



Hydro Ottawa Limited

Conservation and Demand Management

2008 Annual Report

Hydro Ottawa - RP-2004-0203\EB-2005-0523

March 31, 2009

Table of Contents

1. Introduction	2
2. Evaluation of Overall Plan	3
3. Discussion of the Programs	4
3.1 Commercial, Industrial and Institutional (>50 kW).....	4
3.1.1 LED Traffic Lights	4
3.1.2 Leveraging Energy Conservation and Load Management.....	5
3.1.2.1 powerWISE [®] Business Incentive Program.....	5
3.1.3 Commercial Industrial & Institutional (CI&I) Load Control Initiative	6
3.2 Distributed Energy & Load Displacement.....	7
4. Lessons Learned	8
5. Conclusion.....	11

1. Introduction

On December 10, 2004 the Ontario Energy Board (“OEB” or “Board”) issued its oral decision in the RP-2004-0203 proceeding, with respect to six (6) applications filed by the Coalition of Large Distributors (“CLD”) comprising Enersource Hydro Mississauga, Horizon Utilities Corporation, Hydro Ottawa Limited (“Hydro Ottawa”), PowerStream Inc., Toronto Hydro-Electric System Limited and Veridian Connections. This report is a requirement of that decision. In respect of the application filed by Hydro Ottawa, the Board issued its Final Order on February 3, 2005 under docket number RP-2004-0203\EB-2005-0523 approving an expenditure of \$9,279,000 over three years.

The Board’s decision indicated that annual reporting “should be done on a calendar year and should be filed with the Board no later than March 31st of the following year”¹ and would be subject to a public review. On December 21, 2005 the Board issued a *Guideline for Annual Reporting of CDM Initiatives* that explained more fully the requirements. On March 3, 2008 the Board reissued the *Requirements for Annual Reporting of Conservation and Demand Management (“CDM”) Initiatives*. This report has been prepared in accordance with those guidelines.

On December 13, 2006 Hydro Ottawa received approval from the Board to reallocate \$2,300,000 previously allocated to Distribution Loss Reduction, Distributed Energy and Program Support and was granted an extension of time to September 30, 2008 to spend the funds approved for the Commercial, Industrial & Institutional (>50kW) programs. On September 26, 2007, Hydro Ottawa was granted a further extension to the completion date for 3rd tranche Distributed Energy CDM activities to September 30, 2008.

This 2008 annual report reflects Hydro Ottawa’s actual spending as per the Board’s approved reallocation and extensions. Hydro Ottawa’s total actual expenditure over the three years was \$9,378,842. The spending in excess of the approved amount, i.e. \$99,842 was not funded through rates. The balance recorded in Account 1565 is zero, to reflect the completion of the spending obligation.

Hydro Ottawa’s CDM activities for 2008 represent the completion of activities funded under the third tranche of Market Adjusted Revenue Requirement (“MARR”). Hydro Ottawa’s expenditures and results are therefore significantly lower than in the previous year.

Hydro Ottawa’s 2008 results continue to show that Conservation and Demand Management can be extremely cost-effective when Local Distribution Companies (“LDCs”) work together in sharing program development experiences to help reduce the cost of designing and delivering programs, and are also given the opportunity to deliver programs tailored to meet their particular local market conditions.

¹ Paragraph 83, RP-2004-0203 Transcript Volume 3, 10 December 2004.

2. Evaluation of Overall Plan

Refer to Appendices A, B and C for a full evaluation of Hydro Ottawa's CDM activities during 2008. Appendix D provides cumulative results for 2005-2008.

3. Discussion of the Programs

3.1 Commercial, Industrial and Institutional (>50 kW)

3.1.1 LED Traffic Lights

Description

This initiative involves replacing traffic signals at intersections with light-emitting diode (“LED”) technology, which is now fairly common in many U.S. municipalities.

Target users

Municipalities

Benefits

This program results in significant energy savings since the LED technology uses more than 80% less electricity. Other benefits include significantly reduced maintenance costs (LEDs last several years longer than incandescent bulbs) and improved visibility.

Action

- A business case was developed by the City of Ottawa Traffic Department for a program to retrofit traffic signals with LEDs in 2008.
- Traffic signals at 36 intersections were retrofitted with LEDs.

Results to Date

- Installed LED traffic lights will save 176,795 net kWh annually.

Next Steps

- No further action to be taken in respect to this program by Hydro Ottawa. It is anticipated that the City will continue to retrofit traffic signals at additional intersections based on the success of this project.

3.1.2 Leveraging Energy Conservation and Load Management

3.1.2.1 powerWISE® Business Incentive Program

Description

Existing energy conservation and/or load management programs such as NRCan's Energy Innovators Initiative, Enbridge initiatives etc. will be promoted and incentives may be provided to advance market uptake of these programs and implementation of the recommendations. The LDCs are well positioned to introduce such programs to their customer base. Work will be conducted with the existing program providers to maximize leverage opportunities. Promotion will potentially include face-to-face meetings, conferences and seminars.

Target users

Large consumers over 50 kW including schools, large commercial facilities, institutional facilities, industrial, and municipal facilities

Benefits

Customer awareness and additional incentives will help advance market uptake of audit services, feasibility studies and retrofit opportunities already established within the government program framework.

Action

- This program provided incentives of up to \$50,000 per customer to advance energy conservation projects.
- Two streams of funding were available:
 - The prescriptive program provided incentives for specific technologies on a predetermined cost per unit basis, e.g. retrofit of T12 lighting to T8 lighting.
 - Custom projects were considered on an individual case basis with incentives at \$150 per kW.

Results to Date

- This program was launched in October 2005.
- Hydro Ottawa paid out \$351,387 in incentives, completed 24 prescriptive and 10 custom projects in 2008 and reduced demand by over 1,159.88 net kW and saved 11,989,987 net kWh.
- Hydro Ottawa shared this very successful program with the Ontario Power Authority ("OPA") and participated in the Electricity Retrofit Incentive Program offered provincially by the OPA in 2008.

Next Steps

- No further action to be taken in respect to this program.

3.1.3 Commercial Industrial & Institutional (CI&I) Load Control Initiative

Description

Load control uses a real time communications link to enable or disable customer loads at the discretion of the utility. These controls are usually engaged during system peak periods or when required to relieve pressure on the system grid.

Target Users

Larger commercial, industrial and institutional customers

Benefit

Demand control provides lower costs and increased stability for customers and utilities.

Action

- Third party service providers were used to procure Demand Response curtailment capacity with targeted customers.

Results to Date

- Contracts were signed with three customers for demand response capacity made available for dispatch by Hydro Ottawa.
- Dispatchable capacity of 5500 kW was available
- Load control included a one-time curtailment event on July 18, 2008 resulting in a 707.82 net kW and 2,967.33 net kWh saving.

Next Steps

- No further action to be taken in respect to this program.

3.2 Distributed Energy & Load Displacement

Description

Distributed generation behind the customer's meter provides an excellent opportunity to displace load from the local distribution system's grid in a very effective manner. Load displacement technology, such as combined heat and power systems, provides increased power efficiency and thermal systems. Combined with an existing or new district heating distribution system this technology contributes to the development of sustainable energy networks within Ontario's communities.

Other technologies such as micro-turbines, wind, biomass fuels and solar provide additional options to meet the customer's needs. This initiative will facilitate the development and implementation of these opportunities. Financial incentives will be considered based on the project's viability.

Development of educational and technology programs in conjunction with local colleges and universities may be considered. Small pilots or demonstration projects to promote alternative and renewable energy sources may also be considered.

Target users

Commercial, industrial and residential schools, colleges and universities

Benefits

Benefits include additional capacity within the grid. Cleaner technologies result in reductions in Greenhouse Gas ("GHG") emissions. Other benefits include improved system reliability, reduced harmonics, back-up power possibilities, education and skills development.

Action

- Hydro Ottawa completed three, state of the art, demonstration sites for solar photovoltaic generation at Hydro Ottawa facilities.
- This program provided valuable implementation experience and will continue to provide practical operational experience for Hydro Ottawa and its customers.
- These installations will also generate electricity to partially displace the electrical demand for these facilities.

Results to Date

- Three solar projects with a combined capacity of 23.72 kW were installed in 2008, and were placed in service in early 2009.

Next Steps

- No further action to be taken in respect to this program.

4. Lessons Learned

Hydro Ottawa has learned numerous lessons throughout the implementation of its third tranche CDM initiatives. We have accomplished much to date by working through various partnerships and with external service providers. The unprecedented cooperation between utilities, especially throughout the CLD, continues to strengthen and all have benefited from the shared learning and program development efficiencies.

Hydro Ottawa continues to develop internal and external structures to manage CDM and our processes are now in place. Hydro Ottawa believes that these initiatives and this experience will generate many benefits in the future. In particular, Hydro Ottawa has learned the following:

Program Development

1. CDM program development does take significant time. In particular, legal and environmental issues must be thoroughly addressed up front in order to ensure long-term sustainable conservation success.
2. LDCs have demonstrated that they are the most effective channel to their customers for conservation programs. Customers have grown to depend on their local distributor for conservation support, advice and programs. This is critical to minimizing customer confusion while maximizing brand equity, cost effectiveness and conservation results.
3. Commercial Load Control (Demand Response) and Distributed Energy programs piloted as part of the CDM plan show great promise as a means of reducing electricity system demand but require considerable time and effort to overcome customer implementation barriers. Payments to customers for these programs must address the full financial realities that businesses face in making this capacity available.
4. Each LDC has unique markets, resources and needs requiring a range of diverse and individual strategies and tactics that can be customized for successful local CDM program implementation. Providing communities with a range of provincial OPA programs, in conjunction with custom LDC programs, makes good strategic sense.
5. There is a need for consistent ownership of programs, consistent labeling of programs and consistent delivery agents for such programs. Without these key ingredients, the credibility of good programs – and of the organization offering them – may be undermined and with it consumers' willingness to engage in conservation and demand management programs in future.
6. Hydro Ottawa found that simple, low cost incentives like the powerWISE® PowerPack or free Compact Fluorescent Lightbulbs ("CFLs") were very well received by residential customers, offered good Total Resource Cost ("TRC") results and proved that customers did not require significant incentives to participate in programs. In fact,

ease of participation accompanied by moderate incentives with a perceived high value to customers appears to be one of the hallmarks of program success.

7. The powerWISE® Business Incentive Program showed Hydro Ottawa that Commercial and Industrial customer timelines for conservation projects are often longer than expected and have a lower sense of urgency than Hydro Ottawa would prefer. Incentives have to be very meaningful, in order to encourage and speed up conservation projects at this large commercial level.
8. Commercial Programs must address the needs of the customers at the Corporate, Municipal, Provincial and National levels to allow implementation across jurisdictions and beyond individual stores. Coordination and consistency is required to allow large Corporations to make programs available to all store locations regardless of location by City or Province.

Education

1. Public education is a critical element as Hydro Ottawa builds a culture of conservation. No funding is available through the OPA and no reportable benefits can be attributed to this activity. This effectively penalizes utilities for participating in this type of worthwhile and necessary initiative.
2. Residential customers are generally aware of the simple products and initiatives that are available to help them to reduce their energy consumption. However, they have a limited understanding of the dollar impact and quick return provided by simple solutions such as hot water pipe wrap, Seasonal Light Emitting Diodes (“SLED”) and CFLs. It is critical to educate our customers and to provide a savings comparison in dollars to highlight these impacts.
3. In-home energy monitors offer customers an effective real-time tool to better understand and manage their electrical consumption. In-home monitors immediately identify the benefit of turning off lights and appliances in the house when they are not in use. These monitors would also be of particular value when time of use pricing comes into effect.
4. It is important to offer Commercial and Industrial customers access to information through convenient forums such as trade shows. There are many emerging technologies and an explosion of service providers in the marketplace. Hydro Ottawa needs to concentrate efforts on helping these customers understand not only the technologies but the impact and value these technologies can have on their specific organizations. This will lead to increased participation and adoption of new energy efficient technologies.

Regulatory Issues

1. It is clear that CDM programs require and will benefit from continuity and consistency of funding. The funding transition to the OPA that occurred in 2007 created a period of uncertainty that disrupted programs at the beginning of the year followed by a ramping

up in mid year. The result was lost momentum in conservation program savings and customer confusion. This loss of program momentum occurs each year due to the annual requirement for LDCs to negotiate funding models and contracts and register for OPA programs.

2. The energy industry must coordinate the individual efforts of its many organizations to ensure that program delivery is efficient, readily available and understood by all customers. Most customers don't understand the relationship among the various organizations within the hydro industry, so an attempt to brand or deliver programs to the end customer by different groups only confuses the customer and suggests a lack of industry coordination. Clarity regarding the roles of the LDC, OEB, OPA and the Independent Electricity System Operator would be beneficial in this regard.
3. Consideration should be given to Research & Development funding to support program development. This would encourage development of new ideas and control any potential risks involving new technologies.
4. In an environment with many demands and new initiatives to manage, it is important that there remain incentives for LDCs to continue to play a leading role with conservation.

5. Conclusion

Hydro Ottawa developed and ramped up an effective Conservation and Demand Management program and generated some impressive results using the third tranche of MARR funding. Hydro Ottawa has taken action, learned by doing and improved with experience.

Results for 2008 are significantly less than in previous years as most programs originally launched in 2005 were completed and third tranche funding was exhausted.

Hydro Ottawa was able to maximize results by working with the CLD, which provided a significant advantage in knowledge and resource sharing, efficiency and cost effectiveness. As we gained market experience, we were able to fine-tune our individual CDM plans for mutual benefit.

Hydro Ottawa enjoyed highly recognized successes with two particular programs developed in house. The powerWISE[®] Fridge Bounty Program and the powerWISE[®] Business Incentive Program both proved to be very popular with our customers and were subsequently adopted by other LDCs and the OPA for implementation across the Province in 2007. The powerWISE[®] retail coupon program was also so effective that it was adopted by the OPA and re-launched as the “Every Kilowatt Counts” Spring and Fall retail campaigns.

The constraints facing the Provincial electricity system are well known and have created a heightened sense of urgency for all users to contribute to better management of our electricity demand. Our customers are recognizing the value of conserving electricity and Hydro Ottawa’s role in delivering CDM programs locally is well established. Hydro Ottawa is committed to helping lead the evolution to a culture of conservation in this Province and will work with the Regulator, the OPA and other members of the LDC community to make this happen.

Appendix A - Evaluation of the CDM Plan

	Total for 2008	Residential	⁵ Low Income	Commercial	Institutional	Industrial	Agricultural	LDC System	⁴ Smart Meters	Other #1	Other #2
<i>Net TRC value (\$):</i>	\$348,490	\$ -	\$ -	\$ 348,490	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
<i>Benefit to cost ratio:</i>	1.09	0.00		1.09	0.00	0.00	0.00	0.00		0.00	0.00
<i>Number of participants or units delivered:</i>	60,089	-	-	60,089	-	-	-	-		-	-
<i>Lifecycle (kWh) Savings:</i>	51,080,287	0	0	51,080,287	0	0	0	0		0	0
<i>Report Year Total kWh saved (kWh):</i>	12,169,749	0	0	12,169,749	0	0	0	0		0	0
<i>Total peak demand saved (kW):</i>	1,868	0	0	1,868	0	0	0	0		0	0
<i>Total kWh saved as a percentage of total kWh delivered (%):</i>	0.16%	0.00%	0.00%	0.16%	0.00%	0.00%	0.00%	0.00%			
<i>Peak kW saved as a percentage of LDC peak kW load (%):</i>	0.14%	0.00%	0.00%	0.14%	0.00%	0.00%	0.00%	0.00%			
¹ <i>Report Year Gross C&DM expenditures (\$):</i>	\$ 1,381,434	\$ -	\$ -	\$ 1,381,434	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
² <i>Expenditures per kWh saved (\$/kWh):</i>	\$ 0.11	\$ -	\$ -	\$ 0.11	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -
³ <i>Expenditures per kW saved (\$/kW):</i>	\$ 739.64	\$ -	\$ -	\$ 739.64	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -

		Total kWh delivered:	Peak kW load:
<i>Utility discount rate (%):</i>	6.55	7,561,763,317	1,355,421

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:** LED Traffic Light Retrofit Program

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

This initiative involves replacing traffic signals at intersections to light emitting diode (LED) technology.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Average Stock		
Efficient technology:	LED Lighting		
Number of participants or units delivered for reporting year:	1		
Measure life (years):	23		
Number of Participants or units delivered life to date	1		

B. TRC Results:	Reporting Year	TRC Results:
¹ TRC Benefits (\$):	\$ 186,955.76	
² TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 30,932.00	
Incremental Measure Costs (Equipment Costs)	\$ 137,542.00	
Total TRC costs:	\$ 168,474.00	
Net TRC (in year CDN \$):	\$ 18,481.76	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 1.11	

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

Conservation Programs:

Demand savings (kW):	Summer	0	
	Winter	0	
	lifecycle		in year
Energy saved (kWh):	4,066,285.00		176,795.00
Other resources saved :			
Natural Gas (m3):			
Other (specify):			

Demand Management Programs:

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

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):

Energy generated (kWh):

Peak energy generated (kWh):

Fuel type:

Other Programs (specify):

Metric (specify):

--	--

D. Actual Program Costs:

		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
Utility direct costs (\$):	Incremental capital:	\$ -	\$ -
	Incremental O&M:	\$ 30,932.13	\$ 30,932.13
	Incentive:	\$ 196,487.87	\$ 196,487.87
	Total:	\$ 227,420.00	\$ 227,420.00
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

A. **Name of the Program:** Leveraging Energy Conservation and Load Management

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

Leveraging Energy Conservation savings are being accomplished through the powerWISE® Business Incentive Program. This program offers financial incentives to large customers for projects that improve electricity consumption and reduce peak demand.

There are two application paths for customers: prescriptive and custom. The prescriptive path is for common measures and lighting retrofits. The custom path offers flexibility for customers performing retrofits that do not fall under the prescriptive path, and requires that the project reduces peak demand by at least 10 kW. Custom applications must be pre-approved to be considered. All details for this program are available on www.hydroottawa.com.

Measure(s):

	PBIP	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Existing Lighting		
Efficient technology:	Energy Efficient Lighting		
Number of participants or units delivered for reporting year:	60,079 Prescriptive Measures and 10 Custom Projects		
Measure life (years):	2 to 25		
Number of Participants or units delivered life to date	1		

B. TRC Results:	Reporting Year	TRC Results:
¹ TRC Benefits (\$):	\$ 3,856,894.00	
² TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 75,125.00	
Incremental Measure Costs (Equipment Costs)	\$ 3,292,554.00	
Total TRC costs:	\$ 3,367,679.00	
Net TRC (in year CDN \$):	\$ 489,215.00	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 1.15	

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

Conservation Programs:

Demand savings (kW):	Summer	1,159.88	
	Winter		
	lifecycle	in year	
Energy saved (kWh):	47,011,035.00	11,989,987	
Other resources saved :			
Natural Gas (m3):			
Other (specify):			

Demand Management Programs:

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

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):

Energy generated (kWh):

Peak energy generated (kWh):

Fuel type:

Other Programs (specify):

Metric (specify):

--	--

D. Actual Program Costs:

		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>	\$ -	\$ -
	<i>Incremental O&M:</i>	\$ 75,125.00	\$ 705,536.00
	<i>Incentive:</i>	\$ 351,387.00	\$ 678,758.00
	<i>Total:</i>	\$ 426,512.00	\$ 1,384,294.00
<i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>	\$ -	\$ -
	<i>Incremental O&M:</i>	\$ -	\$ -
	<i>Total:</i>	\$ -	\$ -

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

A. **Name of the Program:** C, I and I Load Control Initiative

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

Load control uses a real time communications link to enable or disable customer loads at the discretion of the utility. These controls are usually engaged during system peak periods or when required to relieve pressure on the system grid.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Do Nothing		
Efficient technology:	Demand Response		
Number of participants or units delivered for reporting year:	1		
Measure life (years):	3		
Number of Participants or units delivered life to date	1		

B. TRC Results:	Reporting Year	TRC Results:
¹ TRC Benefits (\$):	\$ 111,426.00	
² TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 270,633.00	
Incremental Measure Costs (Equipment Costs)	\$ -	
Total TRC costs:	\$ 270,633.00	
Net TRC (in year CDN \$):	-\$ 159,207.00	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	0.41	

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

Conservation Programs:

Demand savings (kW):	Summer	707.82	
	Winter	0	
	lifecycle	in year	
Energy saved (kWh):	2,967.33	2,967.33	
Other resources saved :			
Natural Gas (m3):			
Other (specify):			

Demand Management Programs:

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

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):

Energy generated (kWh):

Peak energy generated (kWh):

Fuel type:

Other Programs (specify):

Metric (specify):

--	--

D. Actual Program Costs:

		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
Utility direct costs (\$):	Incremental capital:	\$ -	\$ -
	Incremental O&M:	\$ 270,633.00	\$ 272,548.00
	Incentive:	\$ -	\$ -
	Total:	\$ 270,633.00	\$ 272,548.00
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 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 (\$)
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 - Residential	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
<i>Residential Indirect Costs not attributable to any specific program</i>	→							
Total Residential TRC Costs		\$ -						
**Totals TRC - Residential	\$ -	\$ -	\$ -	0.00				

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>Leveraging Energy Conservation and Load Management</i>	\$ 3,856,894	\$ 3,367,679	\$ 489,215	1.15	11,989,987	47,011,035	1,160	\$ 426,512
<i>Load Control</i>	\$ 111,426	\$ 270,633	-\$ 159,207	0.41	2,967	2,967	708	\$ 270,633
<i>LED Traffic Lights</i>	\$ 186,956	\$ 168,474	\$ 18,482	1.11	176,795	4,066,285	0	\$ 227,420
<i>Load Displacement</i>			\$ -	0.00				\$ 456,869
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	\$ 4,155,276	\$ 3,806,786	\$ 348,490	1.09	12,169,749	51,080,287	1,868	\$ 1,381,434
<i>Commercial Indirect Costs not attributable to any specific program</i>	→							
Total TRC Costs		\$ 3,806,786						
**Totals TRC - Commercial	\$ 4,155,276	\$ 3,806,786	\$ 348,490	1.09				

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 (\$)
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 - Institutional	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
<i>Institutional Indirect Costs not attributable to any specific program</i>								
Total TRC Costs		\$ -						
**Totals TRC - Institutional	\$ -	\$ -	\$ -	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 (\$)
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	\$ -
<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 (\$)
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	\$ -	\$ -	\$ -	0.00	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 (\$)
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	\$ -
<i>LDC System Indirect Costs not attributable to any specific program</i>								
Total TRC Costs		\$ -						
**Totals TRC - LDC System	\$ -	\$ -	\$ -	0.00				

7. Smart Meters Program

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


8. Other #1 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 (\$)
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	0	\$ -
<i>Other #1 Indirect Costs not attributable to any specific program</i>								
Total TRC Costs		\$ -						
**Totals TRC - Other #1	\$ -	\$ -	\$ -	0.00				

9. Other #2 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 (\$)
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	\$ -
<i>Other #2 Indirect Costs not attributable to any specific program</i>								
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	\$ 4,155,276	\$ 3,806,786	\$ 348,490	1.09	\$ 12,169,749	\$ 51,080,287	\$ 1,868	\$ 1,381,434
Any <u>other</u> Indirect Costs not attributable to any specific program								
TOTAL ALL LDC COSTS		\$ 3,806,786						
**LDC' PORTFOLIO TRC	\$ 4,155,276	\$ 3,806,786	\$ 348,490	1.09				

* 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

	⁵ Cumulative Totals Life-to-date	Residential	⁶ Low Income	Commercial	Institutional	Industrial	Agricultural	LDC System	⁴ Smart Meters	⁸ Other #1	Other #2
<i>Net TRC value (\$):</i>	\$17,142,933	\$ 17,999,956	\$305,292	\$ (5,223)	\$ -	\$0	\$0	\$0	\$0	\$ (851,800)	\$0
<i>Benefit to cost ratio:</i>	2.59	5.01	3.15	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Number of participants or units delivered:</i>	849,430	767,436	7,732	81,994	-	-	-	-	-	-	-
<i>Lifecycle (kWh) Savings:</i>	412,786,101	325,792,202	5,870,139	86,993,899	0	0	0	0	0	0	0
<i>Total kWh saved (kWh):</i>	77,922,277	59,467,734	939,857	18,454,543	0	0	0	0	0	0	0
<i>Total peak demand saved (kW):</i>	7,167	4,063	30	3,104	0	0	0	0	0	0	0
<i>Total kWh saved as a percentage of total kWh delivered (%):</i>	0.26%	0.20%	0.00%	0.06%	0%	0%	0%	0%	0%	0%	0%
<i>Peak kW saved as a percentage of LDC peak kW load (%):</i>	0.12%	0.07%	0.00%	0.05%	0%	0%	0%	0%	0%	0%	0%
¹ <i>Gross C&DM expenditures (\$):</i>	\$ 9,378,842	\$ 3,503,886	\$ 44,911	\$ 3,002,495	\$ -	\$ -	\$ -	\$ 1,221,515	\$ 1,208,336	\$ 442,610	\$ -
² <i>Expenditures per kWh saved (\$/kWh):</i>	\$ 0.12	\$ 0.06	\$ 0.05	\$ 0.16	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
³ <i>Expenditures per kW saved (\$/kW):</i>	\$ 1,309	\$ 862	\$ 1,495	\$ 967	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

	2005	2006	2007	2008	Total	
<i>Utility discount rate (%):</i>	6.58%	5.60%	5.61%	6.55%		
	2005	2006	2007	2008		
	Total kWh delivered:	7,663,197,036	7,466,330,420	7,547,945,425	7,561,763,317	30,239,236,198
	Peak kW load:	1,464,855	1,495,303	1,425,095	1,355,421	5,740,674

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.

⁷ Includes updated TRC results using updated TRC assumptions as prescribed in Toronto Hydro EB-2007-0096.

⁸ Includes 2005 Portfolio Administration

NOTE:

Hydro Ottawa's approved 3rd tranche expenditure was \$9,279k. The additional expenditure of \$99,842 was not funded by rates.