Greater Sudbury Hydro Inc./
Hydro du Grand Sudbury Inc.

Conservation and Demand Annual Report

RP-2004-0203 \ EB # ed2002-0559

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TABLE OF CONTENTS

Greater Sudbury Hydro Inc./
Hydro du Grand Sudbury Inc.

Introduction

Greater Sudbury Hydro Inc (GSHi) is focused on helping our customers understand the importance of Conservation and Demand Management (CDM).

Throughout 2005, we worked to improve communications across our customer base by delivering messages and literature in a simplistic format to make it easier for customers to understand. Taking the complexity out of the government's legislation dealing with the future of energy in Ontario and delivering it in a more simplified form, entices one to think and change rather than ignore and resist.

But literature and messaging is not enough. Our goal is to ready our customers for the coming of smart meters in 2010. Where do we start? We start with our front line employees. We want to educate them, to give them the knowledge to effectively communicate and advise those customers whom they address on a day-to-day basis.

Greater Sudbury Hydro remains committed to creating an energy conservation culture in our community.

Evaluation of CDM Plan

Energy conservation and demand management has created a new world of possibility and innovation for both consumers and businesses. We, the Province, are in a period of transition – a period where technology is in catch up mode to meet the aggressive plan that the Province has mapped for this energy market. That being said, the limits of technology have slowed the process of change for many of our CDM programs.

1. Smart Meter Pilot: We are actively pursuing a technology that offers a multitude of capabilities, to mention a few: (i) Ability to access 3rd party database and deliver it to customer in near real time (ie Market Pricing, Provincial Peak), (ii) Ability to manage and operate load control devices on demand over an Internet feed, (iii) Ability to read three meters (electric, water & gas) remotely and upload directly to billing system.

2. Conservation Message Centre: Not only do we want to educate our customers to think "Energy Conservation" but we want to ensure we do so with an energy efficient full colour message display centre.

3. Energy Conservation Forum & Christmas Light Exchange Program: This program proved to be very successful. The NPV of the energy savings at minimum, calculated on a single string of lights per customer, is $19,615. This value is based upon a 20 year life and discount rate of 4.63%. However, it would not be presumptuous to say that the true savings realized could range anywhere from two to four times that calculated. On average, the customers exchanged several strings of their old lights for a single string of LED lights with the intent to purchase more LED lights to complete their home displays.

4. Festival of Lights: Greater Sudbury Utilities replaced a section of Christmas lights at Greater Sudbury Community's Festival of Lights with LED lights. The converted section was well publicized with signage that generated many customer inquiries and positive feedback. The NPV of energy savings is $10,006 based upon a 20 year life and discount rate of 4.63%.

5. Lighting Retrofit: Greater Sudbury Utilities retrofitted the entire building with energy efficient lighting. The NPV of energy savings is $59,863 based upon an 8 year life and discount rate of 4.63%.

6. Switch to Cold: The results of the statistics gathered from the survey conducted within the Sudbury of Greater Sudbury area reveal an annual kWh savings of 141,314 which equates to present day value of $8,196.

7. Energy Smarts Campaign: Statistical data not available yet.

Program Status

Customer Education & Awareness: In 2005, many of our initiatives focused on conservation messages and incentives to enhance education and encourage community participation. It is human nature to resist change and, therefore, our approach was / is to incite awareness that we must change. The programs launched in 2005 were:

1. *Switch to Cold Campaign:* This program, run in partnership with Canadian Energy Efficiency Alliance, Tide, and a number of other firms, was aimed to change behavior patterns in the laundry room by encouraging cold water washing. This campaign includes radio and television ads that are still running today.

2. *Switch to Cold Phase II:* This program was a follow up to the first Switch to Cold campaign. Repetition is the most effective learning tool.

3. *EnergySmarts Campaign*: This program, run in partnership with Clean Air Foundation, The Home Depot, and a number of other firms, aimed to provoke lifestyle change through education on the use of energy efficient products. The program was run September 15th through to September 25th, 2005 inclusive. Coupons and discounts were used to incent customers to come into Home Depot to speak with our qualified personnel about energy efficiency and to introduce energy efficient products.

4. *Energy Conservation Forum & Christmas Light Exchange*: Greater Sudbury Utilities in partnership with Minister Bartolucci, MPP, hosted an energy conservation forum on December 3, 2005. This included Exhibitors specializing in the fields of Thermal Storage Heating, Lighting, and Energy Conservation. The benefits of this event were twofold. Not only were customers educated about the LED Christmas lights but while they waited in line to exchange their string of 24 feet of regular outdoor lights for an equivalent string of 70 LED lights that use 80% to 90% less energy, they received much knowledge from the Exhibitors booths about energy conservation and load management.

5. *Festival of Lights*: Greater Sudbury Utilities replaced a section of Christmas lights at Greater Sudbury's Community Festival of Lights with LED lights. The converted section was well publicized with signage and

generated many customer inquires and positive feedback. The energy savings was remarkable.

There are a number of CDM initiatives that are presently classed as work in progress. Those projects include:

1. *Distribution System Optimization:* We are working towards the development of the optimal electrical distribution system with the use of Milsoft Engineering Analysis Software. This model will allow us to identify areas of concern and take the necessary corrective action that will ultimately reduce system losses. To date, the model is 30% complete.

2. *Generation:* After evaluating a study that was prepared by an independent contractor on Gas Utilization at Sudbury's Landfill, we concluded that a generation facility at this site would be a viable venture. Thus, in October 2005, we invited tenders on our Request for Proposal for Landfill Gas Generation. Presently, we are in the process of evaluating those proposals received and as part of the process we will be submitting a proposal in response to the Minister of Energy's Renewables III RFP.

3. *Smart Metering Pilot:* We have done much research in this area and met with many vendors in search of a smart metering solution that is capable of performing to our needs and requirements; and, suitable for the northern climate and rugged terrain. Although technologically this is a rapid changing market, the smart metering technology available thus far does not satisfy our technical specifications. That being said, we remain committed and are actively pursuing a solution.

4. *Electric Thermal Storage (ETS):* Electric Thermal Storage is the technology of storing low cost electricity in the form of heat for use in heating 24 hours a day. ETS equipment utilizes a storage medium to store heat during off-peak hours, as defined in the OEB Regulated Price Plan, and releasing it consistently throughout the day during the mid-peak and on-peak hours. In addition thereto, ETS also has the ability to control electric water heaters off-peak. The implementation of ETS is a quantitative goal with definite measurable results. As proof of concept, Greater Sudbury Utilities installed a smart meter and commenced billing TOU rates for one (1) customer with ETS. The customer's profile for the month of December 2005 (35 day bill period) appears as follows:

Proof of Concept - ETS Load Profile

RPP Calculation TOU Price Plan		kWh Load Profile	Rate	Extended Cost	Calculated Billing
kWh "on" peak		885.56	$0.093	$ 82.35	
kWh "mid" peak		998.68	$0.064	$ 63.92	
kWh "off" peak		4536.52	$0.029	$131.56	$277.83
		6420.76			
RPP Calculation Conventional	**kWh**	**Block Structure**	**Rate**	**Extended Cost**	
Dec 1/05-Jan 5/06	6420.76	1166.67	$0.050	$ 58.33	
(35 day bill period)		5254.09	$0.058	$ 304.74	$363.07
		6420.76			
$ Difference:					**$ 85.24**

Review of the kWh profile clearly demonstrates the ability ETS has to move the bulk of electricity usage to "off" peak. The statistical information proves that about 71% of electricity consumed was used "off" peak, about 15.5% at "mid" peak leaving only 13.5% at "on" peak. The win for the customer . . . a savings of $85.24. Clearly, ETS technology significantly reduces electricity usage during Ontario's peak periods, when Ontario's electricity system is most strained, by shifting usage to periods when demand is low and Ontario has plenty of capacity.

Lessons Learned

Greater Sudbury Hydro partnered with various businesses to run a variety of campaigns. The campaigns included brochures; and the most effective and economic method of delivering these brochures was as a mail insert with the customer's electricity bill. However, one of the biggest challenges faced was timing. GSH invoices on bi-monthly basis and, therefore, it takes two months to run through the complete billing cycle and reach all our customers. Project planning did not allow adequate time frame between the delivery and the launching of the event. Hence, GSH was left with no alternative but to proceed with a direct mail out which translated to a significant expenditure.

Conclusion

Greater Sudbury Hydro continues to embark on this new revolution of Conservation and Demand Management. GSHi is aggressively pursuing the technology to best suit our needs and the needs of our consumers.

Greater Sudbury Hydro will move ahead and complete the landfill gas generation plant in 2006. The benefits of this project are twofold. It uses methane, a potent greenhouse gas to produce green energy; enough energy to power about 1200 homes, while lessening toxic emissions into the atmosphere. This project demonstrates to our consumers our passion and determination to provide a clean source of energy to our community.

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Appendix A - Evaluation of the CDM Plan

	Total	Residential	Commercial	Institutional	Industrial	Agricultural	LDC System	Other 1
Net TRC value ($):	$111,695	$87,631	$24,064					
Benefit to cost ratio:	*1.29*	*1.72*	*0.67*					
Number of participants or units delivered:	*1,435*	1,434	1					
Total KWh to be saved over the lifecycle of the plan (kWh):	*3,033,817*	*1,989,428*	*1,044,389*					
Total in year kWh saved (kWh):	*300,677*	*170,128*	*130,549*					
Total peak demand saved (kW):								
Total kWh saved as a percentage of total kWh delivered (%):	*0.00032158*							
Peak kW saved as a percentage of LDC peak kW load (%):								
Gross in year C&DM expenditures ($):	*197834*							
Expenditures per KWh saved ($/kWh):*	*0.657961866*							
*Expenditures per KW saved ($/kW)**:*								

Utility discount rate (%):	4.63

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

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Smart Meter Pilot

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

Greater Sudbury Hydro is seeking a technology that incorporates a fully integrated system of hardware and software and network interfaces to offer an advanced point to point two way communication system. We have been actively pursuing a gateway / metering solution; and, although we have purchased a single gateway for installation as proof of concept, it proved to be in its early stages of development and not ready to be rolled out to the full extent of our pilot. (IBM is currently conducting a small in labratory pilot with this very company) We do, however, have one residiential customer that has a smart meter and is being billed TOU rates.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	
TRC Costs ($):	
Utility program cost (less incentives):	
Participant cost:	
Total TRC costs:	
Net TRC (in year CDN $):	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	

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

Conservation Programs:

		lifecycle	in year
Demand savings (kW):	*Summer*		
	Winter		
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 begining of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$ 10,505.85
	Incremental O&M:	
	Incentive:	$ 12,888.56
	Total:	$ 23,394.41
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. **Comments:**

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

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

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

Greater Sudbury Hydro in partnership with the City of Greater Sudbury will work with School Boards to promote energy efficiency within the schools. We have not started this project as of yet.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	
TRC Costs ($):	
Utility program cost (less incentives):	
Participant cost:	
Total TRC costs:	
Net TRC (in year CDN $):	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	

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

Conservation Programs:

		lifecycle	in year
Demand savings (kW):	*Summer*		
	Winter		
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 begining of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Incentive:	
	Total:	$ -
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	1947.19
	Total:	1947.19
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. **Comments:**

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Community Awareness

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

Greater Sudbury Hydro believes education to be of the utmost importance; and, we believe repetition to be the best teaching mechanism. As such, we aim to accomplish this through a full colour message display board. That being said, it is of equally importance that the selected display board selected be energy efficient -- we have not yet found the technology that provides such. We have, however, partnered with a number of organizations on the rollout of several education/ community awareness campaigns. Those include: (i) Switch to Cold (ii) Energy Smarts (iii) Energy Conservation Forum and Christmas Light Exchange.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):		*$ 111,695.00*
TRC Costs ($):		
	Utility program cost (less incentives):	$ 86,646.00
	Participant cost:	
	Total TRC costs:	$ 86,646.00
Net TRC (in year CDN $):		
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		$ 1.29

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

Conservation Programs:

Demand savings (kW):	*Summer*		
	Winter		
		lifecycle	*in year*
Energy saved (kWh):		*3033817*	300677
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 begining of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 61,059.32
	Incentive:	
	Total:	$ 61,059.32
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	31039.34
	Total:	31039.34
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. **Comments:**

Included in the TRC Costs is the cost of the Energy Smart campaign, however, we have not yet received the statistcs on the results and, therefore, the TRC Benefit does not reflect such.

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Load Control Initiative

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

Greater Sudbury Hydro's largest substations are equiped with voltage regulators. With minimal investment, we have the ability to reduce demand throught voltage reduction during times of Peak Provincial Transmission System Utilization. We have not yet started this project.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	
TRC Costs ($):	
Utility program cost (less incentives):	
Participant cost:	
Total TRC costs:	
Net TRC (in year CDN $):	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	

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

Conservation Programs:

		lifecycle	in year
Demand savings (kW):	*Summer*		
	Winter		
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 begining of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 172.40
	Incentive:	
	Total:	$ 172.40
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	1567.02
	Total:	1567.02
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. **Comments:**

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Distribution System Optimization

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

Greater Sudbury Hydro is using Milsoft Engineering Analysis software to identify and enhance our distrution system. The mapping of our distribution system is 30% complete. Once complete, this mathematical modeling software will enable us to optimize system efficiency

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	
TRC Costs ($):	
Utility program cost (less incentives):	
Participant cost:	
Total TRC costs:	
Net TRC (in year CDN $):	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	

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

Conservation Programs:

		lifecycle	in year
Demand savings (kW):	*Summer*		
	Winter		
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 begining of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 52,942.47
	Incentive:	
	Total:	$ 52,942.47
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	2638.91
	Total:	2638.91
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. **Comments:**

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Landfill Gas Generation

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

In October 2005, Greater Sudbury Hydro invited tenders on our Request for Proposal for Landfill Gas Generation. Landfill gas (LFG) collected from the 27.2-hectare Sudbury site will be used to fuel a reciprocating landfill gas engine-generator to produce 1.6 MW of green energy; enough electricity to power approximately 1200 - 1600 homes. The benefits of this renewable project are threefold; (i) generation of electricity to offset power that would otherwise be generated from fossil fuelled power plants; and, (ii) controlled generation output availability during peak demand periods; and, (iii) reduction, be it direct and indirect, of greenhouse gas emissions. We hope to commence construction in 2007.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	
TRC Costs ($):	
Utility program cost (less incentives):	
Participant cost:	
Total TRC costs:	
Net TRC (in year CDN $):	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	

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

Conservation Programs:

		lifecycle	in year
Demand savings (kW):	*Summer*		
	Winter		
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 begining of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$ 7,572.50
	Incremental O&M:	
	Incentive:	
	Total:	$ 7,572.50
Utility indirect costs ($):	*Incremental capital:*	15414.34
	Incremental O&M:	
	Total:	15414.34
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. **Comments:**

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Thermal Storage Heating

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

Electric Thermal Storage Heating (ETS) is off-peak electric heating that offers significant advantages over conventional heating. ETS off-peak heating offered with the Ontario Energy Board Regulated Price Plan for "time of use" (TOU) pricing is a win/win combination for the province and the customer. As at December 31/05, we have one residential customer who has thermal storage heating, a smart meter, and is being billed time of use rates.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	
TRC Costs ($):	
Utility program cost (less incentives):	
Participant cost:	
Total TRC costs:	
Net TRC (in year CDN $):	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	

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

Conservation Programs:

Demand savings (kW):	*Summer*		
	Winter		
		lifecycle	*in year*
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 begining of year (%):	
Distribution system power factor at end of year (%):	

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 1,227.35
	Incentive:	
	Total:	$ 1,227.35
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	2503.54
	Total:	2503.54
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. **Comments:**

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.