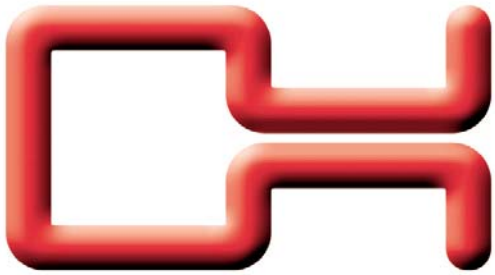

OAKVILLE HYDRO ELECTRICITY DISTRIBUTION INC.

CONSERVATION & DEMAND MANAGEMENT PLAN

2005 ANNUAL REPORT

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

1. INTRODUCTION

In February 2005, the Ontario Energy Board approved Oakville Hydro's Conservation and Demand Management Plan. This 2005 annual report is submitted as a requirement of that approval. In 2005, Oakville Hydro invested approximately $400,000 in their CDM Plan. It should be noted that the programs undertaken in 2005 will not show savings until 2006, as the costs have gone into their development.

Oakville Hydro Electricity Distribution Inc.'s CDM Plan was developed along the following key principles and objectives: sustainability, maximizing benefits, flexibility and maximizing investment efficiency. The initiatives were chosen to produce on-going benefits/habits and not just short term attempts at conservation and reducing demand that may diminish in time. Oakville is a rapidly growing community and Oakville Hydro plans to add this extra load as efficiently as possible, give consumers choice now and in the future, and protect the stability and reliability of the distribution system itself. The CDM Plan consists of the following initiatives:

Customer Education

- information packages for new customers
- website
- bill messages and pamphlets inserted in with the bill
- customer focus groups
- partnering in conservation programs

Smart Meter, Intelligent Network

- smart meters
- two-way data communications through fibre
- load control incentives for residential, industrial & commercial
- promoting Energy Star qualified systems
- load shedding

Multi-Residential Interval Metering

- converting bulk metered multi-residential buildings to individual suite metering
- target income-geared and non-profit cooperatives
- offer an incentive to shorten the payback period

Annual Commercial/Industrial Energy Information

- develop and host information sessions
- partner with neighbouring utilities
- offer presentations from energy experts, government officials and utility personnel

Distributed Generation – Digester Gas Program

- partner with the Region of Halton
- purchase, install and operate a 250 kW internal combustion engine to generate electricity for use in the Region's treatment facility

Distributed Generation – Wind Turbine

- partner with the Town of Oakville
- purchase, install and operate a 80 kW wind turbine to generate electricity for use in the Town's new proposed park facilities
-

Peak Demand Reduction

- install a natural gas fired, low emission 250 kW generator within Oakville Hydro's building for peak shaving

Voltage Conversion

- conversion of a 150 kVa transformer at a local shopping mall from 4 KV to 27.6 kV direct-feed from the grid, resulting in 10 kW reduction in peak demand and approximately 50,000 kWh/year energy reduction
- convert an older residential area from 4 kV to 27.6 kV, involving approximately 400 customers and 70 distribution transformers and resulting in 40 kW off peak demand and an annual energy reduction of 170,000 kWh.

The potential benefits from the combined efforts of these projects could result in an electricity usage reduction of more than 2,410,000 kWh/year, along with the savings through education and uptake in programs such as load controls. There is also a potential for a permanent peak reduction of 630 kW. Apart from the measurable savings from these projects, the knowledge gained through education, research and pilots will allow Oakville Hydro and consumers the opportunity to continue these efforts and implement new technologies into the future.

2. EVALUATION OF CDM PLAN

During 2005, Oakville Hydro was able to start each program. A great amount of work goes into the research and development of these programs before they can be offered to customers. Please refer to Appendix A for this section.

3. DISCUSSION OF THE PROGRAMS

Customer Education & Industrial Seminars

Currently the commodity rate structure offers no incentive for consumers to change their habits and until the rate reflects the true value of electricity at the time of use, there is little reason for the consumer to change. Education is important to show long term gain and should continue in order for consumers, no matter what classification, to be aware of what their choices are and how they can affect them. During 2005, the following initiatives were taken in this program:

- conservation tips & money saving programs included in the information package for new customers
- newspaper advertising
- partnership for "Switch to Cold" program
- bill messages
- partnered with neighbouring utilities, regional & provincial government and the IESO to present a "Bottom Line on Energy Management" workshop to customers using more than 250,000 kWh of electricity
- meet with large users to inform them of programs and energy saving opportunities

Smart Meter, Intelligent Network

In 2004 Oakville Hydro made the installation of interval meters mandatory for all new residential construction, thus giving Oakville a head start on the Minister's direction. In order for the smart metering initiative to be successful there needs to be a significant improvement of data transmission and processing systems. Building upon the benefits of the existing (and growing) installed interval meter base, and the fibre-optic data communications infrastructure, Oakville Hydro is developing a prototype of an intelligent electricity distribution network. Oakville Hydro will introduce load control capabilities that would all customers the option of having electricity consumption monitored and reduced during times of peak consumption. Along with this an incentive would be offered and Energy Star qualified systems would be promoted. This is one program that will offer both the LDC and customers to take advantage of conservation and demand management opportunities today and tomorrow. Over the past year a tremendous amount of work has gone into the research, evaluation and purchasing/testing of products, along with the design of technology for the collection of the data, as well upgrading internal systems to handle and process the data. We were able to successfully build an optical probe and are able to communicate directly with the meters through fibre. A small pilot project has been set up to test this technology. We have installed phone lines to read the meters that are currently installed. Our IT systems have been improved to handle the amount of information and ability to process the information. These systems are being tested and installed.

Wind Turbine

In the case of the wind turbine, great progress was made over the past 1.5 years – supplier, costs, and proposed site. Negotiations with the Town of Oakville and the Region of Halton resulted in a favourable response for the project moving ahead and a proposed location was suggested for the installation of the turbine. Oakville is a rapidly growing community and as such produces challenges for the Town of Oakville. Unfortunately, due to this growth, concerns and sensitivities were raised surrounding the wind turbine and location. Also, after research into wind availability in the Oakville area, it was determined that this project could possibly end up not producing the desired results. Currently this project is stranded, but we are looking at redirecting our efforts to solar energy.

Distributed Generation - Digester Gas

The digester gas program with the Region of Halton, will result in Oakville Hydro purchasing, installing and operating a combustion engine to create electricity for use in their facility. This distributed generation offers a permanent peak reduction of 250 kW/year and the project will proceed. The last year has been spent researching equipment and negotiating with the Region of Halton (slow process). We are now ready to start purchasing equipment and install the engine.

Multi Residential Interval Metering

Studies have shown that conversions from bulk metering to individual suite metering and billing can save between 15% - 30% of energy consumption. It also gives the ability of the individual who makes efforts to conserve to reap the benefits. During 2005, individual suite meters were identified and purchased. A great deal of time was spent negotiating with condominium boards and building landlords and dealing with various by-laws, boards and regulations. We completed a 75 unit seniors, electrically heated, building which came on line December 2005, and we are currently gathering the information for an energy analysis. We are currently in the middle of converting a 106 unit condominium, with a second approved ready to be converted immediately following the first one. Oakville Hydro will continue this project, also aiming at income-geared and non-profit bulk metered buildings.

Peak Demand Reduction

Oakville Hydro will install a natural gas, how emission generator for peak shaving within its office building. We propose a generator in the 250 kW range to operate during high demand periods. Equipment has been identified and we will proceed to install this generator.

Voltage Conversion

The increase of distribution system efficiencies is an excellent program to reduce the load on the power grid and add to the security and reliability of the distribution system. Oakville Hydro identified two specific projects – the conversion of a 1500 kVa transformer from at a local shopping mall from 4 kV to 27.6 kV, and converting an older residential area from 4 kV to 27.6 kV.

During the last year we have upgraded the current system at the local mall to increase liability, and off loaded the 4 kV. The transformer itself is due to be converted in 2006. The residential conversion is also scheduled to begin in 2006.

Further discussion on each program can be found in Appendix B.

4. LESSONS LEARNED

Consumer education/information seminars are the easiest programs to facilitate as there is a tremendous amount of information and resources available. However, it is the hardest program to evaluate as in most cases there is no way of tracking the uptake or continuance of conservation practice. Through residential focus group meetings and commercial/industrial seminars, we found that consumers like the choice, but at little or no cost to them. With residential customers there is very little incentive in the current rate structure. People are less likely to make an effort unless there is "something in it for them".

We found when partnering with local governments, a lot of time is spent presenting and obtaining approval of programs. Approximately six months to one year can be spent on negotiations of costs, location and legal contracts.

Oakville Hydro found through the multi-residential metering program that when presenting to condominiums, there was a lot of negotiating due to the Condominium Act and individual board rules and regulations. In dealing with rented buildings, there needs to be changes in by-laws and other related regulations in order for the landlord to make the final decision. The regulations have to be changed to make it easier to implement from an energy conservation point of view and enable the landlord to make the decision based on savings. Education and savings must be passed on to the tenants or condominium owners for total acceptance. It is our understanding that the concerns regarding regulations have been brought to the attention of the Ministry of Energy.

5. CONCLUSION

Oakville Hydro believes this plan will produce significant, sustainable results. These programs have a continuous life span providing on-going benefits and savings, rather than reductions that may diminish in time. Consumer education is an ongoing effort and opportunities will be evaluated as they arise.

During the last year a great deal of time has been spent on the researching of equipment availability and costs, new and lasting technology, and development of the projects. Time has been spent on negotiating with local governments and building owners, and implementing approved contractual agreements where applicable. The year was challenging as resources were minimal. New information was gained and we were able to apply it to other programs.

The wind turbine project has been stranded, however, efforts are being redirected to develop a program that will see the same or better results and stay in the area of an environmentally friendly alternative energy source.

The report for 2006 will show greater results as programs come on-board and information is gathered.

Appendix A - Evaluation of the CDM Plan

	Total	Residential	Comm/Ind	Distributed Generation	Peak Reduction	Voltage Reduction			Other 2	Other 3	Other 4
Net TRC value ($):	*$0*	$0	$0	$0	$0	$0					
Benefit to cost ratio:	*n/a*	n/a	n/a	n/a	n/a	n/a					
Number of participants or units delivered:		Education - 56,588 Bulk Metered 75	0	0	0	0					
Total KWh to be saved over the lifecycle of the plan (kWh):	*14,910,000*	9,950,000	340,000	4,380,000	n/a	240,000					
Total in year kWh saved (kWh):	*0*	0	0	0	0	0					
Total peak demand saved (kW):	*0*	0	0	0	0	0					
Total kWh saved as a percentage of total kWh delivered (%):	*0%*	0%	0%	0%	0%	0%					
Peak kW saved as a percentage of LDC peak kW load (%):	*0%*	0%	0%	0%	0%	0%					
Gross in year C&DM expenditures ($):	*$400,000*	$365,159	$950	$8,800	$6,450	$11,960					
Expenditures per KWh saved ($/kWh):*	*n/a*	n/a	n/a	n/a	n/a	n/a					
*Expenditures per KW saved ($/kW)**:*	*n/a*	n/a	n/a	n/a	n/a	n/a					

Utility discount rate (%):	

*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:** CUSTOMER EDUCATION

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

Through information packages to new customers, bill messages to all customers, website information and participation in programs, Oakville Hydro will provide tips on conservation and money saving information/benefits. Specific information gives customers of all classes the opportunity to learn how and what they can do on their own to reduce their personal, family and business energy consumption. During 2005 We participated in the Switch to Cold Program with the Canadian Energy Efficiency Alliance; put a bill message out on programmable thermostats, and advertised our CDM Plan in a local newspaper insert - 350 Energy & Money Saving Tips.

Measure(s):

	Ads on CDM Plan	Switch to Cold	Bill Message - Thermostat
Base case technology:	$699.00	$8.89 (Tide Detergent)	NA/Replace Existing
Efficient technology:	N/A	$8.89 (Cold Water Tide)	Approx. $45.00
Number of participants or units delive	Readership 30,000	600	All customers 56,588
Measure life (years):	100%	100%	100%

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 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. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$1,162.00
	Incremental O&M:	$850.00
	Incentive:	NA
	Total:	$2,012
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

This program is aimed at awareness and information. There is no way of knowing if customers chanted thermostats or adopted any of the tips from the energy inset. The Switch to Cold stats have not yet been supplied by Canadian Energy Efficiency Alliance as to the possible number of participants of cold water washing in our area. Information is supposed to be available spring 2006.

Appendix B - Discussion of the Program

(complete this section for each program)

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

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

In conjunction with neighbouring utilities, governments and companies, will develop Energy Information Sessions. In 2005 Oakville Hydro, along with all Halton Region Hydros, partnered with IESO, Natural Resources Canada, Ministry of Economic Development & Trade, and the Region of Halton to present a "Bottom Line on Energy Management" one day workshop for large customers. Each participating utility mailed the seminar package to their customers using over 250,000 kWh of electricity per year. Oakville Hydro mail approximately 1,500 packages and 15 of their customers attended the seminar.

Measure(s):

	Energy Management Seminar	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	N/A		
Efficient technology:	N/A		
Number of participants or units delive	1,500		
Measure life (years):	100%		

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

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$950
	Incentive:	
	Total:	$950
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	$75.00 - cost of seminar
	Incremental O&M:	
	Total:	$75

E. Comments:

There were approximately 15 large Oakville Hydro customers that attend this seminar. The following topics were presented: low-cost/no cost energy saving opportunities; shed needless energy costs & minimize energy losses; monitor & analyze your energy use and quantify savings; understand Ontario's electricity market and how it affects your bill.

Appendix B - Discussion of the Program

(complete this section for each program)

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

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

Working with owners of bulk metered multi-residential buildings, specifically targeting customers in income-geared and non-profit cooperatives to convert them to individual apartment interval meters. The customers can then be billed directly for the electricity they use and track their consumption. It also allows the customer to take advantage of price differences, conservation and/or load shifting. During 2005 Oakville Hydro worked with a 75 unit electrically-heated seniors condominium. This project was completed in December and we are currently gathering information for an energy analysis. The following is the

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Replace Bulk meter		
Efficient technology:	New Meters $29,327.20		
Number of participants or units delive	75		
Measure life (years):	100%		

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):	*Metering is forever*	Potential 450,000 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. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$29,327.00
	Incremental O&M:	$38,365.00
	Incentive:	
	Total:	$67,692.00
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	$500.00
	Incremental O&M:	
	Total:	

E. Comments:

In the years 2003 & 2004, this particular building was using 1.7 million kWh/year. The only cost to the customer was approx. $500 to install a phone line. With the switch to individual suite meters, they have the potential of saving $450,000 kWh/year. We are currently in the process of gather actual data and will have an energy analysis available for the next report. In 2006 we have two large buildings approved to convert from bulk to individual metering.

Appendix B - Discussion of the Program

(complete this section for each program)

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

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

2005 was spent presenting and negotiating with the Region of Halton to proceed with a "behind the meter" digester gas generator. Oakville Hydro will purchase, install and operate a 250 kW internal combustion engine to generate electricity for use in the Region's treatment facility.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delive	1		
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 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. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$2,700.00
	Incentive:	
	Total:	$2,700.00
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

2005 was spent doing research, negotiating and contractual agreements for this project. This project will be implemented in 2006.

Appendix B - Discussion of the Program

(complete this section for each program)

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

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

Oakville Hydro proposed to install and operate an 80 kW wind turbine on a proposed Town of Oakville recreational park that will use the electricity generated for their facilities. 2004 & 2005 was spent researching equipment availability, meetings with the Town of Oakville & Region of Halton for proposed location, assessment of chosen location and gaining approval through Councils.

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

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$6,100.00
	Incentive:	
	Total:	$6,100.00
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

A great deal of time was spent, apart from equipment research, negotiating with the Town of Oakville and the Region of Halton for location of the wind turbine. Oakville is a rapidly growing community and sensitivities/concerns arose surrounding the wind turbine project. This program has been stranded, however we will be directing the money and efforts towards solar energy.

Appendix B - Discussion of the Program

(complete this section for each program)

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

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

Oakville Hydro will install a natural gas fired, low emission, generator for peak shaving within its office building. We propose a generator in the 250 kW range to operate during high demand periods, therefore freeing up 260 kW from the local distribution grid.

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 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. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$6,450
	Incentive:	
	Total:	$6,450
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

2005 was spent research equipment and technology for this program. The next step will be to purchase and install the generator during 2006.

Appendix B - Discussion of the Program

(complete this section for each program)

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

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

Two specific projects have been identified that will increase system efficiencies, and therefore reduce the load on the power grid because of better transformer efficiencies and lower line losses. (1) Convert a 1500 kVa transformer at a local shopping mall from 4 kV to 27.6 kV direct-feed from grid. This offers the potential of 10 kW reduction in peak demand and estimated 50,000 kWh/year energy reduction. (2) Convert an older residential areas from 4 kV to 27.6 kV, offering a potential of 40 kW off peak demand and an annual energy reduction of 170,000 kWh/year.

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

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$11,960
	Incentive:	
	Total:	$11,960
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

During 2005, the mall transformer project was started. Time was spent preparing and upgrading the current system to increase liability and off load the 4 kV with as little interruption to store owners as possible. The transformers are scheduled to be converted in 2006. 2006 will also see the beginning of the residential conversion program.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Smart Meter, Intelligent Network (Load Control Initiative for Residential, Commercial & Industrial Cu

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

In 2004, Oakville Hydro made the installation of interval meters mandatory for all new residential construction. Building upon the benefits of existing (and growing) installed interval meter base, and fibre-optic data communications infrastructure, Oakville Hydro is developing a prototype intelligent electricity distribution network. Utilizing the same data communications infrastructure used to collect and transmit interval consumption information, we will introduce load control capabilities that would allow the utility to offer its customers the option of having electricity consumption monitored and reduced during times of peak consumption. To promote this concept, an incentive would be offered to any residential, industrial or commercial customer who would acquire equipment capable of demand reduction. Energy Star qualified systems will be promoted. Oakville Hydro plans a significant customer education program to explain how the remote adjustment would work and the significant benefits, including potential savings, available to the customer.
2005 was spent in the development of the network, and upgrading internal systems to handle and process the information.

Measure(s):

	Smart Meters	Fibre	Internal System
Base case technology:	Convert Existing $40	New	New
Efficient technology:	Interval Meter $244		
Number of participants or units delivered:			
Measure life (years):	100%	100%	

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 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. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$134,063
	Incremental O&M:	$161,392
	Incentive:	
	Total:	$295,455
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

2005 was spent developing the network and upgrading and installing new IT equipment to handle the data gathered.