4) Customer Reaction

The tenants were by and large indifferent, as they did not experience direct benefit.

There were some comments made about the increased size of the heaters taking up more space than the old baseboard heaters.

Peterborough Housing was very pleased with the results.

5) Benefits to Customers

The tenants benefited from an overall warmer and improved heating system. The difference was the fan within the unit circulating the heat.

Peterborough Housing benefited from an upgraded electrical panel and heating system.

This initiative has helped us educate our customers and raise their awareness of the benefits of energy conservation.

6) Savings

With the availability of Smart Meters and Time of Use rates, the conversion will have a large impact on the reduction of Social Housing and/or the tenant's electrical bill.

The annual savings in electricity costs is approximately \$383 per unit or \$47,492 for current 124 units converted. This was calculated by taking a case study of 20 units and comparing the direct cost difference between Time of Use and Price Protected rates as well as the overall shift of consumption to a reduced rate time period.

The residential load profile found that with baseboard heat, consumption was Off Peak for 34% of the total consumption. After the conversion to Thermal Storage Electric Heat, the Off Peak consumption increased to 88% with majority of the remaining portion being for Hot Water Tanks. Based on the Ontario Energy Board calculation model, the Total Resource Cost Guide (TRC), we are anticipating energy savings of 4,040,590 kWh over the 18-year life cycle of these storage heaters.

Assuming that carbon fuel, coal, is burnt in peaking generating stations, there will also be a reduction in green house gas production.

7) Conclusion

This initiative has allowed us to extend our past experience with shifting demand from on peak to off peak by using radio control signals through the SCADA program. We were pleasantly surprised at how much of the load was actually shifted to off peak by the implementation of this initiative.

We have been able to demonstrate the savings to the social housing authority because of the availability of Smart Metering and Time of Use rates

This initiative was successful in shifting consumption from on peak to off peak in partnership with the local municipality however, in accordance with the requirements of the TRC, the benefits calculated reflect a savings of consumption but not of demand as was not a summer peaking initiative.

This initiative has been completed.

Radio Signal Control

1) Description of Program

We have developed a radio signal system that may be used by customers to control appliances and shift discretionary use of electricity to off peak times. The signals are currently provided at no cost to the customer and will automatically disable appliances connected to the in-home controller and enable the appliance at an 'off peak' time. Appliances such as electric water heaters, dishwashers, pool pumps, clothes washers and electric dryers are being controlled. A manual override button permits the customer to use the appliance during a control period if necessary.

2) Current Status

Total Approved Budget: \$ 165,698

Expenditures to Date: \$ 137,274

Percentage Completed: 100%

3) Challenges Faced

We had a difficult time finding customers able or willing to participate. Older homes were not wired to Code and finished basements made it difficult to fit in the additional electric panel required. We also targeted our

test group to customers who had rental water heaters further limiting the available participants.

4) Customer Reaction

We have found that this initiative required more administration time than expected as customers had many questions and requests for information on how the program works and the potential benefits and savings.

Customers appreciate the educational aspect regardless of the savings potential of this program.

Most participants reported that although their appliances and water heating were shut off during certain times of the day, it did not cause any inconvenience.

5) Benefits to Customers

The benefit is the ability to shift consumption from 'On Peak' to 'Off Peak' times and therefore reduce rates. Total benefit is dependant on the individual consumption pattern of each customer. There is also a community and provincial benefit with overall shift of consumption to off peak.

The value of installed equipment per home is approximately \$ 1,500.

We have currently installed 230 units including 98 to water heaters in Social Housing units. The number of appliances being controlled is 362.

6) Savings

Based on the TRC, we are currently controlling 281 kW of Demand.

Assuming that carbon fuel, ie coal, is burnt in peaking generating stations, there will be a reduction in greenhouse gas production as a result of this initiative.

This initiative has been successful because of the availability of Smart Meter technology and Time of Use rates.

Current cost of energy is 3 cents per Kilowatt-hour 'Off Peak', 8.7 cents per kilowatt-hour 'On Peak' and 7 cents per kilowatt-hour 'Mid Peak'

7) Conclusion

For the pilot, we initially targeted customers that are committed to conservation and demand management. In the general population, our success may be slightly less definite.

More public education would attract further participants

Installing a smart meter at these residences and providing TOU rates readily demonstrated the financial savings to participants

We had originally hoped that once Smart Metering had been fully deployed, this program would continue on a rental/lease basis for new customers' installations. Currently, we are unconvinced that customers will choose to pay for the ability of us controlling their appliances when they have the ability of controlling most appliance use on their own.

This initiative has been completed though we continue to control appliances for existing participants.

Lighting

1) Description of Program's

- a. Replaced incandescent light bulbs in 1688 Social Housing units with approximately 22,269 compact fluorescent light bulbs (CFL).
- b. In conjunction with the City of Peterborough, we provided funding for the replacement of Incandescent Traffic Signals with LED's.
- c. Provided funding to the Downtown Business Improvement Area (DBIA) to replace their Incandescent Christmas lights with LED bulbs.

2) Current Status

Total Approved Budget: \$ 150,000.00 + \$ 180,000.00 GMF

Expenditures to Date: \$ 268,649

Percentage Completed: 100%

3) Challenges Faced

- a. There is a risk of losing ground over time by tenants not giving consideration to the savings benefit of CFL bulbs and replacing burned out bulbs with cheaper Incandescent bulbs. This risk may be increased by the fact that many Social Housing tenants do not have to

pay for their own electricity and would not see direct benefit. Providing a supply of replacement CFL bulbs to Social Housing Caretakers as well as educating both Social Housing and their tenants of direct and indirect savings associated with this program has mitigated the risk.

4) Customer Reaction

a. Customers really appreciate the program and like the new lighting.

We are finding that most customers are anxious to do their part in conservation.

b. & c. The DBIA and City were both very excited about our participation in their initiatives.

5) Benefits to Customers

The lighting programs bring many benefits to the City of Peterborough, the tenants of Social Housing, and Peterborough Distribution Inc. These include Energy reduction (kWh), environmental savings (GHG), cost savings for tenants, local employment, reduced bulb replacement (5 year life expectancy 8000 hours), and recycling of incandescent bulbs.

6) Savings

Combined Life Cycle Cost Saving \$ 2,463,486

Combined Life Cycle Energy Saving 21,466,047 kWh

7) Conclusion

The Lighting Programs are uncomplicated yet very effective with a large cost to benefit ratio.

These initiatives have been completed

Energy Star Appliance Promotion

1) Description of Program

This program provided a rebate incentive to customers purchasing new 'Energy Star' rated appliances. It was a continuation of the original rebate program which we applied for to assist customers forced to replace appliances after the July 2004 Flood. The program involved the customer completing a form and bringing in their appliance receipt. Customer

Service activity involved confirming that the appliance qualified as an Energy Star appliance and applying the rebate to the customer's utility account.

Appliance retailers participated in the program by notifying customers that it was available and by providing forms.

2) Current Status

Total Approved Budget: \$ 83,000

Expenditures to Date: \$ 84,459

Percentage Completed: 100%

3) Challenges Faced

There was confusion initially since appliances were labeled Energy Star but did not qualify according to the catalogue or website. Coordination with appliance retailers was required so that they communicated to customers that models had to qualify officially for the Energy Star Rebate program

It took longer than expected to do the research to make sure that the appliance that was purchased by the customer was in fact an energy star appliance and met with the requirements. We found that by using the website for the list of energy star appliances, it provided us with the most up to date list and was much more efficient than looking it up in the catalogue that became outdated quickly

At first we rebated a straight \$50 per appliance; however, some customers were requesting a \$50 rebate on a \$60 appliance. We changed our policy to pay 15% of the appliance cost with a maximum of \$50.

4) Customer Reaction

The program participation rate has been favorable.

A large frustration for customers was the fact that some appliances were labeled as Energy Efficient but did not qualify for the Energy Star rebate. The reasons were numerous including 1) United States rating being different than Canada's 2) Old stock bearing Energy Star label which no longer applies due to increased standards 3) Retailers giving misleading or inaccurate information.

5) Benefits to Customers

This program has been successful in generating interest in Energy Star appliances and encouraging customers who might have focused on other appliance features to consider energy efficiency as part of the purchase decision.

We have provided rebates on approximately 1635 appliances

6) Savings

We are anticipating energy savings of 1,521,645 kWh over the 15-year life cycle of the average appliance.

7) Conclusion

A rebate program will become less effective as appliance retailers start carrying only Energy Star appliances.

We were easily able to disburse the number of appliance rebates for which we budgeted.

This initiative has been completed

Appliance Load Monitors

1) Description of Program

The LDC provides the loan of load monitors to customers who use them to measure how much energy is being used by various appliances and devices within their home or business. Customers are asked to complete a form providing information on which appliance(s) they monitored and what action they expect to take to reduce consumption or demand.

This is an educational tool intended to help customers be more prudent with their hydro consumption.

2) Current Status

Total Approved Budget: \$ 13,986

Expenditures to Date: \$ 11,972

Percentage Completed: 100%

3) Challenges Faced

We found that, although there is a fair amount of public interest, customers are busy and tend not to make a special trip to pick up a load monitor. By making the load monitors more accessible to the public for pick up and drop off, we would increase the participation rate, however, we would lose valuable information on customer results and their anticipated action plan

We created an in-house reporting program that reduced the manual collection of data and produced more information to aid in the annual reporting

4) Customer Reaction

Experience to-date is that customers who take advantage of the monitor are residential. Customers report that they will use the offending appliance more carefully by turning it off/down or that they intend to replace the appliance.

5) Benefits to Customers

Based on experience to-date, we assume participation will continue with reduced numbers as interested customers utilize the monitor. Currently, 621 customers have borrowed a load monitor.

This initiative is break-even in financial terms but provides the intangible benefits of educating customers in addition to giving them the means to make an individual direct contribution to energy conservation. It will provide an energy conservation benefit but the financial benefit to the consumer is offset by the incremental cost of the energy-efficient appliance.

We also use the load monitor to any high bill complaint locations to help resolve the complaint

6) Savings

We anticipate energy savings of 432,452 kWh over the 15-year life cycle of the average appliance. Assumptions were made based on the customers report, life expectancy of the technology, number of customers estimated over this period and when and/or how energy is used, saved or shifted.

7) Conclusion

Although the Program period is over, we intend to continue with this service for as long as customers are interested.

Public Education Programs

1) Description of Program

Our goal is to promote electrical safety, conservation and demand management through participation in trade shows, home shows and advertisement through various media.

At present the LDC provides a safety program to all of the schools within its service territory. This program will be augmented to provide electricity conservation along with the safety messages

2) Current Status

Total Approved Budget: \$ 78,167

Expenditures to Date: \$ 77,219

Percentage Completed: 100%

3) Challenges Faced

N/A

4) Customer Reaction

Customers are generally happy to do their part in conversation and feel good about contributing. They are open to knowledge and suggestions on how they can do their part.

5) Benefits to Customers

Benefits are recognized in the other initiatives within the CDM portfolio and there costs are related to marketing and advertising

6) Savings

Savings are as recognized in the other initiatives within the CDM portfolio.

7) Conclusion

Knowledge is always beneficial. Although the program period is over, we will continue to educate the public.

Cool Shops (previously 'EnerGuide for Small Business')

1) Description of Program

The original proposal was to develop an EnerGuide for Small Business; however, once the Cool Shops program became available, it was more efficient to join with other cities in this joint service offering. Cool Shops tried a different approach to engaging the small commercial sector in order to make it easier for businesses to participate and undergo energy efficient changes. Throughout program implementation in Peterborough, Street Teams visited all small commercial areas within the City as well as the outlying communities of Norwood and Lakefield. The Street Teams provided assistance to businesses that exchanged inefficient light fixtures or bulbs to energy efficient versions. This initiative is successful because it provides business owners with the assistance and encouragement to invest in energy conservation.

2) Current Status

Total Approved Budget: \$ 30,104

Expenditures to Date: \$30,104

Percentage Completed: 100%

3) Challenges Faced

Businesses need a significant financial incentive in order to consider and implement the replacement of current lighting to energy efficient lighting retrofits. In the eyes of a business owner, this is a huge capital investment that most businesses are not able to take part in.

A lot of businesses did not participate in the program due to landlords/owners not being present or available to speak to. In addition, some business owners did not have time to do an audit or were simply not interested in participating.

4) Customer Reaction

The program was extremely well received in Norwood and Lakefield due to the lack of programs and attention directed towards them in the past.

If given significant enough financial incentives, small business owners will purchase simple, turnkey, energy efficient products for their business

5) Benefits to Customers

Approximately 169 Customers have benefited from this Program representing the number of store audits completed.

6) Savings

We anticipate energy savings of 2,923,725 kWh over the 2 or 5-year life cycle of the new bulbs.

The final Cool Shops Report indicated that Businesses saved a total of \$3,600 per year as a result of the free CFL installation and the purchase of discounted energy efficient products.

7) Conclusion

There may be a greater opportunity to encourage the exchange to energy efficient lighting retrofits in participating cities if a number of local, qualified electrician contractors are recommended and promoted through the program.

For future program expansion, partnerships should be developed with local community groups to help increase credibility and awareness of the program.

Participation in the Cool Shops initiative was helpful for us because it was more efficient to join with other cities in this joint service offering. This initiative was successful because it provided business owners with the assistance and encouragement to invest in energy conservation.

This initiative has been completed.

Infra-Red Camera

1) Description of Program

The LDC has purchased an infrared camera. In co-operation with Peterborough Green Up, building audits were to have been performed at the customer's request. Peterborough Green Up was to conduct its audit with the intent of reducing consumption of electricity and other environmental considerations. The building owner could then take remedial measures on the building. This service was to have been available to all electricity customers; however, Peterborough Green Up has indicated that it does not have the resources to be able to continue with this initiative. The camera will, however, be used by the Distribution Company to scan the electric distribution lines within the LDC to detect places where conductors and transformers are abnormally hot and thereby reduce losses in the electric distribution system.

2) Current Status

Total Approved Budget: \$ 82,385

Expenditures to Date: \$ 82,385

Percentage Completed: 100%

3) Challenges Faced

Our expectation of conducting building audits at the customer's request has not been realized. We expected that our partner, Peterborough Green-Up, would be able to perform home audits but we discovered that it takes much longer to do an audit than originally expected and the camera is more complicated to use than expected. Given this experience in actual application, we have determined that Peterborough Green-Up does not have the resources to perform this function.

4) Customer Reaction

Faulty Connections can cause damage to equipment and create poor system reliability. Customers react very negatively when power is off for repair of damaged equipment.

5) Benefits to Customers

Reduced emergency power outages and improved system reliability.

6) Savings

Although faults have been located and corrected, these faults have been found in the past by hiring a contractor to perform the annual Infrared inspections. No net new kWh or kW savings have been attributed to this initiative.

7) Conclusion

The original plan of performing heat loss audits for customers was not feasible. The camera will, however, be used to scan for faulty connections or hot spots, reduce line loss on our distribution lines and reduce emergency power outages.

This initiative has been discontinued.

Smart Meters and Time of Use Rates

Without the implementation of a test group for Smart Meters, we would not have the mechanism to track the energy savings or allow the Time of Use rates required to realize these savings for certain programs. Consumers in our test groups receive the advanced benefit of these technologies, savings, and information that will soon follow to the general public.

Conclusion

Our CDM plan has been a success. It enabled us to learn about our individual initiatives and, importantly, to learn about smart meters, its associated technologies and the billing of TOU rates.

We find that customers are interested in energy conservation but need encouragement to take action in achieving energy savings.

We underestimated how long it takes to implement initiatives in general and how onerous it is to report on the initiatives.

We found the TRC ratio for our initiatives was not always positive based on the requested year to date calculations. We feel that the benefit of these programs is more accurately reflected over their Life Cycle and will become more apparent as time passes. We are pleased with our Life Cycle results.

Appendix A - Evaluation of the CDM Plan

Highlighted boxes are to be completed manually, white boxes are linked to Appendix C and will be brought forward automatically.

	⁵ Cumulative Totals Life-to-date	Total for 2007	Residential	Commercial	Institutional	Industrial	Agricultural	LDC System	⁴ Smart Meters	Other #1	Other #2
<i>Net TRC value (\$):</i>	-\$ 711,015	-\$ 69,406	-\$ 69,406	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
<i>Benefit to cost ratio:</i>	0.47	0.83	0.83	0.00	0.00	0.00	0.00	0.00		0.00	0.00
<i>Number of participants or units delivered:</i>	102,089	48,873	48,873								
<i>Lifecycle (kWh) Savings:</i>	27,524,008	27,524,008	27,524,008	0	0	0	0	0		0	0
<i>Report Year Total kWh saved (kWh):</i>	5,717,541	3,772,512	3,772,512	0	0	0	0	0		0	0
<i>Total peak demand saved (kW):</i>	529	281	281	0	0	0	0	0		0	0
<i>Total kWh saved as a percentage of total kWh delivered (%):</i>	0.33%	0.51%	0.51%								
<i>Peak kW saved as a percentage of LDC peak kW load (%):</i>		0.19%	0.19%								
¹ <i>Report Year Gross C&DM expenditures (\$):</i>	\$ 1,332,524	\$ 412,271	\$ 412,271	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
² <i>Expenditures per kWh saved (\$/kWh):</i>	\$ 0.05	\$ 0.01	\$ 0.01	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
³ <i>Expenditures per KW saved (\$/kW):</i>	\$ 2,519	\$ 1,466	\$ 1,466	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
<i>Utility discount rate (%):</i>	7.52										

¹ Expenditures are reported on accrual basis.

² Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate energy savings

³ Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate capacity savings.

⁴ Please report spending related to 3rd tranche of MARR funding only. TRC calculations are not required for Smart Meters. Only actual expenditures for the year need to be reported.

⁵ Includes total for the reporting year, plus prior year, if any (for example, 2007 CDM Annual report for third tranche will include 2006, 2005 and 2004 numbers, if any).

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. Name of the Program: Cool Shops

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

The original proposal was to develop an EnerGuide for Small Business, however, once the Cool Shops program became available, it was more efficient to join with other cities in this joint service offering. Cool Shops tried a different approach to engaging the small commercial sector in order to make it easier for businesses to participate and undergo energy efficient changes. Throughout program implementation in Peterborough, Street Teams visited all small commercial areas within the City as well as the outlying communities of Norwood and Lakefield. The Street Teams provided assistance to businesses that exchanged inefficient light fixtures or bulbs to energy efficient versions. This initiative is successful because it provides business owners with the assistance and encouragement to invest in energy conservation. This initiative was completed in 2005.

Measure(s):	Social Housing		DBIA	
	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)	
Base case technology:	inefficient light fixtures/bulbs	inefficient light fixtures/bulbs		
Efficient technology:	efficient light fixtures/bulbs	efficient light fixtures/bulbs		
Number of participants or units delivered for reporting year:	0	0		
Measure life (years):	5	2		
Number of Participants or units delivered life to date	2325	1308		169

B. TRC Results:	Reporting Year	Life-to-date TRC Results:
¹ TRC Benefits (\$):		265,864
² TRC Costs (\$):		
Utility program cost (excluding incentives):		30,105
Incremental Measure Costs (Equipment Costs)		132,188
Total TRC costs:		162,293
Net TRC (in year CDN \$):		103,572
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		\$ 1.64

Peak energy generated (kWh):

Fuel type:

Other Programs (specify):

Metric (specify):

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D. Actual Program Costs:

Utility direct costs (\$):

Incremental capital:

Incremental O&M:

Incentive:

Total:

Reporting Year

Cumulative Life to Date

	\$ 30,104.64
	\$ 30,104.64

Utility indirect costs (\$):

Incremental capital:

Incremental O&M:

Total:

E. Assumptions & Comments:

The final Cool Shops Report indicated that Businesses saved a total of \$3,600 per year as a result of the free CFL installation and the purchase of discounted energy efficient products. This initiative was completed in 2005.

¹ Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit benefit specified in the TRC Guide.

² For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** Energy Star Appliance Rebate

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

This program provided a rebate incentive to customers purchasing new 'Energy Star' rated appliances. It is a continuation of the original rebate program which we applied for to assist customers forced to replace appliances after the July 2004 Flood. The program involves the customer completing a form and bringing in the receipt. Customer Service activity involves researching that the appliance qualifies as an Energy Star appliance and applying the rebate to the customer's utility account. Appliance retailers participated in the program by notifying customers that it was available and by providing forms. The true benefit of this program will be realized over the 15 year life cycle. This initiative was completed in 2007.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>	Replace old appliance		
<i>Efficient technology:</i>	Energy Star appliance		
<i>Number of participants or units delivered for reporting year:</i>	575		
<i>Measure life (years):</i>	15		
<i>Number of Participants or units delivered life to date</i>	1753		

B. TRC Results:

	Reporting Year	Life-to-date TRC Results:
¹ TRC Benefits (\$):	\$ 7,217	\$ 19,160
² TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ 3,170	\$ 9,547
<i>Incremental Measure Costs (Equipment Costs)</i>	\$ 47,088	\$ 143,633
<i>Total TRC costs:</i>	\$ 50,258	\$ 153,180
<i>Net TRC (in year CDN \$):</i>	-\$ 43,041	-\$ 134,019
<i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i>	\$ 0.14	0.13

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

Cumulative Results:

Conservation Programs:

<i>Demand savings (kW):</i>		<i>Summer</i>			
		<i>Winter</i>			
				<i>Cumulative Lifecycle</i>	<i>Cumulative Annual Savings</i>
	<i>lifecycle</i>		<i>in year</i>		
<i>Energy saved (kWh):</i>		1521645		1521645	279885
<i>Other resources saved :</i>					
<i>Natural Gas (m3):</i>					
<i>Other (specify):</i>					

Demand Management Programs:

<i>Controlled load (kW)</i>					
<i>Energy shifted On-peak to Mid-peak (kWh):</i>					
<i>Energy shifted On-peak to Off-peak (kWh):</i>					
<i>Energy shifted Mid-peak to Off-peak (kWh):</i>					

Demand Response Programs:

<i>Dispatchable load (kW):</i>					
<i>Peak hours dispatched in year (hours):</i>					

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

<i>Peak load savings (kW):</i>					
		<i>lifecycle</i>	<i>in year</i>		
<i>Energy savings (kWh):</i>					

Distributed Generation and Load Displacement Programs:

<i>Amount of DG installed (kW):</i>					
<i>Energy generated (kWh):</i>					

Peak energy generated (kWh):

Fuel type:

Other Programs (specify):

Metric (specify):

--	--

D. Actual Program Costs:

Utility direct costs (\$):

Incremental capital:

	<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
\$	3,120.10	\$ 9,396.50
\$	3,120.10	\$ 9,396.50

Incremental O&M:

Incentive:

Total:

Utility indirect costs (\$):

Incremental capital:

Incremental O&M:

Total:

	50	\$ 150.00
	50	\$ 150.00

E. Assumptions & Comments:

Cumulative results calculated from 2004 as we received approval from OEB to run this program prior to C&DM for appliance replacement due to major Peterborough Flood.

¹ Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit benefit specified in the TRC Guide.

² For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. Name of the Program: Infra Red Camera

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

The LDC purchased an infrared camera so that, in co-operation with Peterborough Green Up, building audits could be performed at the customer's request. The camera would then also be available to perform checks on PDI's distribution lines. Peterborough Green Up was to conduct its audit with the intent of reducing consumption of electricity and other environmental considerations. The building owner could then take remedial measures on the building. This service was to have been available to all electricity customers, however, it was found that the camera was not ideal for this purpose and the audits were much more time-consuming than originally predicted. The camera will, however, be used by the Distribution Company to scan the electric distribution lines within the LDC to detect places where conductors and transformers are abnormally hot. This annual investigation will reduce losses in the electric distribution system.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>			
<i>Efficient technology:</i>			
<i>Number of participants or units delivered for reporting year:</i>			
<i>Measure life (years):</i>			
<i>Number of Participants or units delivered life to date</i>			

B. **TRC Results:**

	Reporting Year	Life-to-date TRC Results:
¹ TRC Benefits (\$):		
² TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>		82985
<i>Incremental Measure Costs (Equipment Costs)</i>		
<i>Total TRC costs:</i>		
<i>Net TRC (in year CDN \$):</i>		

Benefit to Cost Ratio (TRC Benefits/TRC Costs):

--	--

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

Cumulative Results:

Conservation Programs:

Demand savings (kW):

Summer

--	--

Winter

--	--

lifecycle

in year

*Cumulative
Lifecycle*

*Cumulative
Annual Savings*

Energy saved (kWh):

--

--

--

--

Other resources saved :

Natural Gas (m3):

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--

--

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):

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--

Power Factor Correction Programs:

Amount of KVar installed (KVar):

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--

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. <u>Actual Program Costs:</u>		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>		\$ 63,720.00
	<i>Incremental O&M:</i>		\$ 18,665.00
	<i>Incentive:</i>		
	<i>Total:</i>		\$ 82,385.00
<i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&M:</i>		\$ 600.00
	<i>Total:</i>		\$ 600.00

E. Assumptions & Comments:

¹ Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit benefit specified in the TRC Guide.

² For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. Name of the Program: Lighting

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

The original project consisted of replacing incandescent light bulbs in 1688 Social Housing units with approximately 25,320 compact fluorescent light bulbs (CFL). In 2007 this was expanded to include the conversion of 3650 Christmas bulbs from Incandescent to LED as well as the Conversion of Traffic Signals from Incandescent to LED. These lighting program bring many benefits to the City of Peterborough, the tenants of Social Housing, and Peterborough Distribution Inc. These include Energy reduction (kWh), environmental savings (GHG), cost savings for tenants, local employment, reduced bulb replacement (5 year life expectancy 8000 hours for CFL and 10 12 year life expectancy for LED), and recycling of incandescent bulbs.

Measure(s):	Social Housing	DBIA	Traffic Signals
	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Incandescent Light Bulbs	Incandescent Light Bulbs	Incandescent Light Bulbs
Efficient technology:	Compact Fluorescent Bulbs	Light Emitting Diodes (LED)	Light Emitting Diodes (LED)
Number of participants or units delivered for reporting year:	22269	3650	3141
Measure life (years):	4	10-12 years	10-12 years
Number of Participants or units delivered life to date	22269	3650	3141

B. TRC Results:	Reporting Year	Life-to-date TRC Results:
¹ TRC Benefits (\$):	\$ 263,802.93	\$ 263,802.93
² TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ -	-
Incremental Measure Costs (Equipment Costs)	\$ 305,695.00	358,717.00
Total TRC costs:	\$ 305,695.00	358,717.00
Net TRC (in year CDN \$):	-\$ 41,892.07	-\$ 94,914.07
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 0.86	\$ 0.74

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

Cumulative Results:

Conservation Programs:

<i>Demand savings (kW):</i>	Summer		
	Winter		

	<i>lifecycle</i>	<i>in year</i>	<i>Cumulative Lifecycle</i>	<i>Cumulative Annual Savings</i>
<i>Energy saved (kWh):</i>	21,446,047.44	3,431,863.44	11,788,226.28	2,688,954.12
<i>Other resources saved :</i>				
<i>Natural Gas (m3):</i>				
<i>Other (specify):</i>				

Demand Management Programs:

<i>Controlled load (kW)</i>		
<i>Energy shifted On-peak to Mid-peak (kWh):</i>		
<i>Energy shifted On-peak to Off-peak (kWh):</i>		
<i>Energy shifted Mid-peak to Off-peak (kWh):</i>		

Demand Response Programs:

<i>Dispatchable load (kW):</i>	
<i>Peak hours dispatched in year (hours):</i>	

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

<i>Peak load savings (kW):</i>		
	<i>lifecycle</i>	<i>in year</i>
<i>Energy savings (kWh):</i>		

Distributed Generation and Load Displacement Programs:

<i>Amount of DG installed (kW):</i>	
<i>Energy generated (kWh):</i>	
<i>Peak energy generated (kWh):</i>	

Fuel type:

Other Programs (specify):

Metric (specify):

D. Actual Program Costs:

Utility direct costs (\$):

Incremental capital:

Reporting Year

Cumulative Life to Date

\$ 305,695.00 \$ 358,717.00

Incremental O&M:

\$ - \$ -

Incentive:

Total:

\$ 305,695.00 \$ 358,717.00

Utility indirect costs (\$):

Incremental capital:

Incremental O&M:

Total:

E. Assumptions & Comments:

¹ Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit benefit specified in the TRC Guide.

² For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. Name of the Program: Load Monitor

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

The LDC provides the loan of load monitors to customers who use them to measure how much energy is being used by various appliances and devices within their home or business. Customers are asked to complete a form providing information on which appliance(s) they monitored and what action they expect to take to reduce consumption or demand. This is an educational tool intended to help customers be more prudent with their electricity consumption. Although the Program period was completed in September of 2007, we will continue to make the Load Monitors available to the public.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	n/a		
Efficient technology:	Load Monitor		
Number of participants or units delivered for reporting year:	99		
Measure life (years):	15		
Number of Participants or units delivered life to date	621		

B. TRC Results:

	Reporting Year	Life-to-date TRC Results:
¹ TRC Benefits (\$):	\$ 1,054	\$ 2,253
² TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 779	\$ 17,486
Incremental Measure Costs (Equipment Costs)	\$ 2,323	\$ 15,049
Total TRC costs:	\$ 3,102	\$ 32,535
Net TRC (in year CDN \$):		
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 0.34	0.07

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

Cumulative Results:

Conservation Programs:

<i>Demand savings (kW):</i>		<i>Summer</i>		
		<i>Winter</i>		
	<i>lifecycle</i>		<i>in year</i>	<i>Cumulative Lifecycle</i>
<i>Energy saved (kWh):</i>		432,452	14,917	432,452
<i>Other resources saved :</i>				<i>Cumulative Annual Savings</i>
	<i>Natural Gas (m3):</i>			
	<i>Other (specify):</i>			

Demand Management Programs:

<i>Controlled load (kW)</i>		
<i>Energy shifted On-peak to Mid-peak (kWh):</i>		
<i>Energy shifted On-peak to Off-peak (kWh):</i>		
<i>Energy shifted Mid-peak to Off-peak (kWh):</i>		

Demand Response Programs:

<i>Dispatchable load (kW):</i>	
<i>Peak hours dispatched in year (hours):</i>	

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

<i>Peak load savings (kW):</i>	
	<i>lifecycle</i>
<i>Energy savings (kWh):</i>	<i>in year</i>

Distributed Generation and Load Displacement Programs:

<i>Amount of DG installed (kW):</i>	
<i>Energy generated (kWh):</i>	

Peak energy generated (kWh):

Fuel type:

Other Programs (specify):

Metric (specify):

--	--

D. Actual Program Costs:

Utility direct costs (\$):

Incremental capital:

Incremental O&M:

Incentive:

Total:

Reporting Year

Cumulative Life to Date

		\$	9,112.67
\$	779.00	\$	8,372.83
\$	779.00	\$	17,485.50

Utility indirect costs (\$):

Incremental capital:

Incremental O&M:

Total:

0		\$	-

E. Assumptions & Comments:

¹ Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit benefit specified in the TRC Guide.

² For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** Public Education

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

Our goal is to promote electrical safety, conservation and demand management through participation in trade shows, home shows and advertisement through various media. The LDC provided a safety program to all of the schools within its service territory. This program has been augmented to provide electricity conservation along with the safety messages. Savings are as recognized in the other initiatives within the CDM portfolio.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>	promote electrical safety		
<i>Efficient technology:</i>	promote conservation		
<i>Number of participants or units delivered for reporting year:</i>			
<i>Measure life (years):</i>	3		
<i>Number of Participants or units delivered life to date</i>			

B. TRC Results:	<u>Reporting Year</u>	<u>Life-to-date TRC Results:</u>
¹ TRC Benefits (\$):		
² TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>		
<i>Incremental Measure Costs (Equipment Costs)</i>		
<i>Total TRC costs:</i>		
<u><i>Net TRC (in year CDN \$):</i></u>		
<i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i>		

Peak energy generated (kWh):

Fuel type:

Other Programs (specify):

Metric (specify):

--	--

D. Actual Program Costs:

Utility direct costs (\$):

Incremental capital:

Incremental O&M:

Incentive:

Total:

Reporting Year

Cumulative Life to Date

\$	5,100.00	\$ 85,589.04

Utility indirect costs (\$):

Incremental capital:

Incremental O&M:

Total:

E. Assumptions & Comments:

¹ Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit benefit specified in the TRC Guide.

² For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** Radio Signal Control

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

We have developed a radio signal system that may be used by customers to control appliances and shift discretionary use of electricity to off peak times. The controllers are currently provided at no cost to the customer and will automatically cycle off appliances connected to the in-home controller and cycle on the appliance at an off peak time. Appliances such as electric water heaters, dishwashers, pool pumps, clothes washers and electric dryers are controlled but have a manual override button to permit the customer to use the appliance during a control period if necessary.

Measure(s):

	Measure 1 - Controllers	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Appliance Consumption not controlled		
Efficient technology:	Appliance consumption controlled		
Number of participants or units delivered for reporting year:	43		
Measure life (years):	12		
Number of Participants or units delivered life to date	362		

B. TRC Results:	Reporting Year	Life-to-date TRC Results:
¹ TRC Benefits (\$):	\$ 54,646	\$ 96,967
² TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 36,416	\$ 228,738
Incremental Measure Costs (Equipment Costs)	\$ 11,700	\$ 87,828
Total TRC costs:	\$ 48,116	\$ 316,566
Net TRC (in year CDN \$):	\$ 6,530	-\$ 219,599
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 1.14	0.31

C. Results: (one or more category may apply)	Cumulative Results:			
Conservation Programs:				
Demand savings (kW):	Summer			
	Winter			
	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):				
Other resources saved :				
Natural Gas (m3):				
Other (specify):				

Demand Management Programs:

Controlled load (kW)	281	529
Energy shifted On-peak to Mid-peak (kWh):	1,071,520	2,015,760
Energy shifted On-peak to Off-peak (kWh):	153,850	289,425
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 savngs (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):		
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D. <u>Actual Program Costs:</u>		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
Utility direct costs (\$):	Incremental capital:	\$ 17,536	\$ 110,148
	Incremental O&M:	\$ 18,880	\$ 118,590
	Incentive:		
	Total:	\$ 36,416	\$ 228,738
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:	\$ 11,700	\$ 87,828
	Total:	\$ 11,700	\$ 87,828

E. Assumptions & Comments:

The benefits of this program used the TRC Assumptions and Measures List for the control of the water heater. These measures were then extrapolated to the control of appliances based on the Base Annual Energy Usage of the water heater versus the appliances. The benefits include kWh savings and on peak summer demand savings. This initiative has been successful because of the availability of Smart Meter technology and Time of Use rates.

¹ Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the numebr of units times the net present value per unit benefit specified in the TRC Guide.

² Total budget was re-allocated in June of 2006 from \$260,000 to \$165,698 for this program. As with 2005 report, The benefits of this program used the TRC Assumptions and Measures List for the control of the water heater. These measures were then extrapol

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. Name of the Program: Storage Heating

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

In co-operation with the local social housing authority, the LDC provided financial, technical and administrative assistance to convert 124 electrically heated units from baseboard electric heating to electric thermal storage heating. A time-of-use meter was also placed at each of these locations so that the customer could benefit from the shift of electricity consumption to lower cost electricity periods. The non-ducted heaters are designed to heat the room or area into which they are placed. During off-peak hours, heaters convert electricity into heat and store that heat in specially designed high-density ceramic bricks capable of storing heat for extended periods of time. A fan inside the unit circulates this stored heat evenly and quietly as the room thermostat calls for heat. This initiative was completed in 2006.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Baseboard Heating System		
Efficient technology:	Storage Heating System		
Number of participants or units delivered for reporting year:	0		
Measure life (years):	18		
Number of Participants or units delivered life to date	124		

B. TRC Results:

	Reporting Year	Life-to-date TRC Results:
¹ TRC Benefits (\$):	\$ 16,145	\$ 36,788
² TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ -	\$ 524,644
Incremental Measure Costs (Equipment Costs)		\$ -
Total TRC costs:	\$ -	\$ 524,644
Net TRC (in year CDN \$):	\$ 16,145	-\$ 487,856
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ -	0.07

Peak energy generated (kWh):

Fuel type:

Other Programs (specify):

Metric (specify):

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D. Actual Program Costs:		Reporting Year	Cumulative Life to Date
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>		\$ 372,000.00
	<i>Incremental O&M:</i>		\$ 152,644.00
	<i>Incentive:</i>		
	<i>Total:</i>		\$ 524,644.00
 <i>Utility indirect costs (\$):</i>	 <i>Incremental capital:</i>		
	<i>Incremental O&M:</i>		
	<i>Total:</i>	0	\$ -

E. Assumptions & Comments:

With the availability of Smart Meters and Time of Use rates, the conversion will have a large impact on the reduction of Social Housing and/or the tenant's electrical bill.

The annual savings in electricity costs is approximately \$383 per unit or \$47,492 for current 124 units converted. This was calculated by taking a case study of 20 units and comparing the direct cost difference between Time of Use and Price Protected rates as well as the overall shift of consumption to a reduced rate time period.

The residential load profile found that with baseboard heat, consumption was Off Peak for 34% of the total consumption. After the conversion to Thermal Storage Electric Heat, the Off Peak consumption increased to 88% with majority of the remaining portion being for Hot Water Tanks.

Assuming that carbon fuel, coal, is burnt in peaking generating stations, there will also be a reduction in green house gas production. This initiative has allowed us to extend our past experience with shifting demand from on peak to off peak by using radio control signals through the SCADA program.

This initiative was successful in shifting consumption from on peak to off peak in partnership with the local municipality however, in accordance

¹ Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit benefit specified in the TRC Guide.

² For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

Appendix C - Program and Portfolio Totals

Report Year: 2007

1. Residential Programs

List each Appendix B in the cells below; Insert additional rows as required.

Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

	TRC Benefits (PV) for year	TRC Costs (PV) for year	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Entire Lifecycle (kWh) Savings	Lifecycle Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
Energy Star Rebate	\$ 7,217	\$ 50,258	-\$ 43,041	0.14	101,254	1,521,645		\$ 50,258
Storage Heating	\$ 16,145	\$ -	\$ 16,145	0.00	224,477	4,123,863		\$ -
Public Education		\$ 5,100	-\$ 5,100	0.00				\$ 5,100
Radio Signal Control	\$ 54,646	\$ 48,116	\$ 6,530	1.14			3,342	\$ 48,116
Load Monitor	\$ 1,054	\$ 3,102	-\$ 2,048	0.34	14,917	432,452		\$ 3,102
Lighting	\$ 263,803	\$ 305,695	-\$ 41,892	0.86	3,431,863	21,446,047		\$ 305,695
Name of Program G			\$ -	0.00				
Name of Program H			\$ -	0.00				
Name of Program I			\$ -	0.00				
Name of Program J			\$ -	0.00				
*Totals App. B - Residential	\$ 342,865	\$ 412,271	-\$ 69,406	0.83	3,772,512	27,524,008	3,342	\$ 412,271
Residential Indirect Costs not attributable to any specific program	→							
Total Residential TRC Costs		\$ 412,271						
**Totals TRC - Residential	\$ 342,865	\$ 412,271	-\$ 69,406	0.83				

2. Commercial Programs

List each Appendix B in the cells below; Insert additional rows as required.

Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
Name of Program A			\$ -	0.00				
Name of Program B			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program D			\$ -	0.00				
Name of Program E			\$ -	0.00				
Name of Program F			\$ -	0.00				
Name of Program G			\$ -	0.00				
Name of Program H			\$ -	0.00				
Name of Program I			\$ -	0.00				
Name of Program J			\$ -	0.00				
*Totals App. B - Commercial	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -

Commercial Indirect Costs not attributable to any specific program



Total TRC Costs		\$	-			
**Totals TRC - Commercial	\$	-	\$	-	\$	0.00

3. Institutional Programs

List each Appendix B in the cells below; Insert additional rows as required.

Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
Name of Program A			\$ -	0.00				
Name of Program B			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program D			\$ -	0.00				
Name of Program E			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program G			\$ -	0.00				
Name of Program H			\$ -	0.00				
Name of Program I			\$ -	0.00				
Name of Program J			\$ -	0.00				
*Totals App. B - Institutional	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -

Institutional Indirect Costs not attributable to any specific program



Total TRC Costs		\$	-			
**Totals TRC - Institutional	\$	-	\$	-	\$	0.00

4. Industrial Programs

List each Appendix B in the cells below; Insert additional rows as required.

Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
Name of Program A			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program D			\$ -	0.00				
Name of Program E			\$ -	0.00				
Name of Program F			\$ -	0.00				
Name of Program G			\$ -	0.00				
Name of Program H			\$ -	0.00				

Name of Program I			\$	-	0.00				
Name of Program J			\$	-	0.00				
*Totals App. B - Industrial	\$	-	\$	-	0.00	0	0	0	\$ -
Industrial Indirect Costs not attributable to any specific program	→								
Total TRC Costs		\$	-						
**Totals TRC - Industrial	\$	-	\$	-	0.00				

5. Agricultural Programs

List each Appendix B in the cells below; Insert additional rows as required.

Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
Name of Program A			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program D			\$ -	0.00				
Name of Program E			\$ -	0.00				
Name of Program F			\$ -	0.00				
Name of Program G			\$ -	0.00				
Name of Program H			\$ -	0.00				
Name of Program I			\$ -	0.00				
Name of Program J			\$ -	0.00				
*Totals App. B - Agricultural	\$	-	\$	-	0	0	0	\$ -
Agricultural Indirect Costs not attributable to any specific program	→							
Total TRC Costs		\$	-					
**Totals TRC - Agricultural	\$	-	\$	-	0.00			

6. LDC System Programs

List each Appendix B in the cells below; Insert additional rows as required.

Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
Name of Program A			\$ -	0.00				
Name of Program B			\$ -	0.00				

Name of Program C			\$	-	0.00				
Name of Program D			\$	-	0.00				
Name of Program E			\$	-	0.00				
Name of Program F			\$	-	0.00				
Name of Program G			\$	-	0.00				
Name of Program H			\$	-	0.00				
Name of Program I			\$	-	0.00				
Name of Program C			\$	-	0.00				
*Totals App. B - LDC System	\$	-	\$	-	0.00	0	0	0	\$ -

LDC System Indirect Costs not attributable to any specific program →

Total TRC Costs		\$	-						
**Totals TRC - LDC System	\$	-	\$	-	0.00				

7. Smart Meters Program

Only spending information that was authorized under the 3rd tranche of MARR is required to be reported for Smart Meters.

Report Year Gross C&DM Expenditures (\$) →

8. Other #1 Programs

List each Appendix B in the cells below; Insert additional rows as required.

Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
Name of Program A			\$	-	0.00			
Name of Program B			\$	-	0.00			
Name of Program C			\$	-	0.00			
Name of Program D			\$	-	0.00			
Name of Program E			\$	-	0.00			
Name of Program F			\$	-	0.00			
Name of Program G			\$	-	0.00			
Name of Program H			\$	-	0.00			
Name of Program I			\$	-	0.00			
Name of Program J			\$	-	0.00			
*Totals App. B - Other #1	\$	-	\$	-	0.00	0	0	\$ -

Other #1 Indirect Costs not attributable to any specific program →

Total TRC Costs		\$	-					
**Totals TRC - Other #1	\$	-	\$	-	0.00			

9. Other #2 Programs

List each Appendix B in the cells below; Insert additional rows as required.

Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
Name of Program A			\$ -	0.00				
Name of Program B			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program D			\$ -	0.00				
Name of Program E			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program G			\$ -	0.00				
Name of Program H			\$ -	0.00				
Name of Program I			\$ -	0.00				
Name of Program J			\$ -	0.00				
*Totals App. B - Other #2	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
Other #2 Indirect Costs not attributable to any specific program								
Total TRC Costs		\$ -						
**Totals TRC - Other #2	\$ -	\$ -	\$ -	0.00				

LDC's CDM PORTFOLIO TOTALS

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
*TOTALS FOR ALL APPENDIX B	\$ 342,865	\$ 412,271	-\$ 69,406	0.83	\$ 3,772,512	\$ 27,524,008	\$ 3,342	\$ 412,271
Any other Indirect Costs not attributable to any specific program								
TOTAL ALL LDC COSTS		\$ 412,271						
**LDC' PORTFOLIO TRC	\$ 342,865	\$ 412,271	-\$ 69,406	0.83				

* The savings and spending information from this row is to be carried forward to Appendix A.

** The TRC information from this row is to be carried forward to Appendix A.