



OAKVILLE HYDRO ELECTRICITY DISTRIBUTION INC.

CONSERVATION & DEMAND MANAGEMENT PLAN

2008 ANNUAL REPORT

THIRD TRANCHE FUNDING

Oakville Hydro Electricity Distribution Inc. – RP-2004-0203 / EB-2004-0527



1. INTRODUCTION

In February 2005, the Ontario Energy Board approved Oakville Hydro's original Conservation and Demand Management Plan. This 2008 annual report is the fourth annual report submitted as a requirement of that approval. All third-tranche funding was spent as of the end of 2008.

As noted in the 2005 report, Oakville Hydro Electricity Distribution Inc.'s CDM Plan was developed along the following key principles and objectives: sustainability, maximizing benefits, flexibility and maximizing investment efficiency. The initiatives were chosen to produce on-going benefits/habits and not just short-term attempts at conservation and reducing demand that may diminish in time. Many of the projects implemented will realize benefits over a long time frame.

Oakville is a rapidly growing community and Oakville Hydro plans to add the extra load associated with this growth as efficiently as possible, giving consumers choice now and in the future and protecting the stability and reliability of the distribution system.

As Oakville Hydro worked through its plan, adjustments were made and new initiatives introduced. In 2006, selected programs were cancelled due to technical, institutional and other barriers to their implementation as discussed in the 2006 annual report. Additional programs were also modified over the years, including adding to the consumer education program: partnerships with the Ontario Power Authority to deliver the Every Kilowatt Counts coupon programs, with Project Porchlight, and with the Halton Learning Foundation. The present report discusses the programs that continued from previous years.

Components of the third-tranche funded CDM plan consisted of the following initiatives in 2008:

Consumer education

- provided information on the Oakville Hydro website
- partnered with the OPA on the Every Kilowatt Counts spring and fall campaigns
- participated in the Porchlight program
- provided conservation tips at Oakville Hydro's reception as well as at events
- promoted programmable thermostats to all customers through on-bill messages
- partnered with other utilities and the Halton Learning Foundation on an energy education program for schools



Multi-residential interval metering program

- converted bulk metered multi-residential buildings to individual suite metering
- made available time-of-use rates as part of an approved pilot project
- provided customers access to information on their usage.

Commercial/industrial energy information seminar

- partnered with local providers of energy efficiency products and services
- provided information on topics including demand response, energy audits, energy load profiling and creating a sustainable energy plan

Peak demand reduction

- installed a large backup generator in Oakville Hydro's building to be used for peak shaving
- piloted small (80 and 100 kW) natural gas generators in small commercial establishments to reduce demand from the system at peak times and to provide blackout protection.

Voltage conversion

- completed conversion of a 1,500 kVA transformer from 4 kV to 27.6 kV direct-feed from the grid in an older residential neighbourhood

Solar hot water heater pilot

- installed two roof-mounted solar collectors, heat exchangers and controls to reduce electrical water heating demands in the Oakville Hydro headquarters building.

2. EVALUATION OF THE CDM PLAN

Oakville Hydro wanted to ensure that the programs it implemented were effective and beneficial to its customers and to the distribution system, and therefore undertook careful planning and evaluation of each program to ensure these goals were realized. As program advancement, monitoring and evaluation continue, many of the benefits are yet to be realized and much of the data required to calculate in year savings is not yet available. Due to this fact, many of the energy, power and associated dollar savings shown on the appended evaluation tables significantly underestimate the actual savings realized. Furthermore, the results will improve significantly over the coming years as many of the programs have long life spans and will show energy savings over many years to come.



The multi-residential interval metering program continues to be a successful program. In 2008, Oakville Hydro completed the conversion of one 206 unit, one 60 unit, and one 68 unit facility. Data for energy analysis are still being gathered for the buildings completed this year, but a quick comparison of historical with present consumption patterns indicates that the condominiums are on track to achieving significant savings.

In 2008, the voltage conversion program also continued to be successful. The conversion of a 1,500 kVa transformer from a 4 kV to 27.6 kV direct-feed from the grid to an older residential neighbourhood was completed. By the end of 2007, about one third of the neighbourhood had been converted. The remaining two thirds of the neighbourhood conversions were completed in June 2008. The savings associated with the portion of the neighbourhood converted in-year are approximately 66,111 kWh in energy savings and 26.7 kW in demand savings.

Both of these projects are examples of long-term projects with life spans of 20 and 30 years respectively.

3. DISCUSSION OF THE PROGRAMS

Customer education

The intent of the Customer Education program is to raise awareness of the importance of energy conservation, encourage behavioural change, and give all customer classes the opportunity to learn how and what they can do on their own to reduce their personal, family and business energy consumption.

General program activities for 2008 included:

- Sharing energy conservation information with customers on the corporate website.
- Partnering in the OPA's spring and fall Every Kilowatt Counts Power Savings Event program.
- Participation in the Porchlight program.
- Provided conservation tips at Oakville Hydro's reception as well as at events
- Promoted programmable thermostats to all customers through on-bill messages
- Partnering with other utilities and the Halton Learning Foundation on an energy education program for schools.



The Every Kilowatt Counts Power Savings Event program with the OPA involved the distribution (by the OPA) of consumer coupons in the Spring and again in the Fall. The coupons included rebates for the following energy efficient products:

Spring (April 18-June 15) 2008 rebated products:

- \$15 off ENERGY STAR qualified indoor light fixtures
- \$8 off T8 fluorescent lights or electronic ballasts for fluorescent light fixtures
- \$3 off (a purchase of 2 or more) Electrostatic or pleated fabric A/C (Furnace) Filters
- \$4 off ENERGY STAR qualified compact fluorescent flood light bulbs
- \$5 off plug in heavy duty pool / spa Timer

Fall (October 1-November 16) 2008 rebated products:

- \$15 off programmable thermostats for electric baseboard heaters
- \$5 off power bars with automatic shutoff or integrated timers
- \$15 off ENERGY STAR qualified indoor light fixtures
- \$4 off ENERGY STAR specialty CFLs (flood, spot dimmable, vanity and chandelier)
- \$8 off T8 fluorescent lights or electronic ballasts for fluorescent light fixtures
- \$5 off heavy duty outdoor timers

The Ontario Power Authority expects to have results for 2008 available in the Fall of 2009.

In 2006, Oakville Hydro and three other LDCs (Milton Hydro, Burlington Hydro and Halton Hills Hydro) signed a commitment to fund the Conservation Education and Demand Management program (CE&DM) in Halton through the Halton Learning Foundation. The funding was used to help the Foundation develop and distribute resources for schools pursuing energy conservation and/or EcoSchools certification. In 2008, Oakville Hydro fulfilled its commitment to the Foundation with its final funding instalment.

Project Porchlight is a program run by the non-profit group One Change that uses community-based social marketing to educate the general public on simple changes that can have meaningful environmental benefit. The campaign focuses on appealing to residents to replace their incandescent porch light bulb with a CFL light bulb. Oakville Hydro participated in this campaign by publicly endorsing and financially supporting a local Porchlight campaign. In collaboration with other organizations in Ontario, over 500,000 energy efficient light bulbs were delivered to homes across Ontario in the fall of 2007. Oakville Hydro, together with the Town of Oakville, funded the distribution of 5,300 13W CFL bulbs in Oakville (with 2,650 of those attributable to Oakville Hydro). Funding for Oakville Hydro's involvement in this program was provided to One Change in 2008.



The customer education program has resulted in higher savings than those reflected in the appendices for two reasons:

- 1) Results of Oakville Hydro's participation in the Every Kilowatt Counts Power Savings Event program were not available at the time of writing of this report, and
- 2) Data are not available for other aspects of program, such as the work with the Halton Learning Foundation, and other educational activities.

Smart meter, intelligent network program

As discussed in previous year's report, the Smart Meter, Intelligent Network program was cancelled in 2006.

Multi-residential interval metering program

Research has indicated that conversions of multi-unit residential buildings from bulk metering to individual suite metering and billing can save between 15% and 30% of the energy consumption in electrically heated buildings. The intent of this program is to capture these savings by working with owners of bulk metered multi-residential buildings, specifically customers in income-g geared and non-profit cooperatives, to convert them to individual suite metering and billing. The program enables customers to be billed directly for the electricity they use and to track their consumption. It also allows the customer to take advantage of time-of-day price differences, conservation opportunities and/or load shifting.

Oakville Hydro filed for an extension for this program to March 31, 2008. Within the year 2008, Oakville Hydro converted a townhouse condominium complex and two condominium high-rise buildings to interval meters with 60, 206 and 68 units respectively. These conversions were in addition to the conversion of one 96 unit, one 208 unit, and two 144 unit condominium buildings in 2007, two 105 unit buildings converted in 2006, and a 76 unit converted in 2005. Residents of the condominiums converted in 2005 and 2006 are on time-of-use rates as part of an approved pilot project and have on-line access to their accounts through HARRIS, Oakville Hydro's billing system.

Data show that customers have reduced their consumption and changed their usage patterns as a result of sub-metering. The 76-unit condominium completed in 2005 has an average month-to-month savings of approximately 24%. Data for energy analysis are still being gathered for the buildings completed in 2006, 2007 and 2008 but a quick comparison of historical with present consumption patterns indicates they are on track to achieving significant savings. Were data available for the work done in 2006 through 2008, the savings shown in the appendices would be far higher than what is shown for the



work in 2005 (which represents about 6% of the total number of units converted in the program). It is also worth noting that with a conservatively estimate 20 year life span of the installed meters, as well as the development of the infrastructure to allow for sub-metering, this project will continue to show savings over many years to come.

Major selling points to residents of sub-metering are that it eliminates cross-subsidization of energy costs and that it provides the incentive to conserve electricity.

Oakville Hydro found through the multi-residential metering program that when presenting to condominiums, there was a lot of negotiating due to the Condominium Act and individual board rules and regulations.

Commercial/industrial energy information seminar

The intent of this program was to increase awareness of existing energy efficiency programs and incentive programs to local industry. Seminars provided accurate and timely information that improves the ability of large consumers to control their energy and consumption costs and helps increase the competitive standing of the Ontario-based manufacturing sector.

In June 2006, Oakville Hydro hosted a Commercial/Industrial Energy efficiency seminar at its office. Oakville Hydro partnered with local providers of energy efficiency products and services to provide information on topics including demand response, energy audits, energy load profiling and creating a sustainable energy plan. The seminar was directed at the top 30 Industrial/Commercial users of electricity in Oakville and was attended by 15 energy decision makers. Feedback was very positive. Fourteen of the companies invited received daily energy load profiles as a result of these efforts. The profiles allow the end users to make educated decisions on reducing energy in their facilities through direct feedback from their hydro meters.

Oakville Hydro continues to work with these customers on reducing their energy demand and consumption.

The second Commercial/Industrial seminar entitled “The Sustainable Energy Plan Workshop” was originally scheduled for 2007, but was rescheduled to and held on March 4, 2008. The workshop, delivered to 20 participants, discussed techniques to develop an energy plan for sustained results and to create a scorecard and a baseline map to understand an organization’s current position, and reviewed strategies to successfully implement and monitor an energy plan. Sustainable Energy Plan Workbooks and templates were provided to participants.



Distributed generation - digester gas program

As discussed in previous years' reports, the digester gas program was cancelled in 2006.

Distributed generation - wind turbine

As discussed in previous years' reports, the wind turbine program was cancelled in 2006.

Peak demand reduction

Emergency generator back-up for Oakville Hydro head office

In the 2005-2007 CDM plan Oakville Hydro proposed to install a natural gas fired, low-emission generator for peak shaving within the Oakville Hydro office building. The benefits of installing a stand-by generator at the office building include reducing demand from the local distribution grid; developing an increased understanding of synchronization, communications and control system requirements; an increased understanding of fuel issues for future expansion of the program to local customers; and a better understanding of the challenges in developing a larger scope program.

In 2006, following further investigation of the project, it was found that a generator with a capacity between 320 kW and 350 kW would be required to service the office building rather than the originally estimated capacity requirement of 250 kW. Consequently, the program cost was increased to approximately \$866,000. The generator was purchased in 2007 within the extension period of the program. The generator purchased is rated at 375 kW continuous, with the ability to shave peak by 450 kW for up to 500 hours annually. The generator was installed in November of 2008 and used only in 2008 for testing and commissioning purposes.

Energy management pilot project

In 2006, the budget for Oakville Hydro's peak demand reduction program increased due to the development and implementation of a new pilot program to pilot the management of electricity consumption in the Oakville Hydro service area. Valued at \$100,000, the pilot involves installing an 80kW and a 100 kW natural gas generator, one at each of two Tim Horton's small commercial retail outlets. These standby power units are to be remotely managed by Oakville Hydro and its partner TDL Group Corp and will be used to reduce demand from the system at peak times and to provide blackout protection for the customers. The payments for the generators were made in 2007 while the units were installed and commissioned for use in 2008. Due to the cool nature of the summer in 2008, the use of the generators in 2008 was only for commissioning and testing purposes.



Some of the common objectives for the project are to:

- Test the ability of certain Tim Horton's facilities to satisfy Oakville Hydro's need for Conservation and Demand Response capability (i.e. come off the grid at designated times and for designated durations) via the installation and management of standby power units.
- Address the electrical supply surety and conservation issues within Oakville Hydro's footprint by "freeing up" kilowatt hours from various pilot TDL facilities while still maintaining full functionality and "blackout protection" at the facilities.
- Establish as near possible both a seamless and touchless operational initiation response and quantification system connected to the standby power utility; which can be remotely managed to the satisfaction of both Oakville Hydro and TDL.
- Monitor, measure and report on multiple relevant variables and results, which build a technical and financial case for future business scrutiny.
- Setup the pilot model with the ability to extend the program to other Oakville Hydro customer locations and simultaneously link to other LDCs.

A TRC benefit has been calculated for this program, based on the potential available demand response. Over the years to come, as the generators are called upon for use other than for testing and commissioning, they will contribute to peak demand and kilowatt hour savings as well.

Voltage conversion

The intent of this program was to implement measures that will increase system efficiencies and therefore reduce the load on the power grid and add to the security and reliability of the distribution system because of better transformer efficiencies and lower line losses.

Shopping mall

In 2006, the conversion of a 1,500 kVa transformer from 4 kV to 27.6 kV direct-feed power line from the grid was commenced. The conversion was completed in 2007. The conversion resulted in a 10 kW reduction in peak demand and estimated 50,000 kWh per year energy reduction.

Residential neighbourhood

In 2007, Oakville Hydro began the conversion of transformers in an older residential area from a 4 kV to 27.6 kV direct-feed power line. Approximately one third of the planned conversions in the neighbourhood were completed in 2007. The remaining two thirds of



the conversion in the neighbourhood were completed in June of 2008. The now completed conversion of the residential neighbourhood will result in an estimated reduction of 40 kW in peak demand and an annual energy reduction of 170,000 kWh per year.

The 30 year life span of these technologies ensures that energy savings will continue to be delivered over many years to come.

Solar panel program

This program involved the installation and performance monitoring of an EnerWorks solar hot water heating appliance. It included the installation of two roof mounted solar collectors and an EnerWorks' Energy Pack heat exchanger and controls.

The system was installed at Oakville Hydro's head office and will work in conjunction with the existing electric hot water system currently being served by two 100 gallon electric hot water tanks with a recirculating loop. The system is also being installed with instrumentation used to track the energy savings achieved by the solar hot water heater appliance.

This program will allow Oakville Hydro to confirm the potential energy savings of a solar hot water heating appliance in a commercial installation, save electricity consumption used in the production of domestic hot water, and investigate the various technical and operational issues associated with the installation of a solar hot water heating appliance in a commercial installation.

The system was installed in 2006, and the associated invoice was paid in 2007. Results from the 2008 calendar year show that approximately 1.2% of energy used to heat water came from the solar unit, with all of the energy coming from the solar unit in the months of June and August.

The 18 year life span of the solar technology ensures that energy savings will continue to be delivered over many years to come.

Lighting Retrofit

The lighting retrofit program was a new program introduced and completed in 2007. As part of this program, the Oakville Hydro facilities were evaluated for energy efficiency retrofit opportunities. As a result, opportunities for retrofitting the existing lighting system in the high bay garage and loading bays were identified. The lighting retrofit replaced 76 high pressure sodium fixtures with high efficiency T8 fluorescents. Eight motion sensors were also added to low traffic areas in the warehouse for additional savings. The project resulted in a 52 percent reduction in kW while increasing light levels by 35 percent.



The project was outlined in the annual commercial/industrial seminar for large users resulting in a very successful retrofit incentive program uptake. There were no additional lighting retrofits in 2008, but Oakville Hydro is evaluating its other facilities for energy efficiency opportunities. The savings accrued in 2008 as a result of the previous retrofits were approximately 80,000 kWh of energy savings and an 18.5 kW demand reduction.

The 10 year life span of these technologies ensures that energy savings will continue to be delivered over many years to come.

4. LESSONS LEARNED

Lessons learned from Oakville Hydro's work on the CDM plan in 2008, included:

- The need to incorporate timing related to commissioning and testing of new equipment into projected schedules
- The importance of ensuring compliance with provincial legislation.

The need to incorporate timing related to commissioning and testing of new equipment into project schedules.

In determining when actual energy and demand savings resulting from certain projects will begin, the time required to commission and test any new equipment must be incorporated. A differentiation must be made between when new energy saving equipment is installed, and when it is ready for actual use given time requirements to ensure proper commissioning, performance and troubleshooting of the equipment and associated operations.

The importance of ensuring compliance with provincial legislation.

Oakville Hydro's CDM programs remain in compliance with legislation. The recent issuing of OEB Compliance Bulletin 200901 regarding sub-metering activities, however, highlights the importance of ensuring that any potential changes or implementation of Oakville Hydro CDM programs remains compliant with provincial regulations and guidelines.

5. CONCLUSION

Oakville Hydro completed the implementation and delivery of its third-tranche funded CDM plans in 2008. Significant progress continued in the customer education program, multi-residential conversion program, and voltage conversion program. Although data are not yet compiled in the case of 2008 multi-residential conversions to interval metering, as discussed above, it is clear that this project is on the right track to achieve



significant energy savings over many years to come. The completion of the conversion of transformers in an older residential area in the voltage conversion project has also demonstrated the significant savings attainable through Oakville Hydro's CDM programs.

Much commissioning and testing of new equipment took place in 2008. It was important to ensure that the equipment was properly commissioned and is ready for proper and optimal operation. Given the piloting that has and continues to take place, Oakville Hydro is confident that these projects will be effective in contributing to energy and demand savings in the near future.

Oakville Hydro recognizes that many of the third-tranche CDM programs have yet to show significant savings due to both data that are as yet unavailable, the long start up times of the projects, and the long-term nature of the savings benefits to be delivered. The results shown in the appendices to this report show a relatively high cost per kWh savings, however this number will decrease significantly over time as kWh savings continue to be delivered from the projects over many years to come.

6. DISCUSSION ON REMAINING BALANCE OF THIRD TRANCHE CDM BUDGETS

Oakville Hydro has no remaining balance in its third tranche CDM budget.



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.

	Total for 2008	Residential	^s Low Income	Commercial	Institutional	Industrial	Agricultural	LDC System	⁴ Smart Meters	Other #1	Other #2
Net TRC value (\$):	\$ 165,863	\$ 45,677	n/a	\$ 13,312	\$ 295	n/a	n/a	\$ 106,580		n/a	n/a
Benefit to cost ratio:	1.15	3.71	n/a	1.01	0.00	n/a	n/a	0.00		n/a	n/a
Number of participants or units delivered:	3006	2,650	n/a	354	1	n/a	n/a	1		n/a	n/a
Lifecycle (kWh) Savings:	4,440,747	1,036,680	n/a	0	4,067	n/a	n/a	3,400,000		n/a	n/a
Report Year Total kWh saved (kWh):	325,507	259,170	n/a	0	226	n/a	n/a	66,111		n/a	n/a
Total peak demand saved (kW):	82	55	n/a	0	0	n/a	n/a	27		n/a	n/a
Total kWh saved as a percentage of total kWh delivered (%):	0.02%	0.04%	n/a			n/a	n/a			n/a	n/a
Peak kW saved as a percentage of LDC peak kW load (%):	0.02%	0.02%	n/a			n/a	n/a			n/a	n/a
¹ Report Year Gross C&DM expenditures (\$):	\$ 1,073,991	\$ 17,395	n/a	\$ 1,056,596	\$ -	n/a	n/a	\$ -	\$ -	n/a	n/a
² Expenditures per kWh saved (\$/kWh):	\$ 0.24	\$ 0.02	n/a	\$ -	\$ -	n/a	n/a	\$ -		n/a	n/a
³ Expenditures per kW saved (\$/kW):	\$ 13,167.02	\$ 317.11	n/a	\$ -	\$ -	n/a	n/a	\$ -		n/a	n/a
Utility discount rate (%):	7.28										

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 totals from Low Income programs that fall under both commercial and residential.



Appendix B - Discussion of the Program

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

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

The customer education program raises awareness of the importance of energy conservation, encourages behavioural change, and gives all customer classes the opportunity to learn how and what they can do to reduce their personal, family and business electricity consumption. Activities in 2008 continued from 2007, included providing conservation information on the corporate website, partnering in the OPA's spring and fall EKC Power Savings Rebate program, funding the Conservation Education and Demand Management program in Halton through the Halton Learning Foundation (final funding installment in Q2 2008), participation in the Porchlight program (funding the giveaway of 2650 13 W CFLs), providing conservation tips in an information package to customers who moved into either a new or existing home and promoting programmable thermostats to all customers through on-bill messages. Activities in 2006 also included hosting residential focus group meetings for community representatives interested in energy conservation and OHI initiatives. In 2005, activities included a switch to cold water washing program.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>	Conventional technologies	Conventional technologies	60 W Incandescent light bulb
<i>Efficient technology:</i>	Spring EKC technologies	Fall EKC technologies	13 W CFL
<i>Number of participants or units delivered for reporting year:</i>	not available	not available	2,650
<i>Measure life (years):</i>	various	various	4
<i>Number of Participants or units delivered life to date</i>	12,371 + unknown in 2008	28,727 + unknown in 2008	2,650

	Reporting Year	TRC Results:
B. TRC Results:		
¹ TRC Benefits (\$):	\$ 62,541.86	\$1,577,120
² TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ 16,865.00	\$182,320
<i>Incremental Measure Costs (Equipment Costs)</i>		\$302,556
Total TRC costs:	\$ 16,865.00	\$484,876
Net TRC (in year CDN \$):	\$45,677	\$1,092,244
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 3.71	3.252624754

	Cumulative Results:			
C. Results: (one or more category may apply)				
Conservation Programs:				
<i>Demand savings (kW):</i>	Summer	0	38	
	Winter	55	315	
			<i>cumulative</i>	<i>cumulative</i>
	<i>lifecycle (in year)</i>	<i>in year</i>	<i>lifecycle</i>	<i>date</i>
<i>Energy saved (kWh):</i>	1,036,680	259,170	32,192,507	9,117,395
<i>Other resources saved :</i>				
<i>Natural Gas (m3):</i>				
<i>Other (specify):</i>				

		Reporting Year	Cumulative Life to Date
D. Actual Program Costs:			
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&M:</i>	\$ 17,395.00	\$ 53,051.43
	<i>Incentive:</i>		
	Total:	\$ 17,395.00	\$ 53,051.43
<i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&M:</i>		
	Total:	\$ -	\$ -

E. Assumptions & Comments:
 Savings data and results from customer education program activities in 2008 are only available for the participation in the Porchlight Program. Program and incremental measure costs for EKC activity in the Oakville Hydro territory are also not available. Savings and costs data for EKC in 2008 is expected to be made available by the OPA in Q3 2009. Note that cumulative energy saved is life-to-date savings for all technologies installed and delivery savings since 2005 for which savings data are available.

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

A. **Name of the Program:** Smart Metering

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

The Smart Meter, Intelligent Network was cancelled in 2006. After the research, evaluation and testing of products in 2005, it was concluded that the "Intelligent Network" portion of the program is specific to Quadlogic, and as it stands, Oakville Hydro is unaware whether approved meter technologies will work with the Quadlogic system.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Regular Meter		
Efficient technology:	Smart Meter		
Number of participants or units delivered for reporting year:	0		
Measure life (years):			
Number of Participants or units delivered life to date	50		

<u>TRC Results:</u>	<u>Reporting Year</u>	<u>TRC Results:</u>
¹ TRC Benefits (\$):		
² TRC Costs (\$):		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:	\$ -	
Net TRC (in year CDN \$):	\$0	\$0
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		

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

<u>Actual Program Costs:</u>		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
Utility direct costs (\$):	Incremental capital:		\$ 322,531.36
	Incremental O&M:		\$ 144,750.34
	Incentive:		
	Total:	\$ -	\$ 467,281.70
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 b

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



Appendix B - Discussion of the Program

A. Name of the Program: Multi-Residential Interval Metering

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

In 2005, Oakville Hydro converted the metering of a 76 unit condominium building from bulk metering to individually interval metered condominiums. In 2006, two 105 unit buildings were also converted. In 2007, Oakville Hydro completed the conversion of one 96 unit, one 208 unit, and two 144 unit condominium buildings. Oakville Hydro filed for an extension for this program to March 31, 2008, and in 2008, converted 3 more facilities including 206 units, 60 units and 68 units Residents of the condominiums converted in 2005 and 2006 are on time-of-use rates as part of an approved pilot project and have on-line access to their accounts.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Bulk metering		
Efficient technology:	Sub-metering		
Number of participants or units delivered for reporting year:	334		
Measure life (years):	20		
Number of Participants or units delivered life to date	1212		

B. TRC Results:	Reporting Year	TRC Results:
¹ TRC Benefits (\$):	not available	\$391,566
² TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 273,105.40	\$847,392
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:	\$ 273,105.40	\$847,392
Net TRC (in year CDN \$):		-\$455,825
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		0.462084219

C. Results: (one or more category may apply)	Cumulative Results:			
Conservation Programs:				
Demand savings (kW):	Summer	not available		46.5
	Winter			
			cumulative	cumulative to
	lifecycle (in year)	in year	lifecycle	date
Energy saved (kWh):	not available	not available	8,139,520	1,627,904
Other resources saved :				
Natural Gas (m3):				
Other (specify):				

D. Actual Program Costs:		Reporting Year	Cumulative Life to Date
Utility direct costs (\$):	Incremental capital:	\$ 273,105.40	\$ 847,391.76
	Incremental O&M:		
	Incentive:		
	Total:	\$ 273,105.40	\$ 847,391.76
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:	\$ -	\$ -

E. Assumptions & Comments:

TRC benefits are reported only for conversions completed in 2005, at which a reduction of average month-to-month savings of about 25% were observed (NOT weather corrected). Data are still being gathered for the buildings completed in 2006, 2007 and 2008, but initial indications are that they are on track to achieve significant savings. The TRC calculation presented for the meters installed in 2005 has been changed this year to be based on a measure life of 20 years, whereas previously it was based on a life to 2010 only. This change was made based on a change of our understanding of a requirement to have interval meters installed by 2010. Demand savings have been conservatively estimated to be base load savings, but may be considerably higher. The savings and TRC benefits indicated are grossly underestimated as only 76 of the 1212 units converted have data available. Note that cumulative energy saved is life-to-date savings for the building converted 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 b

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



Appendix B - Discussion of the Program

A. **Name of the Program:** Annual Commercial/Industrial Energy Information Seminar

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

The intent of this program is to increase awareness of existing energy efficiency programs and incentive programs to local industry. Seminars provide accurate and timely information that improve the ability of large consumers to control their energy and consumption costs and help increase the competitive standing of the Ontario based manufacturing sector. In June 2006 Oakville Hydro hosted an Industrial/Commercial Energy efficiency seminar at their office. Oakville Hydro partnered with local providers of energy efficiency products and services to provide information on topics including Demand Response, Energy Audits, Energy Load Profiling and Creating a Sustainable Energy Plan. The seminar was directed at the top 30 Industrial/Commercial users of electricity in Oakville and was attended by 15 energy decision makers and feedback was very positive. Fourteen of the companies invited have received daily energy load profiles as a result of these efforts. The profiles allow the end users to make educated decisions on reducing energy in their facilities through direct feedback from their hydro meters. Oakville Hydro continues to work with these customers on reducing their energy demand and consumption and plans to host additional Industrial/Commercial seminars on current energy efficiency topics. The CI seminar originally scheduled for 2007 was rescheduled to and held in March 4 2008, and was attended by 20 participants.

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>	20		
<i>Measure life (years):</i>			
<i>Number of Participants or units delivered life to date</i>	85		

B. TRC Results:	Reporting Year	TRC Results:
¹ TRC Benefits (\$):		
² TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>		\$32,220
<i>Incremental Measure Costs (Equipment Costs)</i>		
<i>Total TRC costs:</i>	\$ -	\$32,220
<i>Net TRC (in year CDN \$):</i>	\$0	-\$32,220
<i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i>		0

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 (in year)</i>	<i>in year</i>	<i>cumulative lifecycle</i>	<i>cumulative to date</i>
<i>Energy saved (kWh):</i>				
<i>Other resources saved :</i>				
<i>Natural Gas (m3):</i>				
<i>Other (specify):</i>				

D. Actual Program Costs:	Reporting Year	Cumulative Life to Date
<i>Utility direct costs (\$):</i>		
<i>Incremental capital:</i>		
<i>Incremental O&M:</i>	\$ -	\$ 32,220.45
<i>Incentive:</i>		
<i>Total:</i>	\$ -	\$ 32,220.45
<i>Utility indirect costs (\$):</i>		
<i>Incremental capital:</i>		
<i>Incremental O&M:</i>		
<i>Total:</i>	\$ -	\$ -

E. Assumptions & Comments:
 The costs associated with the seminar held in March 2008 were paid for in 2007 and were therefore included as 2007 program costs.

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 b
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



Appendix B - Discussion of the Program

A. **Name of the Program:** Distributed Generation - Digester Gas Program

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

The program was cancelled by Oakville Hydro in 2006 due to numerous issues including: uncertainty regarding the exact flow and treatment of digester gas, complications in siting the combustion engine and connecting it to the existing thermal plan, and difficulties negotiating and drafting of the necessary business and legal arrangements with the region of Halton for the Mid-Halton Sewage Treatment Plant.

Measure(s):

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

	<u>Reporting Year</u>	<u>TRC Results:</u>
B. TRC Results:		
¹ TRC Benefits (\$):		
² TRC Costs (\$):		
Utility program cost (excluding incentives):		\$7,245
Incremental Measure Costs (Equipment Costs)		
Total TRC costs: \$	-	\$7,245
Net TRC (in year CDN \$):	\$0	-\$7,245
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ -	0

	<u>Cumulative Results:</u>			
C. Results: (one or more category may apply)				
Conservation Programs:				
Demand savings (kW):	Summer			
	Winter			
	lifecycle (in year)	in year	cumulative lifecycle	cumulative to date
Energy saved (kWh):				
Other resources saved :				
Natural Gas (m3):				
Other (specify):				

		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
D. Actual Program Costs:			
Utility direct costs (\$):	Incremental capital:		\$ 7,245.00
	Incremental O&M:		
	Incentive:		
	Total:	\$ -	\$ 7,245.00
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:	\$ -	\$ -

E. **Assumptions & Comments:** The last expenditures were made in 2006.

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 b

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



Appendix B - Discussion of the Program

A. **Name of the Program:** Distributed Generation - Wind Turbine

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

Oakville Hydro proposed to install and operate an 80 kW wind turbine on a proposed Town of Oakville recreational site to generate electricity for their facilities. After further investigation, Oakville Hydro determined that the proposed site for the wind turbine did not have a suitable wind resource, the proposed wind turbine was no longer supported by the original equipment manufacturer and it was a refurbished model that did not incorporate current technology. Because no commercial or near commercial wind turbines could be found suitable for the proposed site's wind regime and the program budget, Oakville Hydro decided to cancel the project in 2006.

Measure(s):

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

	<u>Reporting Year</u>	<u>TRC Results:</u>
B. TRC Results:		
¹ TRC Benefits (\$):		
² TRC Costs (\$):		
Utility program cost (excluding incentives):		\$4,950
Incremental Measure Costs (Equipment Costs)		
Total TRC costs: \$	-	\$4,950
Net TRC (in year CDN \$):	\$0	-\$4,950
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		0

	<u>Cumulative Results:</u>			
C. Results: (one or more category may apply)				
Conservation Programs:				
Demand savings (kW):	Summer			
	Winter			
	lifecycle (in year)	in year	cumulative lifecycle	cumulative to date
Energy saved (kWh):				
Other resources saved :				
Natural Gas (m3):				
Other (specify):				

	<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
D. Actual Program Costs:		
Utility direct costs (\$):		\$ 4,950.00
Incremental capital:		
Incremental O&M:		
Incentive:		
Total:	\$ -	\$ 4,950.00
Utility indirect costs (\$):		
Incremental capital:		
Incremental O&M:		
Total:	\$ -	\$ -

E. **Assumptions & Comments:** The last expenditures were made in 2006.

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 b

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



Appendix B - Discussion of the Program

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

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

In the CDM plan, Oakville Hydro proposed installing and operating a natural gas-fired, low emission generator for peak shaving within its office building. Although originally proposed at a scale of 250kW, further investigation revealed that a generator with greater capacity would be required to service the office building. The final generator set is rated at 375kW continuous, offering a standby and peak shaving rating of 450kW for up to 500 hours per year. Although paid for in 2007, the generator was installed over the course of 2008, due to a long lead time for ordering of the equipment. This program took longer than anticipated and an extension was filed to the end of December 2007. In 2007, Oakville Hydro paid an incentive to Tim Hortons for the purchase of two stand-by natural gas generators of 80kW and 100kW respectively, which were connected to two small commercial retail operations (Tim Hortons) partnered with TDL Group Corp, and commissioned for use in 2008. These installations serve the purpose of reducing demand from the system at peak times and to provide blackout protection for the customers. The generators were not used in 2008 other than for testing and commissioning purposes.

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	TRC Results:
¹ TRC Benefits (\$):	\$ 1,069,907.51	\$1,069,908
² TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ 783,490.55	\$910,084
<i>Incremental Measure Costs (Equipment Costs)</i>		\$100,000
Total TRC costs:	\$ 783,490.55	\$1,010,084
Net TRC (in year CDN \$):	\$286,417	\$59,824
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	1.365565303	1.059226356

C. Results: (one or more category may apply)	Cumulative Results:	
Unit at Oakville Hydro		
<i>Dispatchable load (kW):</i>	450	450
<i>Peak hours dispatched in year (hours):</i>	0	0
Unit at Tim Hortons (Cross location)		
<i>Dispatchable load (kW):</i>	100	100
<i>Peak hours dispatched in year (hours):</i>	0	0
Unit at Tim Hortons (Trafalgar location)		
<i>Dispatchable load (kW):</i>	80	80
<i>Peak hours dispatched in year (hours):</i>	0	0

D. Actual Program Costs:	Reporting Year	Cumulative Life to Date
<i>Utility direct costs (\$):</i>		
<i>Incremental capital:</i>	\$ 773,490.55	\$ 900,083.92
<i>Incremental O&M:</i>	\$ 10,000.00	\$ 10,000.00
<i>Incentive:</i>		\$ 90,000.00
Total:	\$ 783,490.55	\$ 1,000,083.92
<i>Utility indirect costs (\$):</i>		
<i>Incremental capital:</i>		
<i>Incremental O&M:</i>		
Total:	\$ -	\$ -

E. **Assumptions & Comments:**
 Capital and O&M costs are those associated with the generator for Oakville Hydro, while the incentive costs are those associated with the stand-by generators for the two Tim Hortons locations. The generators were all installed in 2008, however were only used during testing and commissioning.

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 b

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



Appendix B - Discussion of the Program

A. **Name of the Program:** Voltage Conversion

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

Two specific projects were identified to increase system efficiencies, and therefore reduce the load on the power grid and add to the security and reliability of the distribution system because of better transformer efficiencies and lower line losses. In 2007, the conversion of a 1500 kVa transformer from 4 kV to 27.6 kV direct-feed from the grid was completed at a shopping centre. In 2007, Oakville Hydro also began the conversion of an older residential neighbourhood. By the end of 2007, approximately one third of the conversions planned for the residential area were completed. The remainder of the residential area was completed in June of 2008, though all costs attributed to it were made in 2007.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>	4.7kV 1500 kVa transformer in shopping centre	4.7kV 1500 kVa transformer in residential area	
<i>Efficient technology:</i>	27.6 kV direct-feed from grid	27.6 kV direct-feed from grid	
<i>Number of participants or units delivered for reporting year:</i>	0	1	
<i>Measure life (years):</i>	30	30	
<i>Number of Participants or units delivered life to date</i>	1	1	

B. TRC Results:	Reporting Year	TRC Results:
¹ TRC Benefits (\$):	\$ 106,580.02	\$218,897
² TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ -	\$411,826
<i>Incremental Measure Costs (Equipment Costs)</i>		
Total TRC costs:	\$ -	\$411,826
Net TRC (in year CDN \$):	\$106,580	-\$192,929
<i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i>		0.531527695

C. Results: (one or more category may apply)	Cumulative Results:			
Line Loss Reduction Programs:				
<i>Peak load savings (kW):</i>		26.66666667		50
			<i>cumulative</i>	<i>cumulative to</i>
	<i>lifecycle (in year)</i>	<i>in year</i>	<i>lifecycle</i>	<i>date</i>
<i>Energy savings (kWh):</i>	3,400,000	66,111	6,600,000	286,944

D. Actual Program Costs:		Reporting Year	Cumulative Life to Date
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>		\$ 411,826.18
	<i>Incremental O&M:</i>		
	<i>Incentive:</i>		
	Total:	\$ -	\$ 411,826.18
<i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&M:</i>		
	Total:	\$ -	\$ -

E. **Assumptions & Comments:**

TRC calculations and kWh saved for 2008 are based on the completion of the residential area (2/3 of the area) by June 2008. The completion of the area was paid for in 2007. Cumulative calculations are based on savings from the completed shopping mall conversion (2006) estimated at 10 kW reduction in peak demand and estimated 50,000 kWh/a energy savings, and the residential area conversion (2007 and 2008) estimated at 40 kW peak reduction, and 170,000 kWh/a. Note that cumulative energy saved is life-to-date savings for all conversions done and delivery savings since 2006.

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 b

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



Appendix B - Discussion of the Program

A. **Name of the Program:** Solar Panel Program

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

This program involves the installation and performance monitoring of an EnerWorks solar hot water heating appliance. It includes the installation of two roof mounted solar collectors and an EnerWorks' Energy Pack heat exchanger and controls in 2006. The system was installed at Oakville Hydro's head office and works in conjunction with the existing electric hot water system which was being served by two 100 gallon electric hot water tanks with a recirculating loop. The system was installed with instrumentation used to track the energy savings achieved by the solar hot water heater appliance. Use of the solar hot water system in 2008 totalled 225.92kWh, representing 1.2% of the hot water load.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>	Domestic Electric Hot Water Heater		
<i>Efficient technology:</i>	Solar Hot Water Heating Appliance		
<i>Number of participants or units delivered for reporting year:</i>	1		
<i>Measure life (years):</i>	18		
<i>Number of Participants or units delivered life to date</i>	1		

	<u>Reporting Year</u>	<u>TRC Results:</u>
B. TRC Results:		
¹ TRC Benefits (\$):	\$ 294.52	\$295
² TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ -	\$35,418
<i>Incremental Measure Costs (Equipment Costs)</i>		
<i>Total TRC costs:</i>	\$ -	\$35,418
<i>Net TRC (in year CDN \$):</i>	\$295	-\$35,123
<i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i>		0.008315619

	<u>Cumulative Results:</u>			
C. Results: (one or more category may apply)				
Conservation Programs:				
<i>Demand savings (kW):</i>	<i>Summer</i>	0.045103485	0.045103485	
	<i>Winter</i>			0
	<i>lifecycle (in year)</i>	<i>in year</i>	<i>cumulative lifecycle</i>	<i>cumulative to date</i>
<i>Energy saved (kWh):</i>	4066.56	225.92	4,067	226
<i>Other resources saved :</i>				
<i>Natural Gas (m3):</i>				
<i>Other (specify):</i>				

		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
D. Actual Program Costs:			
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>		\$ 35,417.69
	<i>Incremental O&M:</i>		
	<i>Incentive:</i>		
	<i>Total:</i>	\$ -	\$ 35,417.69
<i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&M:</i>		
	<i>Total:</i>	\$ -	\$ -

E. **Assumptions & Comments:**
 The pilot project began in 2006, and performance monitoring covered the full 2008 calendar year. The TRC benefit is calculated assuming a commercial load and a measure life of 18 years (as suggested by the OPA TRC Guide, 2008). A conversion factor of 1/3413 was used to convert BTU to kWh.

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
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



Appendix B - Discussion of the Program

A. **Name of the Program:** Lighting Retrofit

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

The Oakville Hydro facilities were evaluated for energy efficiency and some opportunities for retrofitting the existing lighting system in the high bay garage and loading bays were found. The lighting retrofit replaced 76 high pressure sodium fixtures with high efficiency T8 fluorescents. The project resulted in a 52 percent reduction in kW while increasing light levels by 35 percent. The project was outlined in the annual commercial/industrial seminar for large users resulting in a very successful retrofit incentive program uptake. Eight motion sensors were also added to low traffic areas in the warehouse for additional savings. Oakville Hydro is evaluating its other facilities for energy efficiency opportunities. No additional retrofit activities took place in 2008.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>	400W HPS light fixtures		
<i>Efficient technology:</i>	220W HE T8 light fixtures	Motion sensor	
<i>Number of participants or units delivered for reporting year:</i>	0	0	
<i>Measure life (years):</i>	10	10	
 <i>Number of Participants or units delivered life to date</i>	 76	 8	

B. TRC Results:	<u>Reporting Year</u>	<u>TRC Results:</u>
¹ TRC Benefits (\$):	\$	\$92,077
² TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ -	\$64,310
<i>Incremental Measure Costs (Equipment Costs)</i>		
Total TRC costs:	\$ -	\$64,310
Net TRC (in year CDN \$):	\$0	\$27,767
 <i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i>		 1.431761623

C. Results: (one or more category may apply)	<u>Cumulative Results:</u>			
Conservation Programs:				
<i>Demand savings (kW):</i>	<i>Summer</i>	18.5		
	<i>Winter</i>	18.5		
	<i>lifecycle (in year)</i>	<i>in year</i>	<i>cumulative lifecycle</i>	<i>cumulative to date</i>
<i>Energy saved (kWh):</i>	0	0	833,930	166,786
<i>Other resources saved :</i>				
<i>Natural Gas (m3):</i>				
<i>Other (specify):</i>				

D. Actual Program Costs:		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>	\$	64,310.00
	<i>Incremental O&M:</i>		
	<i>Incentive:</i>		
	Total:	\$ -	\$ 64,310.00
 <i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&M:</i>		
	Total:	\$ -	\$ -

E. Assumptions & Comments:
 The motion sensors are assumed to each control 1/8th of the full new efficient load (76 x 220W / 8 = 2.1 KW). A commercial load type and 6500 annual hours usage (based on Oakville Hydro's facility hours) is assumed.

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 b
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



Appendix C - Program and Portfolio Totals

Report Year: **2008**

1. Residential Programs

	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 (\$)
<i>Customer Education</i>	\$ 62,542	\$ 16,865	\$ 45,677	3.71	259,170	1,036,680	55	\$ 17,395
*Totals App. B - Residential	\$ 62,542	\$ 16,865	\$ 45,677	3.71	259,170	1,036,680	55	\$ 17,395
<i>Residential Indirect Costs not attributable to any specific program</i>	→							
Total Residential TRC Costs		\$ 16,865						
**Totals TRC - Residential	\$ 62,542	\$ 16,865	\$ 45,677	3.71				

2. Commercial Programs

	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 (\$)
<i>Multi-Residential Interval Metering</i>	not available	\$ 273,105		0.00	not available	not available	not available	\$ 273,105
<i>Annual C/I Energy Info Seminar</i>	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
<i>Peak Demand Reduction</i>	\$ 1,069,908	\$ 783,491	\$ 286,417	1.37				\$ 783,491
*Totals App. B - Commercial	\$ 1,069,908	\$ 1,056,596	\$ 13,312	1.01	0	0	0	\$ 1,056,596
<i>Commercial Indirect Costs not attributable to any specific program</i>	→							
Total TRC Costs		\$ 1,056,596						
**Totals TRC - Commercial	\$ 1,069,908	\$ 1,056,596	\$ 13,312	1.01				

3. Institutional Programs

	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 (\$)
<i>Dist. Generation: Digester Gas</i>	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
<i>Dist. Generation: Wind Turbine</i>	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
<i>Solar Panel Program</i>	\$ 295	\$ -	\$ 295	0.00	226	4,067	0	\$ -
*Totals App. B - Institutional	\$ 295	\$ -	\$ 295	0.00	226	4,067	0	\$ -
<i>Institutional Indirect Costs not attributable to any specific program</i>	→							
Total TRC Costs		\$ -						
**Totals TRC - Institutional	\$ 295	\$ -	\$ 295	0.00				

4. Industrial Programs

	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 (\$)
N/A								
*Totals App. B - Industrial	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
<i>Industrial Indirect Costs not attributable to any specific program</i>	→							
Total TRC Costs		\$ -						
**Totals TRC - Industrial	\$ -	\$ -	\$ -	0.00				

5. Agricultural Programs

	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 (\$)
N/A								
*Totals App. B - Agricultural	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
<i>Agricultural Indirect Costs not attributable to any specific program</i>	→							
Total TRC Costs		\$ -						
**Totals TRC - Agricultural	\$ -	\$ -	\$ -	0.00				

6. LDC System Programs

	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 (\$)
<i>Voltage Conversion</i>	\$ 106,580	\$ -	\$ 106,580	0.00	66,111	3,400,000	27	\$ -
<i>Lighting Retrofit</i>	\$ -	\$ -	\$ -	0.00	0	0	0	\$ 1



*Totals App. B - LDC System	\$ 106,580	\$ -	\$ 106,580	0.00	66,111	3,400,000	27	\$ -
<i>LDC System Indirect Costs not attributable to any specific program</i>	→							
Total TRC Costs	\$ -							
**Totals TRC - LDC System	\$ 106,580	\$ -	\$ 106,580	0.00				

7. Smart Meters Program

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

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	\$ 1,239,324	\$ 1,073,461	\$ 165,863	1.15	\$ 325,507	\$ 4,440,747	\$ 82	\$ 1,073,991
<i>Any <u>other</u> Indirect Costs not attributable to any specific program</i>	→							
TOTAL ALL LDC COSTS		\$ 1,073,461						
**LDC' PORTFOLIO TRC	\$ 1,239,324	\$ 1,073,461	\$ 165,863	1.15				

* 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.



Appendix D - Total Life Evaluation of the CDM Plan

Table is to be completed manually by totalling the information from each year of activity

	⁵ Cumulative Totals Life-to-date	Residential	⁶ Low Income	Commercial	Institutional	Industrial	Agricultural	LDC System	⁴ Smart Meters	Other #1	Other #2
Net TRC value (\$):	\$ 443,310.96	\$ 1,092,243.68	n/a	-\$ 428,222.26	-\$ 47,318.17	n/a	n/a	-\$ 165,162.57		\$	\$
Benefit to cost ratio:	1.40	3.25	n/a	1.52	0.01	n/a	n/a	0.65			
Number of participants or units delivered:	46092	44708	n/a	1297	1	n/a	n/a	86			
Lifecycle (kWh) Savings:	47770023	32192507	n/a	8139520	4067	n/a	n/a	7433930			
Total kWh saved (kWh):	11199029	9117395	n/a	1627904	0	n/a	n/a	453730			
Total peak demand saved (kW):	153	38	n/a	47	0	n/a	n/a	69			
Total kWh saved as a percentage of total kWh delivered (%):	0.70%	1.55%	n/a			n/a	n/a				
Peak kW saved as a percentage of LDC peak kW load (%):	0.04%	0.01%	n/a			n/a	n/a				
¹ Gross C&DM expenditures (\$):	\$ 2,923,778.13	\$ 53,051.43	n/a	\$ 1,879,696.13	\$ 47,612.69	n/a	n/a	\$ 476,136.18	\$ 467,281.70	\$	\$
² Expenditures per kWh saved (\$/kWh):	\$ 2.21	\$ 0.01	n/a	\$ 1.15	n/a	n/a	n/a	\$ 1.05		\$	\$
³ Expenditures per kW saved (\$/kW):	\$ 48,757.09	\$ 1,382.63	n/a	\$ 40,423.57	n/a	n/a	n/a	\$ 6,950.89		\$	\$
Utility discount rate (%):	7.28										

¹ Expenditures are reported on cumulative 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. Actual expenditures for the total third tranche period need to be reported.

⁵ Includes total for the reporting year, plus prior years, if any (for example, 2008 CDM Annual report for third tranche will include 2007, 2006, 2005 and 2004 numbers, if any).

⁶ Includes totals from Low Income programs that fall under both commercial and residential.