

**2006 Annual Report**  
**CDM Third Tranche Funding**  
*Niagara-on-the-Lake Hydro Inc.*

Submitted By: Niagara-on-the-Lake Hydro Inc.

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# Table of Contents

1.0 Introduction	Page 3
2.0 Evaluation of Plan	Page 4
3.0 Discussion of Programs	Page 5
4.0 Lessons Learned	Page 10
5.0 Conclusion	Page 11

## 1.0 Introduction

Niagara-on-the-Lake Hydro Inc. distributes electricity to approximately 8000 customers within the municipal boundaries of the Town of Niagara-on-the-Lake. We have a mix of urban and rural customers within our 132 square kilometers of operating area. Apart from the “Old Town”, the urban customer base is primarily concentrated in four hamlets, namely, Virgil, St. Davids, Queenston and Glendale, while the rural customer base are primarily agricultural based amongst orchards and vineyards.

Recognizing the critically short supply of electricity in Ontario during peak periods, our goal is ultimately the development of a sustainable conservation culture with our customers. In order to achieve this goal more effectively we chose a regional approach to program development to derive economies of scales but to also create consistent regional information to the customers across 11 LDC's, known as NEPA (Niagara Erie Power Alliance).

The NEPA group has long be known in the Industry as a leader in facilitating regional understanding of regulatory changes, public safety messaging, co-ordination of training and now conservation and demand management.

Our Conservation and Demand Management (CDM) plan was prepared as a NEPA initiative. Together we represented 525,000 customers and a total of \$5.5 million dollars of CDM funding. Our primary goal is to leverage common solutions and deliverables to maximize results when ever feasible.

During 2006, we continued with foundation of projects established in 2005 while partnering with the OPA on the spring “Every Kilowatt Counts” campaigns. The campaign resulted in a reduction of 29,803 kWh annually and 157,035 kWh life time. NOTL Hydro also exceeded targets for the refrigerator retirement programme by 42 units resulting in an additional reduction of 10.7 kW and 50,760 kWh annually (228,528 kWh life time). These two programmes were also not included in the attached TRC report since we had no additional costs. High on the list was securing a customer communication branding to begin changing and building awareness for the long term. In 2007 our customers will benefit from further localized programming as well as our support and delivery of OPA summer programmes.

The following table shows the approved plan expenditures by project as well as actual expenditures to December 31, 2006.

<b>Project</b>	<b>Target Customers</b>	<b>Approved Expenditures</b>	<b>Actual Expenditure to Dec. 31, 2006</b>
Co-branded Mass Market Program	LDC Program aimed to benefit all customers	\$20,000	\$12,881.49
Smart Metering/Prepaid Metering Program	Residential and Small Commercial	\$20,000	\$15,285.22
Energy Audit/Feasibility Audits	All Customer Classes	\$10,000	\$88.89
LED Traffic Light Retrofits	Municipalities	\$10,000	\$14,807.89
Load Management/Load Control Programs	Residential & Small Commercial	\$10,000	\$14,417.02
Distribution Loss Reduction	All Customer Classes	\$128,440	\$134,725.80
<b>Project and Budget Totals</b>		<b>\$198,440.00</b>	<b>\$192,206.31</b>

## 2.0 Evaluation of the CDM Plan

Niagara-on-the-Lake Hydro Inc. has, or is in the process of implementing CDM projects that will effectively reduce demand by 175 kW kWh and total project savings over the lifespan of the technology of 7,994,804 kWh. In addition, the Every Kilowatt Count (spring) and refrigerator retirement programmes resulted in additional reductions of kWh and kW not reported as part of this main report.

Appendix A depicts our overall CDM portfolio summarizing both programs with qualitative and quantitative results. Our overall TRC value over two years is calculated at \$221,864 while we have spent \$192,206.31.

Some programs are not designed to have specific quantifiable energy savings but are nevertheless effective and important in our view. Examples of this second category of program include:

- Educational components like the “Conserver Family” information
- Active participation in the implementation study of smart meters for low volume customers in Ontario (completed in 2006)
- CDM website improvements and Conserver Joe development and legal registration costs

## 3.0 Discussion of the Programs

Below is a brief summary of our specific CDM activities completed and/or started in 2005. Appendix B included details on programs with TRC values listed below.

### Projects

<b>Co-branded Mass Market Program</b>
1) <b>Conserver Joe Family Educational Program Registration</b> 2) <b>Every Kilowatt Counts (spring/fall) – No costs to report</b>
Net TRC Benefit -\$851.91

#### **Every kilowatt Counts**

In conjunction with other NEPA members and LDC’s across the province, we participated in an OPA coupon campaign that offered customers the opportunity to purchase energy efficient products. We provided support and promotion but claim no costs.

## Conservation Joe Family Educational Program

In partnership with the NEPA group, we developed a diversified customer education package referred to as our media kit. The media kit is built around Conservation Joe and his family. The 2005 development of a kit was designed around the concept of a family approach. Each family member brings their own special touch to encouraging and sharing conservation. In 2006, the NEPA group registered the Program to ensure that its use was controlled to ensure the message remained focused.



We know that changing consumer habits to sustain ongoing support and belief in conservation would take the resources of the working folks, as well as the push and enthusiasm of our youth. The media kit was developed with the knowledge that the product could be further expanded including; for example, interactive youth website, school educational programs, updates on new technology and specific programming messaging.

To assist in local use of the Conservation Family, Product Use guidelines have been developed to keep our Conservation Family used in a consistent manner.

Conservation Joe and his family will be making appearances in various media as follows.

- **Conservation Handbook** – advises residential customers how to seasonally tune up their home to optimize energy use.
- **Newsletter** – a tabloid designed to share the success stories across LDCs utilizing the Conservation Joe.
- **Bill Inserts** – Initially 10 bill inserts have been developed each sharing a single conservation message. All four family members share a tips on saving energy.
- **Website** – [www.conserverjoe.com](http://www.conserverjoe.com) – the website was developed to create a consistent message and branding. All NEPPA participants are able to use the website links.
- **Print Ads** – a selection of print ads have been developed for easy and quick circulation.

<b>LED Light Retrofits</b>
1) Customer Christmas Light Conversion to LED
Net TRC Benefit \$13,800.00

**Customer Trade In for LED Christmas Lights**

This project involved customers trading in old inefficient incandescent strings of lights for efficient LED lights. Customers picked up 700 strings of lights while trading in 948 old strings. This project produced a NPV TRC result of \$13,800 and was appreciated by all customers.

**Regional Municipality of Niagara Traffic Light Conversions to LED (2007)**

This program is not included in the submission but will be completed in 2007. The traffic signals at three locations in Niagara-on-the-Lake will be converted to energy efficient LED's with a subsidy provided by NOTL Hydro Inc. as part of our plan.

<b>Smart Meter Program</b>
1) OUSM Working Group Participation (Completed 2006)
Net TRC Value - Qualitative

**OUSM Working Group Participation**

NOTL Hydro was an active member of the Ontario Utility Smart Meter (OUSM) Working Group. This working group has made tremendous strides in advancing the implementation of Smart Meters, widely seen as a tool for customers to shift their electrical consumption from peak usage times. We are much more confident that the 'smart meter' system that we will ultimately choose for our customers will be the most effective tool as a result of our participation in this program. A regional or NEPA smart meter network is our preferred option. Costs reported are for membership fees in the OUSM in 2006. The program is now complete.

## **Distribution Loss Reduction (Phase 2)**

### **1) Reconductoring and Conversion Project**

Net TRC Benefit \$134,700

### **Reconductoring and Conversion Project**

In 2005, NOTL Hydro purchased a software package recognized as an industry leader in evaluation distribution system losses and optimization. Prior to this purchase, we did not have the ability to determine high loss feeders or more efficient means of supply configurations. As a result, we embarked on a two year plan to oversize existing lower amperage conductors as well as convert existing 4 kV customers to lower loss 3-phase 27.6 kV. The work was completed in late 2006, with positive TRC results of \$134,700. This program will benefit all customer classes as the line loss factor on their bill is expected to be reduced as system losses are reduced.

## **Load Management Programs (In Progress)**

### **1) CDM Website Improvements**

### **2) Refrigerator Retirement Programme**

Net TRC Benefits \$54,686

### **CDM Website Improvements**

A number of improvements to our website were completed in 2006 adding fresh ideas to the content.

### **Refrigerator Retirement Programme**

NOTL Hydro participated in a pilot project to encourage customers to purchase new Energy Star efficient fridges and chest freezers through free pick up and disposal of the old units. Coupons for free CFL lights and indoor timers were also provided as an incentive. NOTL residents disposed of 122 fridges in total although NOTL Hydro's participation was capped at 80 units. The combination of the more efficient appliances combined with CFL lights and timers results in a reduction of demand by 33 kW and lifetime kWh of 998,028.

## **4.0 Lessons Learned**

### **Smaller LDC Challenges**

Niagara-on-the-Lake Hydro Inc. is a smaller LDC with only 17 employees. We found it most difficult to put forth a concerted effort to implement efficient C&DM programs while minimizing costs by not employing high-priced consultants. As a result, a great

deal of extra staff time was spent on program setup, implementation and training. We are proud of our achievements despite the ‘stressed’ situation.

### **Distribution System Loss Improvements**

With our loss evaluation and system optimization software tool, we now have the opportunity to fine tune our system losses. The benefits of reduced system losses are great as system losses are at their maximum levels during peak load periods. It is the objective of our company to continue to reduce these losses and reduce the loss factor on all of our customer bills. We also plan to run the model on future capital projects to identify potential system improvements, such as over sizing conductors that will have a clear future TRC benefit.

### **LED Conversion Projects and Coupon Campaign**

Our Christmas Light Trade In for LED lights was very popular and successful. Customers were required to hand in at least one string of incandescent lights for a string of energy efficient LED lights. We were pleased to give away 700 strings in exchange for 948. In 2007, we will be providing partial funding for the Niagara Regional Traffic Department to convert 3 intersections of incandescent traffic signals to LED in what promises to produce a large TRC benefit.

### **NEPA Participation**

The NEPA C&DM group joint efforts in initiating our C&DM plans and individual projects proved to be invaluable. The group effort was instrumental in addressing a number of concerns related to lack of additional human resources at a smaller LDC discussed above. NEPA participation also allowed us to send out a common and consistent ‘conservation culture’ message across the regions of Niagara and Erie-Grand at reduced costs due to greater economies of scale. We look forward to continued involvement in the NEPA C&DM working group.

## **5.0 Conclusion**

In 2006, we continued to promote a ‘conservation culture’ primarily through our NEPA ‘Conserver Joe’ website. We delivered a number of very effective conservation projects substantiated by very positive TRC numbers. Our line loss improvements will benefit all of our customers through a lower loss factor application on electric bills. As a good corporate citizen, we intend to continue with line loss reduction plans to lower system losses to the benefit of our customers and the provincial conservation campaign. Although our third tranche funding is close to completion, we look forward to participating in the OPA’s summer programs. We have been pleased to deliver CDM programmes to our customers.

## 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.

	<sup>5</sup> Cumulative Totals Life-to-date	Total for 2006	Residential	Commercial	Institutional	Industrial	Agricultural	LDC System	<sup>4</sup> Smart Meters	Other #1	Other #2
<i>Net TRC value (\$):</i>	\$ 221,864.00	\$ 121,677	\$ 68,134	\$ -	\$ -	\$ -	\$ -	\$ 55,384		\$ (1,841)	\$ -
<i>Benefit to cost ratio:</i>	12.33	2.46	35.65	0.00	0.00	0.00	0.00	1.70		0.00	0.00
<i>Number of participants or units delivered:</i>	10153	1283	1283	1	1	1	1	1		1	1
<i>Lifecycle (kWh) Savings:</i>	7,994,804	6,254,256	1,146,341	0	0	0	0	5,107,915		0	0
<i>Report Year Total kWh saved (kWh):</i>		348,725	144,408	0	0	0	0	204,317		0	0
<i>Total peak demand saved (kW):</i>	175	60	27	0	0	0	0	32		0	0
<i>Total kWh saved as a percentage of total kWh delivered (%):</i>	0.3113%	0.201%	0.083%	0.000%	0.000%	0.000%	0.000%	0.118%		0.000%	0.000%
<i>Peak kW saved as a percentage of LDC peak kW load (%):</i>		0.136%	0.062%	0.000%	0.000%	0.000%	0.000%	0.074%		0.000%	0.000%
<sup>1</sup> <i>Report Year Gross C&amp;DM expenditures (\$):</i>	92473	\$ 83,358	\$ 1,966	\$ -	\$ -	\$ -	\$ -	\$ 73,030	\$ 6,521	\$ 1,841	\$ -
<sup>2</sup> <i>Expenditures per kWh saved (\$/kWh):</i>	0.0005331	\$ 0.01	\$ 0.00	\$ -	\$ -	\$ -	\$ -	\$ 0.01		\$ -	\$ -
<sup>3</sup> <i>Expenditures per kW saved (\$/kW):</i>	2.109185	\$ 1,399.09	\$ 72.57	\$ -	\$ -	\$ -	\$ -	\$ 2,247.77		\$ -	\$ -
<i>Utility discount rate (%):</i>	7.8										

<sup>1</sup> Expenditures are reported on accrual basis.

<sup>2</sup> Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate energy savings.

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

<sup>4</sup> 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.

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

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. Name of the Program: LED Christmas Light Exchange

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

NOTL Hydro customers were able to exchange old incandescent strings of christmas lights for a string of LED lights.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	5 W Incandescent Lights		
Efficient technology:	LED Christmas Lights		
Number of participants or units delivered for reporting year:	700		
Measure life (years):	30		
Number of Participants or units delivered life to date	700		

B. TRC Results:	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ 13,800.00	
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 1,251.99	
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:	\$ 1,251.99	
Net TRC (in year CDN \$):	\$ 12,548.01	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 11.02	

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

**Conservation Programs:**

Demand savings (kW):	Summer	0		
	Winter	5		

	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):	376193	12540		
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):		
Energy savings (kWh):	lifecycle	in year

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

Metric (specify):		
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D. Actual Program Costs:		Reporting Year	Cumulative Life to Date
Utility direct costs (\$):	Incremental capital:		
	Incremental O&M:	\$ 1,251.99	
	Incentive:	\$ 4,440.92	
	Total:	\$ 5,692.91	
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

E. Assumptions & Comments:



**Customers traded in 948 strings of incandescent Christmas Lights**

<sup>1</sup> 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.

<sup>2</sup> 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.

1		5	3,762		2,508		6,270	12,540
2		5	3,762		2,508		6,270	
3		5	3,762		2,508		6,270	
4		5	3,762		2,508		6,270	
5		5	3,762		2,508		6,270	
6		5	3,762		2,508		6,270	
7		5	3,762		2,508		6,270	
8		5	3,762		2,508		6,270	
9		5	3,762		2,508		6,270	
10		5	3,762		2,508		6,270	
11		5	3,762		2,508		6,270	
12		5	3,762		2,508		6,270	
13		5	3,762		2,508		6,270	
14		5	3,762		2,508		6,270	
15		5	3,762		2,508		6,270	
16		5	3,762		2,508		6,270	
17		5	3,762		2,508		6,270	
18		5	3,762		2,508		6,270	
19		5	3,762		2,508		6,270	
20		5	3,762		2,508		6,270	
21		5	3,762		2,508		6,270	
22		5	3,762		2,508		6,270	
23		5	3,762		2,508		6,270	
24		5	3,762		2,508		6,270	
25		5	3,762		2,508		6,270	
26		5	3,762		2,508		6,270	
27		5	3,762		2,508		6,270	
28		5	3,762		2,508		6,270	
29		5	3,762		2,508		6,270	
30		5	3,762		2,508		6,270	
			112,858		75,239		188,097	376,193

376,193

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. Name of the Program: Refrigerator/Freezer Retirement

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

Refrigerator and Freezer Retirement Pilot Project - (Includes Freezers and Fridges Only in this Appx)

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Inefficient Fridges/Freezers	Incandescent Lights	No Timers
Efficient technology:	Efficient Fridges/Freezers	CFL's	Timers
Number of participants or units delivered for reporting year:	80	450	53
Measure life (years):	6	4	20
Number of Participants or units delivered life to date	80	450	53

B. TRC Results:	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ 56,300.00	
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 714.31	
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:	\$ -	
<b>Net TRC (in year CDN \$):</b>	<b>\$ 55,585.69</b>	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 78.82	

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

**Conservation Programs:**

Demand savings (kW):	Summer	22.09		
	Winter	21.95		

	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):	770,148	131,868		
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):			
Energy savings (kWh):			

**Distributed Generation and Load Displacement Programs:**

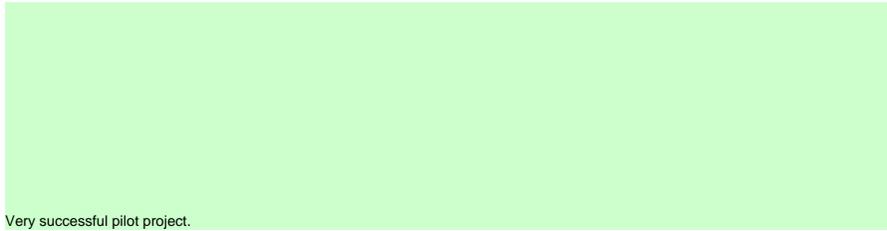
Amount of DG installed (kW):			
Energy generated (kWh):			
Peak energy generated (kWh):			
Fuel type:			

**Other Programs (specify):**

Metric (specify):			
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D. Actual Program Costs:		Reporting Year	Cumulative Life to Date
Utility direct costs (\$):	Incremental capital:		
	Incremental O&M:	\$ 714.31	
	Incentive:	\$ 11,300.00	
	Total:	\$ 12,014.31	
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

E. Assumptions & Comments:



**Very successful pilot project.**

<sup>1</sup> 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.

<sup>2</sup> 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.

1		9	6,269			3,135			8,238		-	-			4,757			5,650			7,071		7,162	42,282
2		9	6,269			3,135			8,238		-	-			4,757			5,650			7,071		7,162	
3		9	6,269			3,135			8,238		-	-			4,757			5,650			7,071		7,162	
4		9	6,269			3,135			8,238		-	-			4,757			5,650			7,071		7,162	
			25,078			12,539			32,951						19,027			22,599			28,285		28,650	169,128

1		20	5,845		6,680		15,670	19	5,068		7,602		15,758		12,670		15,758	85,050
2		20	5,845		6,680		15,670	19	5,068		7,602		15,758		12,670		15,758	
3		20	5,845		6,680		15,670	19	5,068		7,602		15,758		12,670		15,758	
4		20	5,845		6,680		15,670	19	5,068		7,602		15,758		12,670		15,758	
5		20	5,845		6,680		15,670	19	5,068		7,602		15,758		12,670		15,758	
6		20	5,845		6,680		15,670	19	5,068		7,602		15,758		12,670		15,758	
			35,069		40,078		94,021		30,408		45,612		94,545		76,021		94,545	510,300

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. Name of the Program: Smart Meter Implementation

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

Participation Fee in Ontario Utility Smart Meter Working Group

**Measure(s):**

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

B. TRC Results:	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ -	\$ -
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 6,520.86	\$ 15,285.22
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:	\$ 6,520.86	\$ 15,285.22
Net TRC (in year CDN \$):	-\$ 6,520.86	-\$ 15,285.22
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		

0

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

**Conservation Programs:**

Demand savings (kW):	Summer	Winter	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):	lifecycle	in year		
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):		
Energy savings (kWh):	lifecycle	in year

**Distributed Generation and Load Displacement Programs:**

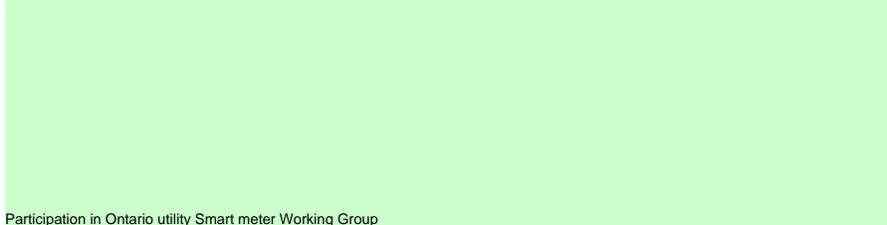
Amount of DG installed (kW):		
Energy generated (kWh):		
Peak energy generated (kWh):		
Fuel type:		

**Other Programs (specify):**

Metric (specify):		
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D. Actual Program Costs:		Reporting Year	Cumulative Life to Date
Utility direct costs (\$):	Incremental capital:		
	Incremental O&M:	\$ 6,520.86	\$ 15,285.22
	Incentive:		
	Total:	\$ 6,520.86	\$ 15,285.22
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

E. Assumptions & Comments:



**Participation in Ontario utility Smart meter Working Group**

<sup>1</sup> 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.

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

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** Line Loss Improvement (Phase 2)

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

Reconductor with 556 al and convert line to 27.6kV along Queenston Rd (Phase 2 of Project)

Measure(s):	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	smaller conductor		
Efficient technology:	larger conductor, higher voltage		
Number of participants or units delivered for reporting year:	1		
Measure life (years):	25		
Number of Participants or units delivered life to date	2		

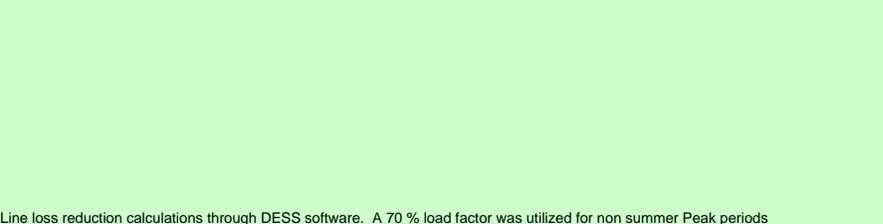
B. <b>TRC Results:</b>	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ 134,700.00	\$ 148,300.00
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 79,316.00	\$ 134,725.80
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:	\$ 79,316.00	\$ 134,725.80
<b>Net TRC (in year CDN \$):</b>	<b>\$ 55,384.00</b>	<b>\$ 13,574.20</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>2.43</b>	<b>1.10</b>

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

<b>Conservation Programs:</b>					
Demand savings (kW):		Summer			
		Winter			
	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings	
Energy saved (kWh):					
Other resources saved :					
Natural Gas (m3):					
Other (specify):					
<b>Demand Management Programs:</b>					
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):					
<b>Demand Response Programs:</b>					
Dispatchable load (kW):					
Peak hours dispatched in year (hours):					
<b>Power Factor Correction Programs:</b>					
Amount of KVar installed (KVar):					
Distribution system power factor at beginning of year (%):					
Distribution system power factor at end of year (%):					
<b>Line Loss Reduction Programs:</b>					
Peak load savings (kW):		32.49		21.34	
Energy savings (kWh):	lifecycle	in year			
	5107915	204317		10025	
<b>Distributed Generation and Load Displacement Programs:</b>					
Amount of DG installed (kW):					
Energy generated (kWh):					
Peak energy generated (kWh):					
Fuel type:					
<b>Other Programs (specify):</b>					
Metric (specify):					

D. <b>Actual Program Costs:</b>	Reporting Year	Cumulative Life to Date
Utility direct costs (\$):		
Incremental capital:	\$ 79,316.00	\$ 134,725.80
Incremental O&M:		
Incentive:		
Total:	\$ 79,316.00	\$ 134,725.80
Utility indirect costs (\$):		
Incremental capital:		
Incremental O&M:		
Total:		

E. **Assumptions & Comments:**



Line loss reduction calculations through DESS software. A 70 % load factor was utilized for non summer Peak periods

- <sup>1</sup> 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.
- <sup>2</sup> For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.



# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. Name of the Program: CDM Website Improvements

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

Improvements to CDM website content

Measure(s):

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

B. **TRC Results:** **Reporting Year**      **Life-to-date TRC Results:**

<sup>1</sup> TRC Benefits (\$):	\$	-	
<sup>2</sup> TRC Costs (\$):			
Utility program cost (excluding incentives):	\$	900.00	
Incremental Measure Costs (Equipment Costs)			
Total TRC costs:	\$	900.00	
<b>Net TRC (in year CDN \$):</b>	<b>-\$</b>	<b>900.00</b>	

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

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

**Conservation Programs:**

Demand savings (kW):	Summer		
	Winter		

	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):				
Other resources saved :				

Natural Gas (m3):				
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):			
Energy savings (kWh):	lifecycle	in year	

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

Metric (specify):			
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D. **Actual Program Costs:** **Reporting Year**      **Cumulative Life to Date**

Utility direct costs (\$):	Incremental capital:		
	Incremental O&M:	\$	900.00
	Incentive:		
	Total:	\$	900.00

Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

E. **Assumptions & Comments:**

**Add to Conserver Joe Website content**

- <sup>1</sup> 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.
- <sup>2</sup> For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. Name of the Program: Consver Joe Legal Registration

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

Share of NEPA legal cost to register Consver Joe Branding

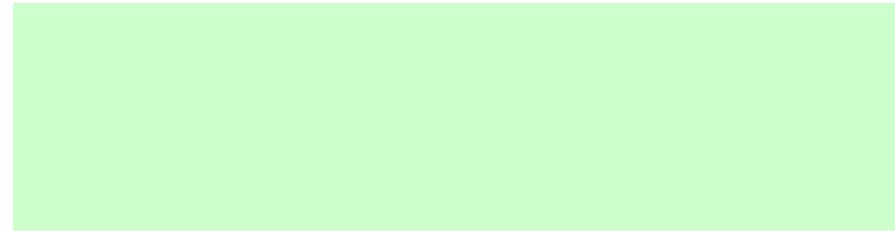
Measure(s):	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	no Branding		
Efficient technology:	legal Branding		
Number of participants or units delivered for reporting year:	1		
Measure life (years):			
Number of Participants or units delivered life to date	1		

B. TRC Results:	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ -	
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 851.91	
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:	\$ 851.91	
<u>Net TRC (in year CDN \$):</u>	<u>-\$ 851.91</u>	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		

C. Results: (one or more category may apply)	Cumulative Results:			
<b>Conservation Programs:</b>				
Demand savings (kW):	Summer			
	Winter			
	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):				
Other resources saved :				
Natural Gas (m3):				
Other (specify):				
<b>Demand Management Programs:</b>				
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):				
<b>Demand Response Programs:</b>				
Dispatchable load (kW):				
Peak hours dispatched in year (hours):				
<b>Power Factor Correction Programs:</b>				
Amount of KVar installed (KVar):				
Distribution system power factor at beginning of year (%):				
Distribution system power factor at end of year (%):				
<b>Line Loss Reduction Programs:</b>				
Peak load savings (kW):				
	lifecycle	in year		
Energy savings (kWh):				
<b>Distributed Generation and Load Displacement Programs:</b>				
Amount of DG installed (kW):				
Energy generated (kWh):				
Peak energy generated (kWh):				
Fuel type:				
<b>Other Programs (specify):</b>				
Metric (specify):				

D. Actual Program Costs:	Reporting Year	Cumulative Life to Date
Utility direct costs (\$):		
Incremental capital:		
Incremental O&M:	\$ 851.91	
Incentive:		
Total:	\$ 851.91	
Utility indirect costs (\$):		
Incremental capital:		
Incremental O&M:		
Total:		

E. Assumptions & Comments:



<sup>1</sup> 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.

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

# Appendix B - Discussion of the Program

**(complete this Appendix for each program)**

A. **Name of the Program:**

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

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Efficient technology:	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Number of participants or units delivered for reporting year:	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Measure life (years):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Number of Participants or units delivered life to date	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>

<b>B. TRC Results:</b>	<b>Reporting Year</b>	<b>Life-to-date TRC Results:</b>
<sup>1</sup> TRC Benefits (\$):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Incremental Measure Costs (Equipment Costs)	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Total TRC costs:	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
<b>Net TRC (in year CDN \$):</b>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>

<b>C. Results:</b> (one or more category may apply)	<b>Cumulative Results:</b>	
<b>Conservation Programs:</b>		
Demand savings (kW):	Summer	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
	Winter	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
	lifecycle	in year
Energy saved (kWh):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Other resources saved :		
Natural Gas (m3):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Other (specify):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
<b>Demand Management Programs:</b>		
Controlled load (kW)	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Energy shifted On-peak to Mid-peak (kWh):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Energy shifted On-peak to Off-peak (kWh):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Energy shifted Mid-peak to Off-peak (kWh):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
<b>Demand Response Programs:</b>		
Dispatchable load (kW):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Peak hours dispatched in year (hours):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
<b>Power Factor Correction Programs:</b>		
Amount of KVar installed (KVar):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Distribution system power factor at beginning of year (%):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>
Distribution system power factor at end of year (%):	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>	<span style="background-color: #e0ffe0; display: inline-block; width: 100%; height: 15px;"></span>

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
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):		
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<b><u>D. Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	Incremental capital:		
	Incremental O&M:		
	Incentive:		
	Total:		
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Incentive:		
	Total:		

**E. Assumptions & Comments:**

<sup>1</sup> 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.

<sup>2</sup> 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.

## 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	\$ 204,800	\$ 83,123	\$ 121,677	2.46	\$ 348,725	\$ 6,254,256	\$ 60	\$ 83,358
Any <u>other</u> Indirect Costs not attributable to any specific program								
TOTAL ALL LDC COSTS		\$ 83,123						
**LDC' PORTFOLIO TRC	\$ 204,800	\$ 83,123	\$ 121,677	2.46		2006 LDC Peak 43843 kW		2006 LDC kWh 173459000

\* 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.