Waterloo North Hydro Inc.

RP-2004-0203

Conservation and Demand Annual Report

March 2007

1. INTRODUCTION AND BACKGROUND

Waterloo North Hydro Inc. (WNH) is the local electricity distribution company providing electricity distribution services to 49,000 customers in the City of Waterloo, the Township of Wellesley and the Township of Woolwich. Our service territory is 672 square kilometres, consisting mostly of rural areas – 607 square kilometres of rural territory and 65 square kilometers of urban territory. However, only 20% of our customer base is in the rural and small villages outside the City of Waterloo.

In December of 2003, the Minister of Energy indicated the government's intention to permit Local Distribution Companies (LDCs) to apply to the Ontario Energy Board (OEB) for the next installment of their allowable return on equity beginning March 1, 2005. The approval by the OEB for this final installment or third tranche was on the condition that LDCs reinvest an amount equal to one year's incremental returns of their third tranche, in conservation and demand management activities. The Minister of Energy in a letter dated May 31, 2004, granted written approval to all distributors to apply to the Ontario Energy Board for approval to establish a deferral account to record costs incurred with respect to conservation and demand management activities.

The Minister's letter indicated that LDCs should pursue a broad range of programs that support the more efficient use of electricity in Ontario, including those that were discontinued on the opening of the electricity market, to reduce customers' overall energy demand and/or demand for purchased energy.

The letter also indicated that reasonable expenditures on the planning, delivery and evaluation of any of the following measures should be supported by the Ontario Energy Board:

- energy efficiency;
- behavioural and operational changes, including the application of benchmarking or "smart" control systems;
- load management measures which facilitate interruptible and dispatchable loads, dual fuel applications, thermal storage, and demand response; measures to encourage fuel switching which reduces the total system energy for a given end-use;

- programs and initiatives targeted to low income and other hard to reach consumers; and
- distributed energy options behind a customer's meter such as tri-generation, co-generation, ground source heat pumps, solar, wind, and biomass systems.

On October 5, 2004 the Board issued a procedural order (RP-2004-0203) setting out the process for how distributors may apply for approval of a Conservation and Demand Management Plan, and stipulating the filing requirements for a distributor's plan. Distributors were given the option of applying for interim or final approval of their plan.

This section outlines the programs proposed as Waterloo North Hydro's conservation and demand management program in response to the Minister's Directive and the Procedural Order from the OEB.

OUR APPROACH

Prior to the opening of the electricity market, Waterloo North Hydro had an Energy Services Group that provided advice to customers on energy conservation and demand side management. Under restructuring for the electricity market, this function was discontinued. Our water heaters were sold to an energy services company; some of our staff with expertise in this area retired and some were deployed elsewhere in the company.

Our approach to responding to the Minister's directive has been to draw on the internal expertise, some outside expertise, discussion of programs with other utilities and information from various websites and sources listed by groups such as The Canadian Energy Efficiency Alliance. We have borrowed ideas from the experiences of B.C. Hydro, Manitoba Hydro and a few energy efficiency and geothermal websites in the United States.

We have put together a number of programs to touch on several customer sectors and address several of the objectives from the Minister's letter.

We found that programs involving outside agencies required quite an amount of work to lay the foundation for moving forward. As such, after we received approval for our CDM plans in March, 2005, the remainder of 2005 was a planning year for Waterloo North Hydro and many of the programs were implemented beginning in 2006.

CONSERVATION AND DEMAND MANAGEMENT PROGRAMS

1. Residential Energy Efficiency Project:

The Residential Energy Efficiency Project (REEP) is a non-profit initiative of the Faculty of Environmental Studies at the University of Waterloo and the Elora Centre for Environmental Excellence. Evaluators are trained and certified in accordance to Natural Resources Canada standards. R.E.E.P. uses the *Energuide for Houses* system to conduct a comprehensive assessment of a home's energy efficiency and provide recommendations for improvement.

The audit involves examining the windows and doors, attic and wall insulation, foundation, and heating/ventilation system, as well as executing a scientific air leakage test.

This program is aimed at raising consumer awareness of the benefits of energy efficiency, such as energy-cost savings, improved home comfort and indoor air quality. It will also identify and prioritize energy efficiency upgrades, providing consumers the facts needed to make informed decisions about their home energy use. The program leverages an existing program that is well established in the area.

In REEP's report to WNH it was stated, "By supporting REEP, WNH is demonstrating a clear commitment to energy conservation and promoting a healthy environment in Waterloo Region."

CDM Funds Committed:	**$78,680**
CDM Funds Spent to December 31, 2006:	**$78,680**
Initiative Status at December 31, 2006:	**Completed**
Measurable Results Available:	**No**
Comments:	**WNH considers the REEP program to be educational in nature and has reported its costs as Program Costs in Appendix B.** **In addition to kWh Savings, it has been reported that WNH customers have also reduced 385 tonnes of CO_2 emissions in 2006.**
Anticipated Completion Date:	**Completed**

2. Energy Efficient Traffic Lights and Street Lighting

The Region of Waterloo provides traffic lights at all signalized intersections throughout the Regional Municipality of Waterloo. New traffic light installations use LED lights to illuminate the vehicle and pedestrian signals, while older installations use incandescent light bulbs. The LED lights use significantly less electricity than incandescent bulbs and the LED lights last six to ten times longer. However, the LED lamps are substantially more expensive and can range up to $150 per LED lamp compared to $2 per incandescent bulb.

Waterloo North Hydro, along with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro, propose to partially fund the replacement of incandescent bulbs with LED bulbs in the traffic lights throughout the Region.

This program will result in significant energy savings as the LED lights use 80 to 90% less electricity. It will also reduce maintenance costs as the LED bulbs last longer and are more visible.

CDM Funds Committed:	**$100,000**
CDM Funds Spent to December 31, 2006:	**NIL**
Initiative Status at December 31, 2006:	**Installations in progress with Region of Waterloo**
Measurable Results Available:	**No**
Comments:	**The Regional Municipality of Waterloo will complete this project in 2007.**
Anticipated Completion Date:	**2007**

2. Energy Efficient Traffic Lights and Street Lighting - continued

Several years ago, Waterloo North Hydro worked with the municipalities in our service area to replace old street lighting with energy efficient high-pressure sodium (HPS) streetlights. A number of streetlights were not replaced at the time in the rural areas and some villages of the townships in the service area. Waterloo North Hydro proposes to work with the municipalities to fund the replacement of these old street light fixtures with newer, energy efficient HPS streetlights.

This program will result in energy savings, as the HPS streetlights are more efficient. This program will also reduce maintenance costs.

CDM Funds Committed:	**$50,000**
CDM Funds Spent to December 31, 2006:	**$25,491**
Initiative Status at December 31, 2006:	**Started**
Measurable Results Available:	**Yes**
Comments:	**WNH has completed approximately 50% of the installation of streetlights and will complete the balance in 2007. Installations in 2006 resulted in approximately 6.6 million lifecycle kWh savings.**
Anticipated Completion Date:	**2007**

3. Loss Reduction on the Distribution System

Waterloo North Hydro has installed technologies that will reduce losses on the distribution system. These technologies will include the deployment of capacitor banks, voltage conversion programs and upgrading of old transformers to newer low loss transformers.

All of these programs are aimed at energy efficiency of the distribution system, will help to reduce distribution system losses and will reduce the system demand. This in turn will help relieve growth strains on transmission network capacity and demand for generation capacity. These reductions will benefit all customers and will effect permanent changes that are not reliant on sustained changes in customer consumption.

CDM Funds Committed:	**$368,858**
CDM Funds Spent to December 31, 2006:	**$368,858**
Initiative Status at December 31, 2006:	**Completed**
Measurable Results Available:	**Yes**
Comments:	**Capacitor banks were installed in 2006. Installation resulted in approximately 46 million lifecycle kWh savings.**
Anticipated Completion Date:	**Completed**

4. Smart Metering Pilot Project

Waterloo North Hydro has commenced its pilot project for metering replacements for single-phase customers less than 50 kW demand (mostly residential). The pilot will involve approximately 1,500 locations to be retrofitted with Smart Meters. Installation of these smart meters will occur in early 2007. Lessons learned from the pilot project will be applied when WNH commences it full-scale rollout of smart meters in Q3 of 2007.

This project will support the Ministry of Energy commitment to deploy Smart Meters and is a technology that will enable behavioural changes in conservation and demand management. In accordance with OEB Instructions, TRC Benefit Calculations are not to be undertaken for Smart Meters.

CDM Funds Committed:	**$243,391**
CDM Funds Spent to December 31, 2006:	**$ 91,328**
Initiative Status at December 31, 2006:	**Started**
Measurable Results Available:	**No**
Comments:	**Pilot Project to be completed in 2007. WNH to commence a full-scale rollout of smart meter installations in Q3 2007.**
Anticipated Completion Date:	**2007**

5. Geothermal Energy Program

About 5% of Waterloo North Hydro customers are rural customers without access to natural gas for their primary heating source. Approximately 20% of our customers use electricity for the primary fuel source for home heating and hot water heating, and a larger percentage use electricity for home air conditioning.

An alternative source is available in geothermal energy systems for heating and cooling of homes, as well as hot water heating. The technology has been used in commercial buildings and custom homes for many years, and the technology has developed to a point where it is quite feasible to heat and cool all sizes of homes. The hurdle for some homebuilders is that the initial investment of installing a geothermal system costs more than the installation of a traditional furnace. The savings in energy costs however will more than pay for the extra initial costs of the geothermal system.

Waterloo North Hydro believes that finding alternative energy sources is very important for our rural customers and customers on electric heating. The Draft Report on implementing Smart Meters suggests that these customers may see rising heating costs under the proposed RPP under Smart Meters in the future. We also see fuel switching to geothermal systems as a long term and more dependable form of conservation, than programs where we need to rely on customer awareness and self-discipline to conserve energy. Waterloo North Hydro has invested seed money in 2006 into a local initiative that will promote the installation of geothermal systems for residential customers by funding the initial capital costs and then obtain repayment for the capital costs from the energy savings that the customer will be expected to see on their electricity bill.

Waterloo North Hydro will match the funds put into this initiative by a local geothermal energy company to allow the joint venture initiative to obtain support and funding from the financial institutions.

This initiative will encourage fuel switching from electricity as a heating and cooling source. Waterloo North Hydro sees this as a more permanent and sustainable reduction in demand on the electricity energy supply as well as being a form of distributed energy sources. Waterloo would also like to note that other types of fuel savings have occurred as a result of installation of these geothermal systems.

5. Geothermal Energy Program - continued

CDM Funds Committed:	**$250,000**
CDM Funds Spent to December 31, 2006:	**$250,000**
Initiative Status at December 31, 2006:	**Started**
Measurable Results Available:	**Yes**
Comments:	**The Joint Venture Project has resulted in Lifetime Energy Inc. formally launching their marketing and product offering in early 2006. Geothermal Installation Services were actively offered to customers at that time. Sales in 2006 resulted in lifetime cycle kWh savings of approximately 20 million and demand savings of 114 kW.**
Anticipated Completion Date:	**2007**

6. Energy Audits for Industrial, Commercial and Institutional Customers

Waterloo North Hydro (WNH) recognizes that we need to work with our customers to keep them successful in business if we are to retain them as viable successful customers. Energy Audits for Industrial, Commercial and Institutional customers will help these customers to shift load from peak times and to find ways to conserve energy. WNH partnered with a local Energy Audit Services provider to deliver audits to our customers. Waterloo North Hydro will investigate methods to promote to our customers the use of Energy Audits and the implementation of the recommendations from Energy Audits.

This program is aimed at consumer awareness and education at the business and institutional level. It should encourage behavioural and operational changes that will reduce demand and conserve energy. This program will leverage the expertise of a local, established services provider.

CDM Funds Committed:	**$58,071**
CDM Funds Spent to December 31, 2006:	**$58,071**
Initiative Status at December 31, 2006:	**Completed**
Measurable Results Available:	**Yes**
Comments:	**Waterloo North Hydro presented the Cool Shops Program to customers in the Region of Waterloo in 2006. 279 Customers were audited, resulting in over 5,500 energy efficient products installed and approximately 3 million lifecycle kWh savings, 281 kW of demand savings and an annual reduction of CO_2 emissions of 284 tonnes.**
Anticipated Completion Date:	**Completed**

7. Low Income Consumer Retrofit Program

Waterloo North Hydro (WNH) has been a supporter of the Heat Bank in the Region of Waterloo. The Heat Bank is a service in its fourth year of operation, funded by the local hydro companies and administered through the Regional Social Services. The Heat Bank serves as a last source of support to purchase heat and energy for low-income households.

In the 2005 season, Waterloo North Hydro worked with the Regional Social Services to identify and implement energy efficiency programs for Heat Bank recipients. In 2007 WNH will again work with Regional Social Services on new programs for low-income consumers. These programs may include home energy assessments and will look at retrofit programs for such items as occupancy sensor thermostats; lower wattage stove elements, weatherstripping, compact fluorescent light bulbs and efficient showerheads.

This project is aimed at raising awareness of the benefits of energy efficiency and energy-cost savings for low-income consumers. The project will leverage the expertise of an existing program in the area for home audits as well as the knowledge of the Regional Social Services network.

CDM Funds Committed:	**$30,000**
CDM Funds Spent to December 31, 2006:	**$ 3,000**
Initiative Status at December 31, 2006:	**Started**
Measurable Results Available:	**No**
Comments:	**In 2007 WNH will again work with Regional Social Services on new programs for low-income consumers.**
Anticipated Completion Date:	**2007**

8. Energy Conservation Information for Consumers

Waterloo North Hydro has updated its website that has to provide easier access to more information on energy efficiency and links to other conservation related websites.

Waterloo North Hydro has also invested in providing brochures educating and promoting energy efficiency to its customers.

CDM Funds Committed:	**$30,000**
CDM Funds Spent to December 31, 2006:	**$22,361**
Initiative Status at December 31, 2006:	**Started**
Measurable Results Available:	**No**
Comments:	**Loss reductions from CDM activities related to this customer education program do not have quantifiable benefits. As the majority of the funds to date have been spent on brochures, measurable results are difficult to obtain.**
Anticipated Completion Date:	**2007**

2. EVALUATION OF THE CDM PLAN

Evaluation of the applicable plans is attached in Appendices A and C, which provides an overview of the effectiveness of WNH's CDM plan.

3. DISCUSSION OF THE PROGRAMS

Appendix B has been attached for each of the programs, in addition to the details and status of each CDM program in Section 1 of this report.

4. LESSONS LEARNED

Waterloo North Hydro commenced many of its programs in 2006 and will complete the balance of its programs prior to the third tranche spending deadline of September 30, 2007.

Waterloo North Hydro assesses its contribution towards the REEP program as a success, in terms of the social good. As mentioned above, REEP stated, "By supporting REEP, WNH is demonstrating a clear commitment to energy conservation and promoting a healthy environment in Waterloo Region."

WNH assesses its Street Light Replacement Program, whereby it replaces incandescent bulbs with high pressure sodium bulbs, to be valuable. This program has resulted in a Net TRC Benefit of approximately $228,000 and approximately 6.6 million kWh in lifecycle savings. Completion of the project in 2007 may yield similar results.

Installation of its Loss Reduction Program and Capacitor Banks has yielded significant kWh lifecycle savings (approximately 46 million kWh) and a Net TRC Benefit of $1,701,204. Support for switched capacitor banks would result in additional peak demand load reduction and additional energy savings.

WNH's investment of seed monies to a geothermal energy initiative is in its infancy stage of the first year of operation. Installation of geothermal energy systems resulted in not only electricity savings, they also result in savings of other resources. Sales in 2006 resulted in a Net TRC Benefit of $471,209, lifetime kWh savings of approximately 20 million and 114.31 demand savings.

The 279 Industrial, Commercial and Institutional Customers that undertook an educational energy services audit with the 'Cool Shops Program' also availed themselves of 708 free energy efficient products and purchased an additional 4,857 energy efficient products. WNH's customers had the highest uptake on product purchases of all cities that participated in this program. Reasons cited for this success include an excellent Cool Shops staff and greater visibility of WNH in the marketing, communications and media. Surveys were also taken of participating businesses and these lessons learned will be used in future audits.

5. CONCLUSION

Waterloo North Hydro gained valuable experience and knowledge in 2006 to apply in its future administering of its CDM programs.

Waterloo North Hydro has a Net TRC value of $2,612,930 with the execution of its CDM programs in 2006.

WNH will complete its MARR based third tranche programs in 2007 and also participate in the OPA sponsored CDM Initiatives in 2007.

WNH submits that the OEB, in conjunction with OPA, review all LDC's MARR based third tranche programs after the completion of all projects, in order to ascertain if any of the programs undertaken by LDCs would be appropriate on a province wide basis.

WNH submits that the OEB may wish to consider calculation of TRC benefits based on customers maintaining their energy efficient technology (i.e. replacing CFLs with CFLs) in order to help achieve the Ministry of Energy's target of 6.3 GW of demand savings by 2025.

Appendix A - Evaluation of the CDM Plan

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

	[5] Cumulative Totals Life-to-date	Total for 2006	Residential	Commercial	Institutional	Industrial	Agricultural	LDC System	[4] Smart Meters	Other #1	Other #2
Net TRC value ($):	*$ 2,612,589*	**$ 2,612,930**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 1,701,204**		**$ 911,726**	**$ -**
Benefit to cost ratio:	*4.67*	3.78	0.00	0.00	0.00	0.00	0.00	5.61		2.60	0.00
Number of participants or units delivered:	*49,000*	49,000	41,000					49,000			
Lifecycle (kWh) Savings:	*75,401,413*	75,342,922	0	0	0	0	0	45,726,450		29,616,472	0
Report Year Total kWh saved (kWh):	*1,049,814*	1,045,494	0	0	0	0	0	152,422		893,072	0
Total peak demand saved (kW):	*816*	816	0	0	0	0	0	17		799	0
Total kWh saved as a percentage of total kWh delivered (%):	*0.17%*	0.08%						0.01%		0.07%	
Peak kW saved as a percentage of LDC peak kW load (%):		0.3%						0.01%		0.3%	
[1] Report Year Gross C&DM expenditures ($):	*$ 897,789*	$ 842,596	$ 53,976	$ -	$ -	$ -	$ -	$ 368,858	$ 86,200	$ 333,562	$ -
[2] Expenditures per KWh saved ($/kWh):	*$ 0.01*	$ 0.01	$ -	$ -	$ -	$ -	$ -	$ 0.01		$ 0.01	$ -
[3] Expenditures per KW saved ($/kW):	*$ 1,099.88*	$ 1,032.26	$ -	$ -	$ -	$ -	$ -	$ 21,198.74		$ 417.55	$ -

Utility discount rate (%):	6.50583%

[1] Expenditures are reported on accrual basis.
[2] Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate energy savings.
[3] Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate capacity savings.
[4] Please report spending related to 3rd tranche of MARR funding only. TRC calculations are not required for Smart Meters. Only actual expenditures for the year need to be reported.
[5] Includes total for the reporting year, plus prior year, if any (for example, 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:** **1. Residential Energy Efficient Project (REEP)**

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

REEP, a non-profit initiative of the Faculty of Environmental Studies at the University of Waterloo and the Elora Centre for Environmental Excellence, conducts a comprehensive assessment of a home's energy efficiency and provides recommendations for improvement. This program is aimed at raising consumer awareness of the benefits of energy efficiency and identify and prioritize energy efficiency upgrades.

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			

B. **TRC Results:**

	Reporting Year	Life-to-date TRC Results:
[1] *TRC Benefits ($):*		
[2] *TRC Costs ($):*		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:		
Net TRC (in year CDN $):		
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):				
	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:**

		Reporting Year	Cumulative Life to Date
Utility direct costs ($):	*Incremental capital:*		
	Incremental O&M:	$ 48,680.00	$ 78,680.00
	Incentive:		
	Total:		
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:		

E. **Assumptions & Comments:**

In 2006, REEP has estimated a reduced energy consumption of approximately 80,000 kWh annually and 385 tonnes of CO_2 emissions. Since 2005 REEP estimates that it has reduced energy consumption by approximately 192,000 kWh annually. During 2005 and 2006 REEP has conducted 283 initial home energy evaluations in which they have educated our customers and raised their awareness of the benefits of energy efficiency and identified and prioritized energy efficiency upgrades.

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

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

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** **2. Energy Efficient Traffic Lights and Street Lighting**

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

Waterloo North Hydro (WNH) has two initiatives for this program. (1) WNH will partially fund the replacement of incandescent bulbs with LED bulbs in the traffic lights throughout the Region of Waterloo. This program will result in significant energy savings as LED lights use 80% to 90% less electricity. This program will also reduce maintenance costs as the LED bulbs last longer and are more visible. (2) WNH is also working with the municipalities in our service area (principally in the rural areas and some villages in the township) to fund the replacement of old street light fixtures with energy efficient high-pressure sodium (HPS) streetlights.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:		200-300 watt incandascent	
Efficient technology:		70 watt HPS	
Number of participants or units delivered for reporting year:		30	
Measure life (years):		25	
Number of Participants or units delivered life to date		30	

B. **TRC Results:**

	Reporting Year	Life-to-date TRC Results:	
[1] *TRC Benefits ($):*	$ 253,456.00	$ 253,456.00	
[2] *TRC Costs ($):*			
Utility program cost (excluding incentives):	$ 25,491.00	$ 25,491.00	
Incremental Measure Costs (Equipment Costs)			
Total TRC costs:	$ 25,491.00	$ 25,491.00	
Net TRC (in year CDN $):	**$ 227,965.00**	**$ 227,965.00**	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	9.94	9.94	

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

			Cumulative Results:	
Conservation Programs:				
Demand savings (kW):	*Summer*	5.12		5.12
	Winter	5.12		5.12
	lifecycle	*in year*	*Cumulative Lifecycle*	Cumulative Annual Savings
Energy saved (kWh):	6,602,665	22,009	6,602,665	22,009
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:**

		Reporting Year	Cumulative Life to Date
Utility direct costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Incentive:		
	Total:		
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:		

E. Assumptions & Comments:

Initiative (1) will be completed in 2007. Initiative (2) was approximately 50% completed in 2006 and its results are noted above. Thirty street light fixtures were replaced with HPS in late 2006. The fixtures have a life of 25 years, an annual reduction of energy consumption of an estimated 264,000 kWh and operate approximately 4,300 hours annually (street light profile). This initiative will be completed in 2007.

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

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

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** **3. Loss Reduction on Distribution System**

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

Waterloo North Hydro (WNH) has installed technologies that will reduce losses on the distribution system. These technologies include the deployment of capacitor banks. This technology will help reduce distribution system losses and will reduce the system demand. These reductions will benefit all customers and will effect permanent changes that are not reliant on sustained changes in the customer consumption.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	No Loss Reduction		
Efficient technology:	Capacitor Banks		
Number of participants or units delivered for reporting year:	1		
Measure life (years):	25		
Number of Participants or units delivered life to date	1		

B. **TRC Results:**

	Reporting Year	Life-to-date TRC Results:
[1] *TRC Benefits ($):*	$ 2,070,062.00	2,070,062.00
[2] *TRC Costs ($):*		
Utility program cost (excluding incentives):	$ 368,858.00	368,858.00
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:	$ 368,858.00	368,858.00
Net TRC (in year CDN $):	$ 1,701,204.00	$ 1,701,204.00
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	5.61	5.61

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):		17	17	
	lifecycle	*in year*		
Energy savings (kWh):	45,726,450	152,422	152,422	
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:** **Reporting Year** **Cumulative Life to Date**

Utility direct costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Incentive:		
	Total:		
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:		

E. Assumptions & Comments:

Waterloo North Hydro (WNH) installed loss reduction technologies inlate 2006. The technologies will result in an estimated annual energy savings of 1,829,000 kWh over an equipment life of 25 years. WNH used minimum system load in determining the maximum fixed distribution capacitance that could be installed without creating a leading power factor condition. Capacitor locations were determined to minimize system losses with the discrete sizes available. Annual savings are calculated using average system loads with and without capacitors in service.

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

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

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** **4. Smart Metering Pilot Project**

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

Waterloo North Hydro (WNH) has initiated a pilot project installing 1,500 smart meters for single phase customers, namely Residential and General Service < 50 kW, in conjunction with the Ministry's Smart Meter Initiative. The pilot project will be completed in early 2007 and will incorporate the lessons learned when it commences a full rollout of WNH's smart meter investment plan in Q3 2007.

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			

B. **TRC Results:**

	Reporting Year	Life-to-date TRC Results:
[1] *TRC Benefits ($):*		
[2] *TRC Costs ($):*		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:		
Net TRC (in year CDN $):		
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):			
	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:** **Reporting Year** **Cumulative Life to Date**

Utility direct costs ($):	*Incremental capital:*	$ 86,200.00	$ 91,328.00
	Incremental O&M:		
	Incentive:		
	Total:		
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:		

E. Assumptions & Comments:

As per Appendix A, Footnote 4, TRC calculations are not required for Smart Meters.

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

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

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** **5. Geothermal Energy Program**

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

Waterloo North Hydro (WNH) has invested seed money in 2006 into a local initiative that promotes the installation of geothermal systems for residential customers by funding the initial capital costs and then obtain repayment for the capital costs from the energy savings that the customer will be expected to see on their electricity bill. This initiative will encourage fuel switching from electricity as a heating and cooling source. WNH sees this as a more permanent and sustainable reduction in demand on the electricity energy supply as well as being a form of distributed energy sources.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Electric Furnace		
Efficient technology:	Geothermal Energy Systems		
Number of participants or units delivered for reporting year:	35		
Measure life (years):	20		
Number of Participants or units delivered life to date	35		

B. **TRC Results:**

	Reporting Year	Life-to-date TRC Results:
[1] *TRC Benefits ($):*	$ 996,209.00	996,209
[2] *TRC Costs ($):*		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)	$ 525,000.00	525,000
Total TRC costs:	$ 525,000.00	525,000
Net TRC (in year CDN $):	$ 471,209.00	471,209
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	$ 1.90	1.90

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

Cumulative Results:

Conservation Programs:

Demand savings (kW):	*Summer*	114.31		114.31
	Winter	114.31		114.31
	lifecycle	*in year*	*Cumulative Lifecycle*	Cumulative Annual Savings
Energy saved (kWh):	*20,026,360*	400,527	20,026,360	400,527
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:** **Reporting Year** **Cumulative Life to Date**

Utility direct costs ($):	*Incremental capital:*		
	Incremental O&M:	$ 250,000.00	$ 250,000.00
	Incentive:		
	Total:	$ 250,000.00	$ 250,000.00
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:		

E. Assumptions & Comments:

Lifetime Energy Inc. launched in early 2006 and Geothermal Installation Services were offered to customers at that time. WNH has reflected the lifetime electricity energy savings of 20,026,360 kWh and 114.31 demand savings over a twenty year life cycle. Additionally sales resulted in savings of propane and oil that during this first year.

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

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

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** **6. Energy Audits for Industrial/Commercial/Institutional Customers**

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

Waterloo North Hydro (WNH) recognizes that we need to work with our customers to keep them successful in business if we are to retain them as viable successful customers. Energy Audits for Industrial, Commercial and Institutional customers will help these customers to shift load and to find ways to conserve energy. WNH partnered with an Energy Audit Services Provider to deliver audits. WNH will investigate methods to promote to our customers the use of Energy Audits and the implementation of the recommendations from the Energy Audits. This program is aimed at consumer awareness and education at the business and institutional level and should encourage behavioural and operational changes that will reduce demand and conserve energy.

Measure's):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Incandescent		
Efficient technology:	CFL SpotlightsBR/PAR,CFL		
Number of participants or units delivered for reporting year:	279		
Measure life (years):	Various		
Number of Participants or units delivered life to date	279		

B. **TRC Results:**

	Reporting Year	Life-to-date TRC Results:
[1] *TRC Benefits ($):*	$ 233,475.32	233,475.32
[2] *TRC Costs ($):*		
Utility program cost (excluding incentives):	$ 11,018.90	11,018.90
Incremental Measure Costs (Equipment Costs)	$ 9,904.60	9,904.60
Total TRC costs:	$ 20,923.50	20,923.50
Net TRC (in year CDN $):	$ 212,551.82	$ 212,551.82
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	11.16	11.16

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

Conservation Programs:

			Cumulative Results:	
Demand savings (kW):	*Summer*	280		280
	Winter	280		280
	lifecycle	*in year*	*Cumulative Lifecycle*	Cumulative Annual Savings
Energy saved (kWh):	2,987,447	470,536	2,987,447	470,536
Other resources saved :				
Natural Gas (m3):				
Other (specify):	CO_2e emission reductions (tonnes)			284.2

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:** **Reporting Year** **Cumulative Life to Date**

Utility direct costs ($):	*Incremental capital:*		
	Incremental O&M:	$ 47,052.00	
	Incentive:		
	Total:	$ 47,052.00	
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:		

E. Assumptions & Comments:

The Energy Audits for Industrial/Commercial/Institutional Customers were conducted during the Summer of 2006. 279 WNH Customers participated in the audits and 708 energy efficient products were installed at no cost to the customer as part of the audit. WNH customers purchased an additional 4,857 energy efficient products at a reduced cost. The subsidized portion of the bulbs was paid by WNH. Many different types of products were available and sized to a customer's needs. Energy Savings and Life Span details were provided through the audit partner. The program resulted in lifetime energy savings of almost 3 million kWh, 281 kW of annual demand savings and an annual reduction of CO_2 emissions of 284 tonnes.

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

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

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** **7. Low Income Consumer Retrofit Program**

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

Waterloo North Hydro (WNH) works with the Region of Waterloo's Social Services to identify and implement energy efficiency programs for Heat Bank (low income) recipients. These programs may include home energy assessments and will look at retrofit programs for such items as occupancy sensor thermostats, lower wattage stove elements, weatherstripping, compact flourescent light bulbs and efficient showerheads. The items will be installed for the customer. This project is aimed at raising awareness of the benefits of energy efficiency and energy-cost savings for low-income customers.

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			

B. **TRC Results:**

	Reporting Year	Life-to-date TRC Results:
[1] *TRC Benefits ($):*		2,658.83
[2] *TRC Costs ($):*		
Utility program cost (excluding incentives):		3,000.00
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:		3,000.00
Net TRC (in year CDN $):		- 341.17
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		0.89

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

Cumulative Results:

Conservation Programs:

Demand savings (kW):	*Summer*		0
	Winter		1

	lifecycle	*in year*	*Cumulative Lifecycle*	Cumulative Annual Savings
Energy saved (kWh):			58,491	4,320
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:**

	Reporting Year	Cumulative Life to Date

Utility direct costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Incentive:		
	Total:		
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:		

E. Assumptions & Comments:

There were no funds spent in 2006. The program will be completed in 2007.

1 .

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

Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** **8. Energy Conservation Information for Consumers**

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

Waterloo North Hydro (WNH) currently has updated its website for customers to provide easier access to more information on energy efficiency and link to other conservation related websites. WNH has also delivered brochures to its customers to educate and promote energy efficiency.

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			

B. **TRC Results:**

	Reporting Year	Life-to-date TRC Results:
[1] *TRC Benefits ($):*		
[2] *TRC Costs ($):*		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:		
Net TRC (in year CDN $):		
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):				
	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:**

		Reporting Year	Cumulative Life to Date
Utility direct costs ($):	*Incremental capital:*		

	Incremental O&M:	$ 5,296.00	$ 22,361.00
	Incentive:		
	Total:		
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:		

E. Assumptions & Comments:

Loss reductions from CDM activities related to this customer education program do not have quantifiable benefits. As the majority of the funds to date have been spent on brochures, measurable results are difficult to obtain.

[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 ar 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.

WATERLOO NORTH HYDRO INC.

Appendix C - Program and Portfolio Totals

Report Year: 2006

1. Residential Programs

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

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

	TRC Benefits (PV)	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 ($)
1 REEP			$ -	0.00				$ 48,680
7 Low Income Consumer			$ -	0.00				$ -
8 Conservation Consumer Info			$ -	0.00				$ 5,296
			$ -	0.00				
			$ -	0.00				
			$ -	0.00				
			$ -	0.00				
			$ -	0.00				
			$ -	0.00				
Name of Program I			$ -	0.00				
Name of Program J			$ -	0.00				
***Totals App. B - Residential**	$ -	$ -	$ -	0.00	0	0	0	$ 53,976
Residential Indirect Costs not attributable to any specific program	→							
Total Residential TRC Costs		$ -						
****Totals TRC - Residential**	**$ -**	**$ -**	**$ -**	**0.00**				

2. Commercial Programs

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

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

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

3. Institutional Programs

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

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

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

4. Industrial Programs

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

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

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

5. Agricultural Programs

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

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

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

6. LDC System Programs

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

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

	TRC Benefits (PV)	TRC Costs (PV)	$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures ($)
3 Loss Reduction	$ 2,070,062	$ 368,858	$ 1,701,204	5.61	152,422	45,726,450	17	$ 368,858
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**	$ 2,070,062	$ 368,858	$ 1,701,204	5.61	152,422	45,726,450	17	$ 368,858
LDC System Indirect Costs not attributable to any specific program →								
Total TRC Costs		$ 368,858						
****Totals TRC - LDC System**	**$ 2,070,062**	**$ 368,858**	**$ 1,701,204**	**5.61**				

7. Smart Meters Program

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

Report Year Gross C&DM Expenditures ($)	86,200

8. Other #1 Programs

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

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

	TRC Benefits (PV)	TRC Costs (PV)	$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures ($)
2 Traffic Lts & St Lts	$ 253,456	$ 25,491	$ 227,965	9.94	22,009	6,602,665	10	$ 25,491
5 Geothermal	$ 996,209	$ 525,000	$ 471,209	1.90	400,527	20,026,360	229	$ 250,000
6 Energy Audits Indust/Comm	$ 233,475	$ 20,924	$ 212,552	11.16	470,536	2,987,447	560	$ 58,071
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**	$ 1,483,140	$ 571,415	$ 911,726	2.60	893,072	29,616,472	799	$ 333,562
Other #1 Indirect Costs not attributable to any specific program								
Total TRC Costs		$ 571,415						
****Totals TRC - Other #1**	**$ 1,483,140**	**$ 571,415**	**$ 911,726**	**2.60**				

9. Other #2 Programs

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

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

	TRC Benefits (PV)	TRC Costs (PV)	$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures ($)
Name of Program A			$ -	0.00				
Name of Program B			$ -	0.00				
Name of Program C			$ -	0.00				
Name of Program D			$ -	0.00				
Name of Program E			$ -	0.00				
Name of Program C			$ -	0.00				
Name of Program G			$ -	0.00				
Name of Program H			$ -	0.00				
Name of Program I			$ -	0.00				
Name of Program J			$ -	0.00				
***Totals App. B - Other #2**	$ -	$ -	$ -	0.00	0	0	0	$ -

Other #2 Indirect Costs not attributable to any specific program →				
Total TRC Costs		$ -		
****Totals TRC - Other #2**	**$ -**	**$ -**	**$ -**	**0.00**

LDC's CDM PORTFOLIO TOTALS

	TRC Benefits (PV)	TRC Costs (PV)	$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures ($)
***TOTALS FOR ALL APPENDIX B**	$ 3,553,202	$ 940,273	$ 2,612,930	3.78	$ 1,045,494	$ 75,342,922	$ 816	$ 842,596
*Any **other** Indirect Costs not attributable to any specific program* →								
TOTAL ALL LDC COSTS		$ 940,273						
****LDC' PORTFOLIO TRC**	$ 3,553,202	$ 940,273	$ 2,612,930	3.78				

* 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.