Hydro One Networks Inc.

Conservation and Demand Management Plan

Annual Report to December 31, 2005

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March 31, 2006

Table of Contents

Introduction

On February 18, 2005 Hydro One Networks Inc. (Networks) received final approval from the Board for their Conservation and Demand Management Plan (CDM Plan) covering the period 2005 – 2007. The approval was conditional upon the re-allocation to other projects of $7.1 million that Networks planned for smart meters in 2006.

On November 1, 2005 the Board approved the re-allocation of the funds. The CDM Plan included Market Adjusted Rate of Return (MARR) funding in the amount of $39.5 million. The initiatives approved by the Board satisfy the Minister's condition of a financial commitment to reinvest in CDM initiatives. In the decision of the Board, Networks, along with all other LDCs, was required to file both quarterly and annual reports tracking the progress of the CDM Plans.

On October 5, 2004, the Board issued a *Procedural Order*, which contained the reporting filing requirements (paragraphs 26 through 30) applicable to MARR CDM funding. On December 21, 2005 the Board issued the *Guideline* for Annual Reporting to the OEB, which is intended to include reporting for funding above the third tranche MARR. In this first annual report, Networks has complied with the requirement of the Procedural Order. Networks has also provided the information requested in the Guideline.

Results Summary

Networks has been successful at launching programs across all sectors, including residential, farms, commercial and industrial, as well as the MUSH sector. Networks has worked with retail partners, community-based organizations, and has leveraged existing federal and provincial government programs for effective delivery. Our innovative approach to program design has become a model for other utilities to follow. Networks has worked co-operatively with other LDCs, developing joint programs where possible. Networks has also participated in many communication and education initiatives to contribute to the goal of culture change within the province.

For the most part, 2005 was spent continuing pilot projects and developing programs for roll-out. Several of the programs that we have started, including the Social Housing Program and the Low Income Program, involved fostering complex partnerships with government agencies. These partnerships took many months to secure and have set the model for which other utilities may follow. In fact, Networks' Low Income Program design has now been adapted by Natural Resources Canada across Canada as their EnerGuide for Low Income Households program.

In addition to developing programs, Networks also completed comprehensive field pilot studies employing new technologies into customers' homes. The pilots were designed to measure the impact on energy consumption, the effectiveness and operations experience of the technology, as well as customer acceptance and behaviour modification. The studies were of a statistically significant size, so that results could be extrapolated to Networks customer base. We believe that it is important to test the benefits and costs of programs before widespread deployment, because ultimately the customer pays.

Networks' CDM Plan presents a balanced approach to both conservation and load control initiatives. Our programs are designed to offer opportunities for all customers within our service territory to contribute to and benefit from a culture of conservation. Networks' challenges are that it must cover most of the geography of the province, yet it only serves 30% of the customers, a fact that is reflected in cost effectiveness of some individual programs. Networks' programs will deliver financial savings for our customers, as well as kilowatt hour (kWh) and kilowatt (kW) savings to contribute to meeting the Province's goals.

Results achieved to date amount to annual energy savings of 8.2 million kWh, or the equivalent of the electricity needed to power nearly 700 homes for one year. The expected energy savings over the lifetime of the equipment are 80 million kWh, or the electricity consumption of 6,700 homes for one year.

The following figure provides an overview of Networks' CDM approved budget, life to date spending as at December 31, 2005, as well as kWh and KW savings earned. In these early stages of the CDM Plan the cost per kWh saved will have a wide range. For pilot projects which are testing a new technology and/or customer behaviour (e.g. Real Time Monitoring Pilot), cost per kWh saved will be high due to extensive data and customer analysis. For programs that have a large number of customers participating and the technology does not require evaluation (e.g. coupons for CFLs) the cost per kWh saved are low.

Figure 1

PROGRAM	3 YEAR BUDGET ($K)	SPENDING TO DEC 2005 ($K)	ANNUAL SAVINGS KW	ANNUAL SAVINGS kWh	LIFECYCLE SAVINGS kWh	LIFECYCLE $/kWh
Residential						
Smart Meters	7,800	519				
Real Time Monitoring Pilot	425	467	38	401,482	2,007,410	0.23
Real Time Monitoring Program	1,400					
Mass Market Coupon Initiative	1,500	277	285	7,261,874	70,142,678	0.004
LED	430	171		219,079	6,572,370	0.026
Low Income/Social Housing	5,000	46				
Load Control Pilot	1,220	783	358			
Load Control Program	3,500	0				
Energy Audits/Analysis	230	0				
Total	21,505	2,263	681	7,882,435	78,722,458	0.012
Commercial/Industrial, Farm, MUSH						
Interim Time of Use	475	238				
C/I MUSH Conservation	600	261				
C/I & Farm Load Control	3,500	0				
Farm Energy Efficiency	750	110				
Total	5,325	609	0	0	0	0
Common						
Distribution Loss Reduction	8,000	0				
Program Management and Research	3,700	804				
Communication and Education	1,000	305		286,578	1,146,312	0.266
Carrying Charge		25		n/a		
Total	12,700	1,134	0	286,578	1,146,312	0
Grand Total	39,530	4,006	681	8,169,013	79,868,770	0.021

As of year-end 2005 just over 10% of the 2005-2007 budget had been spent. This is consistent with Hydro One's approach to concentrate on pilot programs in 2005 in order to evaluate customer acceptance and effectiveness of new technologies. 2006 will see roll out of larger scale programs, including real time monitors, residential load control, residential coupon programs, and the first phase of smart meters.

Program Overviews

Residential: Smart Meters

Description:
The provincial government has set targets for installing smart meters in the homes of all Ontario residents by 2010, with the first provincial target of 800,000 smart meters by 2007. Networks is taking a leadership role in the implementation of a smart metering program in our service territory.

Design:
The funding for the Smart Meter project was intended to cover activities related to meter installation in 2005. This would have put Networks in a position to begin deployment of meters to meet targets for 2007. Vendors were selected and there was an initial acquisition of 25,000 smart meters and related software. Computerized programs were also developed to facilitate the transition. In June 2005, the project was put on hold while awaiting further government guidelines and the passage of new legislation (Energy Act, Bill 21). The guidelines were not issued until late 2005 and the legislation was passed in 2006.

Intent:
The government's stated intent is that smart metering provides the ability to record consumption in time intervals that can be matched to price signals which differ throughout the day to reflect the true cost of power. Understanding and reacting to proper pricing is an essential component to creating a conservation culture and managing customer demand. The largest benefit of smart meters is providing customers with the ability to understand their consumption patterns so they can make effective decisions on usage.

Delivery:
The implementation of Networks' Smart Meter program will occur in phases. Deployment of the initial 25,000 meters has recently been approved.

Evaluation:
The government has not provided estimates for kWh savings and has not required the reporting of benefits for smart metering.

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings kWh	Lifecycle kWh
Smart Meters	7,800	519	n/a	n/a

Residential: Residential Real Time Monitoring Pilot

Description:
In 2004, 435 customers residing in the areas of Barrie, Lincoln, Peterborough and Timmins were provided with monitors that measured the electrical consumption of their homes in real-time. Customers were able to view their current usage rate and cumulative consumption in kWh, as well as in dollars. The pilot field tests were completed in Fall 2005. Networks' pilot was the largest of its kind in Canada.

Design:
In order to asses the impact of the monitor on electricity consumption, the kWh usage was monitored on a monthly basis. This data was compared to usage from a year prior to determine the savings. The data was normalised for changes in weather, number of household occupants and other relevant factors. A control group was also used to determine if the savings could be attributed to the monitor. Customer questionnaires were administered during the pilot to assess customer behaviour, as well as collect relevant demographic data.

Intent:
The objectives of the pilot were to determine whether provision of a real-time feedback device is sufficient to empower residential customers with the information needed to change behaviours so that they reduce their electricity consumption. Also, whether it could be determined, from usage data, if a change in behaviour could be quantified as energy savings.

Delivery:
The delivery of the pilot consisted of five stages: pilot design, customer recruitment, technology deployment, customer usage and data acquisition, and data analysis. External consultants and service providers were employed during all stages to supplement available Networks' resources and expertise.

Evaluation:
Overall, the aggregate reduction in electricity consumption (kWh) across the sample was 6.5 percent. This level is considered a minimum since the customer was not provided with energy conservation "tips". If the monitor is used in conjunction with the provision of additional information regarding conservation, such as suggested behaviour/equipment changes or other relevant information, an overall average reduction of between 7 percent and 10 percent is feasible. The model for the evaluation of this pilot, as well as the findings and conclusions were prepared by Professor Dean Mountain, McMaster Institute for Energy Studies. The detailed findings were as follows:

- The results indicate a significant positive impact on customer usage. Overall, the aggregate reduction in electricity consumption (kWh) across the study sample was 6.5% at a high level of statistical accuracy. An important observation from the study is that the behavioural response remained persistent and did not decrease over time during the study period.
- Within the overall sample, the households with non-electric heating showed energy savings of 8.2% with a range within this sample of a 5.1% reduction (for a non-electric water heating house) to a reduction of 16.7% (for an electric water heating house).

We also observed that households with electric heating are not responding in a significant way to real-time feedback. Separating out the feedback from the electric heating load and the rest of the load would be required to encourage conservation in this sector.

- No other price or conservation incentives were given to participants in the study. Therefore, the conservation results observed in the pilot are interpreted as the minimum to be garnered in the absence of other possible conservation incentives. Thus, if a real time feedback monitor is used in conjunction with the provision of additional literature and tips on conservation or price measures, an overall average reduction of between 7% and 10% is feasible.

Given the favourable results of the pilot, Networks is planning on moving forward with the roll-out of the program in Spring 2006. The savings results of the pilot, in terms of energy consumption decrease (i.e. 6.5%), will be applied for evaluation of the full scale program. Therefore, costs do not have to be incurred for data analysis and evaluations, making the customer program more cost effective. For example, the pilot lifecycle cost was 23 cents per kWh saved, while the estimated cost for the full scale program is less than 5 cents per kWh saved.

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings kWh	Annual Savings KW	Lifecycle kWh
Real Time Monitoring Pilot	425	467	401,482	38	2,007,410
Real Time Monitoring Program	1,400				

Residential: Mass Market Coupon Initiative

Description:
The Residential Energy Coupon Initiative was offered to Networks' residential and small commercial distribution base. More than 1.1 million Hydro One customers were mailed a coupon booklet that provided price discounts on a variety of low cost energy efficient products, totalling $30 worth of savings. The products included compact fluorescent lights, seasonal LED lighting, programmable thermostats, outdoor/block heater timers, indoor timers and ceiling fans.

Design:
Using the billing system, customers were mailed a coupon booklet along with their monthly statement. Coupons were instantly redeemable at the point of purchase at any Canadian Tire retail store. All coupons redeemed were tracked for reporting purposes.

Intent:
The objective of the initiative was to heighten the awareness of conservation amongst customers, as well as achieve energy savings in kWh and kW. The coupons encouraged customers to take simple, low-cost actions to save both energy and money.

Delivery:
Networks and the Coalition of Large Distributors (CLD), absent Toronto Hydro, and 29 other LDCs joined together and offered the same retail coupon program to a total of 2.3 million customers.

Evaluation:
Over 40,000 Networks coupons were redeemed at Canadian Tire retail stores from October to December 2005. The redeemed coupons amounted to 72,000 energy saving products being sold.

Customer response rate for coupon programs is typically low in the range of 2 – 3 percent; however, Networks' program had a strong response rate of 4 percent.

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings kWh	Annual Savings KW	Lifecycle kWh
Mass Market Coupon Initiative	1,500	277	7,261,874	285	70,142,678

Residential: Seasonal Light Emitting Diode Lighting

Description:
The SLED (Seasonal Light Emitting Diode) Program was marketed to residential customers over the holiday season. The program was offered in 20 communities throughout Ontario. Close to 11,000 strings of Seasonal LEDs were given out throughout the duration of the program.

Design:
Hydro One participated in 20 community events, at which customers turned in incandescent strings of lights for a string of SLEDs. The incandescent lights that were collected were taken out of service and recycled in an environmentally friendly manner.

Intent:
The objective of the SLED program was to create awareness of the benefits of SLED lights to drive change in consumer behaviour and to reduce the seasonal load. SLEDs use up to 95% less energy, last longer and emit less heat. These benefits equal both energy savings and cost savings for the customer.

Delivery:
The program included two components. The first component was a SLED exchange, where customers exchanged two incandescent strings for a SLED string. The second phase was a "customer trial program" in which SLED strings were given to municipalities, distributed at community events, offered to energy workshop participants and distributed to charitable groups.

Evaluation:
Close to 11,000 SLED strings were provided to residential customers and to municipalities. Through the exchange component of the program, 6,350 SLED strings were given away and 12,049 incandescent strings were collected. Through the second component of the program 4,550 SLED strings were distributed.

In addition, 1,200 SLED strings were provided to Toronto Hydro to help them replace strings subject to a manufactures recall. The savings for those strings are not included here.

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings kWh	Lifecycle kWh
SLED Lighting	430	171	219,079	6,572,370

Residential: Low Income Program

Description:
Networks is offering $3,000 to qualifying low income households to be used towards upgrades and retrofits to the home designed to achieve electrical energy savings. These funds are to be used in conjunction with the funds and services that are available from Canada Mortgage and Housing Corporation's (CMHC) Homeowner Residential Rehabilitation Assistance Program (RRAP) and Natural Resources Canada's (NRCan) EnerGuide for Homes Program. Combining the three programs will help to achieve maximum energy savings in low-income households in Networks' service territory. This is the first program of its kind in Canada, and it is the first to bring the EnerGuide for Homes program to the low-income sector.

Design:
CMHC processes applicants through their RRAP program, which includes criteria to determine low-income status. Qualifying applicants then receive a health and safety assessment of their home, as well as an EnerGuide for Homes energy audit to determine the energy efficiency of their home. RRAP funding for health and safety retrofits is offered to the qualifying applicant and Networks' funds are used for energy improvements identified in the EnerGuide audit.

Networks funds the electricity improvements up to $3,000 per home. NRCan funds the EnerGuide for Homes audits, one before and one after improvements are implemented, valued at $300 - $500 total. CMHC processes applications, including screening for adherence to low income criteria, and handles all correspondence with the customer. RRAPs does not fund energy efficiency improvements.

Intent:
The objective of this program is to assist low income homeowners in contributing to and benefiting from conservation. Low income customers tend to have a higher prevalence of electric water heating and electric heating in their homes and they spend proportionately more of their disposable income on energy costs. Low Income customers also have fewer means to improve the efficiency of their homes and would not otherwise have had access to the EnerGuide for Homes program.

Delivery:
The tri-party initiative described above will maximize the potential customer intake, as well as the potential energy savings. Audits are performed before the funding is issued, including after the energy savings measures have been implemented to quantify the savings in kWh.

Evaluation:

The program took nine months of negotiations for contracts with two different arms of the federal government. The negotiations took place between January 2005 and September 2005. The program was launched in September 2005; by December there were only 10 customers who had begun the program, at the time of writing this report, there are 41. Getting the word out and getting customers to come forward is taking some time, however, the processing of applications is going quickly.

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings kWh	Annual Savings KW	Lifecycle kWh
Low Income Program	3,500	8			

Residential: Social Housing Pilot

Description:
Currently, three social housing providers in Networks' service territory, representing 750 units, are participating in a pilot to improve the energy efficiency of their buildings. Networks is contributing a total of $550 per unit. The funding includes $50 per unit towards audits and up to $500 per unit for the implementation of measures designed to achieve electrical energy savings ($450 per unit), as well as energy awareness training ($50 per unit). This pilot is part of the Social Housing Services Corporation (SHSC) Energy Management Pilot

Design:
The SHSC Energy Management Pilot is a comprehensive program designed to improve the energy efficiency of social housing properties in Ontario. Participants in the pilot will have an on-site energy audit conducted and will use these findings to generate an implementation plan for their buildings. The social housing property managers and their respective boards approve the energy improvement plan. SHSC will review the plans and will then develop a funding plan for the properties' retrofit, utilizing both public and private funding.

Intent:
The objective of this pilot is to assist social housing properties with contributing to and benefiting from conservation. Social housing properties tend to be older and often lack the funding to pursue measures to improve their energy efficiency.

Delivery:
All participants in the pilot must be qualified by the SHSC. Once qualified, the properties receive an on-site energy audit. The results of the audit are made available to the property managers to use in the development of an energy management plan. This plan must be approved by their municipalities before it is presented to the SHSC. The SHSC develops a plan to secure funding for the retrofits to be accomplished, leveraging both public and private funds. Networks is offering up to $550 per unit for social housing properties in Networks' service territory.

Evaluation:
The energy audits have been conducted on the three housing providers, for a total of 750 units, in Networks' pilot. The providers are currently in the process of developing their energy management plans using the data provided in the audits.

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings kWh	Annual Savings KW	Lifecycle kWh
Social Housing Pilot	1,500	38			

Residential: Residential Load Control Pilot

Description:
In 2004, 416 customers residing in the areas of Kingston, Simcoe and Newmarket had load control units installed in their homes. The loads that were being controlled include central air conditioners, pool pumps and electric hot water heaters. Differing hours of interruption and incentive levels were offered to customers with particular profiles of controllable variables, to ensure that the results would be representative of Networks' customer base.

Design:
A "smart meter" was installed in each pilot home and set to collect five minute interval data for the duration of the pilot. This level of consumption data was necessary in the pilot phase to accurately estimate the load interruption that could be obtained from each device during each control event. This approach provides the information required to adequately design a large scale residential load control program, which will rely on the statistical output from the pilot phase to determine results rather than requiring the ongoing assessment of such vast amounts of consumption data.

Over the course of the pilot, equipment was controlled for varying time intervals and at various times of the day, using a programmed schedule. The schedule was designed so that an analysis of the results would yield a "load interruption profile", a map of what load interruption could be achieved for each equipment type at any time of the day and under what circumstances. Customer questionnaires were administered throughout the pilot to assess customer acceptance, as well as collect relevant demographic data.

Intent:
The objectives of this pilot were to determine the potential load impact of controlling residential equipment during system peak periods through the installation of load control units and to assess customer response to those interruptions. Amount of monthly incentives were also assessed.

Delivery:
The delivery of the pilot consisted of five stages: pilot design, customer recruitment, technology deployment, data acquisition and data analysis. External consultants and service providers were employed during all stages to supplement available Networks' resources and expertise.

Evaluation:
Currently, data analysis is underway to determine the energy savings resulting from the load control, as well as customer acceptance of the disruption and incentives. Professor Dean Mountain, McMaster Institute for Energy Studies was retained to aid in the design of the pilot and in the analysis of the results. Preliminary results are as follows:

- The average load savings during summer peak
    - 0.75 KW/unit for air conditioners
    - 0.53 KW/unit for water heaters
- The number of units controlled
    - 293 air conditioners
    - 257 water heaters
- Summer peak savings are 358 KW
- Winter peak savings are 193 KW

Given the favourable results of the pilot, Networks is in the process of implementing customer program deployment.

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings KW
Load Control Pilot	1,220	783	358
Load Control Program	3,500		

Commercial/Industrial: Interim Time of Use Pilot

Description:
The pilot offers customers rate incentives through the application of rates that help to shift electricity demand away from periods of maximum demand and into the off-peak periods. Depending on the difference in demand between the two time periods, customers could realize substantial savings in their distribution bills. Networks currently has four customers participating in the pilot.

Design:
Hydro One Distribution received approval from the Board to implement distribution time of use rates for customers whose off-peak demand consumption (kW) was at least twice their on-peak demand consumption. The off peak period is 7pm to 7am Monday to Friday, and all day on weekends and holidays.

Intent:
Determining if customers will modify their consumption patterns to take advantage of time of use rates will indicate whether Distribution charges are an impediment or a significant factor, as compared to the generation component, in promoting load shifting by customers. Encouraging commercial and industrial customers to shift their demand away from the peak will benefit both those customers and the electricity system as a whole.

Delivery:
Customers whose operation patterns qualify for the interim time of use rate will be eligible to participate in the pilot. Their demand in the off peak hours must be twice that in the on peak period.

Once qualified the appropriate metering is installed (e.g. interval meter). Consumption patterns will be reviewed to ensure that the customer continues to meet eligibility criteria.

Evaluation:
While there has been some interest in learning about the details of the time of use rate, no additional customers have yet been willing to modify their operation patterns in order to qualify for the interim time of use rate. Early indications are that the distribution component of electricity rates is a not significant enough factor in the customer's total cost structure to warrant such changes to operating procedures.

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings KW
Interim Time of Use Pilot	475	238	

MUSH: Toronto Region Conservation Authority Programs

Description:
Networks is participating in five energy initiatives being led by the Toronto Region Conservation Authority (TRCA) as part of their Community Transformation Programs. The programs will target municipalities, hospitals, schools, as well as the residential sector. The projects in which Networks is participating include:

- The Mayor's Megawatt Challenge – identifies actions that can be taken to achieve energy savings in municipal buildings and single pad arenas
- Greening Health Care – encourages hospitals to work together to achieve optimal energy savings
- Sustainable Schools – identifies best practices in green design, commissioning and operations, enabling school boards to improve the energy performance of schools
- The Residential Energy Benchmarking Project – research initiative to assess actual energy use differences among new and older homes, before and after improvements

Design:
The majority of the initiatives are comprehensive programs which include initial assessments, recommended initiatives to achieve savings, in addition to web-based applications to facilitate independent monitoring and benchmarking of performance to ensure savings are achieved.

Intent:
The purpose of Networks involvement in the TRCA programs is to demonstrate support of community-based programs, as well as foster co-operation with municipal local distribution companies.

Delivery:
All elements related to the delivery of programs is co-ordinated by the TRCA.

Evaluation:
No projects have progressed to evaluation stage as of year-end 2005.

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings kWh	Lifecycle kWh
TRCA	560	170		

Industrial: Industrial Energy Efficiency Assessments

Description:
The first phase of this pilot project uses the energy diagnostic tool, *One-2-Five Energy Diagnostic,* to provide customers with an assessment and benchmarking report of their current energy management practices. Ten of Networks' large distribution connected industrial customers had this interactive workshop performed on their premises. This workshop provided the customer with information on their energy management practices in relation to the company's own operating costs and to other similar industries, as well as suggestions on key areas for improvement and an estimation of potential energy cost savings.

Design:
Ten large distribution connected customers have had a *One-2-Five Energy Diagnostic* session conducted. Each customer has received a written report based on the findings of the session. We were hoping to have three of these customers proceed with phase two of this pilot project which includes a more in-depth energy review to identify key energy savings opportunities and the development of an action plan aimed at promoting short term activities to realize the identified savings. Six months later, once initiatives have been implemented, a repeat diagnostic session will be completed and the next steps to take are developed, as well as a success story summarizing the improvements that have been made.

Intent:
The objective of this program is to enable large industrial customers (above 2MW) to contribute to and realize savings from conservation and demand management in their facilities. Different customer types, including forestry, food and beverage, automobile and processing have been targeted so that the findings can be used to target and develop future CDM programs.

Delivery:
For phase one, the vendor will conduct the diagnostic sessions on the premises of the customer. Each participating customer will receive a diagnostic report, a benchmarking report, as well as an indication of the level of savings that can be achieved in their facility.

Evaluation: 10 Industrial customers had the initial assessments completed in 2005, however recommended actions had not been completed as of year-end 2005.

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings kWh	Annual Savings KW	Lifecycle kWh
Industrial Energy Efficiency Assessments	175	63			

Farms: Farm Energy Efficiency

Description:
Networks has undertaken several initiatives to assist the farming community with electrical conservation and efficiency. These initiatives included conducting energy audits, producing informational material, as well as the signing of a Memorandum of Understanding (MOU) with the Ministry of Agriculture, Food and Rural Affairs, Ontario Power Authority, Ontario Ministry of Energy and the Ontario Federation of Agriculture, to co-operate with the development of agricultural energy efficiency initiatives.

Design:
As with other aspects of this CDM program, Networks' approach to farm energy efficiency has been to seek out beneficial partners wherever possible. This has led to many co-operative efforts with the Ministry of Agriculture, Food and Rural Affairs, Ontario Power Authority, Ontario Ministry of Energy and the Ontario Federation of Agriculture, as well as other parties. This relationship was formalized in the form of a Memorandum of Understanding (MOU) late in 2005.

Intent:
The objective of the Farm Energy Efficiency Program is to offer the farming community the information and the tools necessary to realize savings in the energy consumption of their farms. The energy savings will result in cost savings for the farms and energy savings to help reach the government's mandate.

Delivery:
Co-operative efforts commenced with a series of energy efficiency audits of dairy, poultry and swine operations. These efforts involved the development of audit software, tools and training materials, as well as the execution of the audits.

Assessment of the audits and the state of the industry led to the development of informational material to increase farmers' knowledge and awareness of efficiency improvements that could be applied to their operations. Fact sheets, educational television segments, as well as informational DVDs were produced.

Subsequent additional audits and analysis has provided information regarding potential incentive programs for Networks' farm customers to be implemented in 2006.

The MOU that was signed effectively brings together the major provincial organizations with an interest in farm electricity efficiency. Continued cooperation in this venue maximizes the impact these organizations can have by coordinating their activities and minimizing duplication.

Networks participated in the Annual Convention of the Ontario Federation of Agriculture in the Fall, where approximately 700 information DVDs, titled, "Energy Wise Farming" were distributed. Networks also made a presentation at the convention to discuss our programs and opportunities for energy savings.

Eleven informational television segments are being aired on the television show, “Town & Country”. These segments discuss a variety of conservation measures that can be implemented to improve the efficiency of Ontario farms.

Evaluation:

In addition to the informational DVDs and television segments, Networks is funding the analysis of the energy audits in order to determine areas of emphasis for all MOU parties and as a basis for the development of incentive programs for Networks customers and beyond.

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings kWh	Annual Savings KW	Lifecycle kWh
Farm Energy Efficiency	750	110			

Common: Distribution System Loss Reduction

Description:
The Distribution System Loss Reduction Program involves identifying and implementing projects in three specific areas where incremental investments will result in an overall economic benefit to customers by reducing system delivery losses. The three areas in which opportunities exist are power factor correction, feeder phase balancing and leveraging system reinforcement investments.

Design:
A research report was completed in 2005 to identify the areas where Networks will see both an economic benefit and reduce system delivery losses.

Intent:
Lowering distribution system delivery losses will reduce overall system demand and it will also provide additional network capacity for growth. System delivery losses are currently passed onto all customers; therefore, improvements in this area will benefit all customers.

Delivery:
Work on the initiatives will commence in 2006. Regulator approval was not received until November 2005. Therefore, significant time and planning is necessary before field work could begin.

Evaluation:

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings kWh	Lifecycle kWh
Distribution System Loss Reduction	8,000	0		

Communication and Education

The communication and education budget in 2005 included several initiatives intended to educate customers regarding the importance of conservation, as well as offer ideas on how to improve the electrical efficiency of their homes. Networks also appeared at many forums, trade shows and community events to discuss conservation and demand management and our programs.

Energy Efficiency Literature:
A series of pamphlets were distributed to Networks' customers along with their monthly statements, including:

- "No Cost Low Cost" Energy Tips, a series of nine brochures for customers
- "Switch and Save" (compact fluorescent lighting), in participation with Natural Resources Canada
- "Switch to Cold" (cold water clothes washing) in participation with Canadian Energy Efficiency Alliance
- "EnerGuide for Houses" in participation with Natural Resources Canada
- *Staying Connected* customer newsletter profiled the One-Tonne Challenge

Grants:
Networks also provided a grant to the Environmental Earth Angels for the Student Energy Challenge. The program is designed to teach students about their consumption behaviour at school and at home. It demonstrates that simple changes in behaviour can reduce energy consumption, energy bills and the burning of fossil fuels. The program is directed at Grade 5 students and provides a hands-on teaching module.

Energy Forums and Trade Shows:

- Cottage Life Show – conducted two contests promoting energy efficiency, opportunity to discuss conservation with seasonal customers
- MPP Wayne Arthur's Energy Forum – provided energy brochures and information
- MPP Ted McMeekin's Energy Forum – conducted a CFL exchange, 300 distributed
- MPP Garfield Dunlop's Energy Forum – conducted a CFL exchange – 250 distributed
- International Plowing Match – five day event, 2500 CFLs distributed, customers filled out an energy efficiency questionnaire in order to receive free CFL

Sponsorships:

- Trent Hills Renewable Energy Fair – Networks was a major sponsor of this event
- The Art of Being Green – Networks was a major sponsor, energy efficiency fair held in Lanark County

Both events promoted energy efficiency and renewable energy through presentations and vendors providing information on products.

Campaigns:

- Networks was a sponsor in the Clean Air Foundation/Summerhill Group's "**Flick Off**" campaign – goal of program was to test text messaging and email messages as a vehicle to promote energy conservation

Evaluation:

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings kWh	Lifecycle kWh
Communication and Education	1,000	305	286,578	1,146,312

Program Management and Research

A significant portion of Networks' project management and research budget has been spent on commissioning reports and sponsoring studies related to conservation and demand management. The results of these studies are being used to assist in program development and for further understanding the scope of conservation and demand management.

Some of the studies that Networks has commissioned, participated in, or funded to date include:

- Avoided Cost of Generations Study
    - Prepared by Navigant
- Avoided Cost of Distribution Study
    - Prepared by Union Gas
- Distribution Loss Reduction Strategy
    - Prepared by Kinetrics
- Residential Appliance Survey
    - Networks surveyed residential, seasonal and farm customers to determine equipment penetration rates and demographics in order to facilitate the roll-out of conservation and demand management initiatives that will benefit our customer base
- Hydro One Overview of Residential Customer
    - Prepared by Antim Consulting
    - This study was filed as an interrogatory response in the CDM generic hearing
- Demand Management Potential
    - Prepared by Kinetrics
    - This study was filed as an interrogatory response in the CDM generic hearing

Program	Budget ($K)	Spending to Dec 2005 ($K)	Annual Savings kWh	Lifecycle kWh
Program Management & Research	3,700	804		

Lessons Learned

Our efforts in Conservation and Demand Management in the last year or so have identified a number of lessons learned or key findings, which will be utilized or emphasized as we move forward.

Some of these findings are on a macro level, based on broader policy, structures and inter-relationships, while others are more micro or program specific.

- As electricity prices continue to increase conservation and demand management is becoming a higher priority for customers in all sectors.
- Customers want to be able to control their electricity bill, but do not want to sacrifice comfort.
- Government and Ontario Power Authority should address those areas that utilities can not – codes, standards, and broader policies.
- The Conservation Bureau (of Ontario Power Authority) needs to better define its role to ensure resources are efficiently utilized and results produced in the expected time frames. Currently it is duplicating programs initiated by the LDCs (e.g. coupon program).
- Doing things fast is easy. Doing things right takes time and is not so easy (e.g. for Low Income program it took nine months of negotiations for contracts with two different arms of the federal government). For coupon program it took 9 months from start to finish, roughly 4 months for logistics with retailer (Canadian Tire) and 4 months for coupon delivery and offering, and 1 month to process coupons through redemption house.
- For new and emerging technologies, or for new or high risk applications in the marketplace, pilots (such as the Load Control or Real-Time Monitor pilot projects) or staged rollouts are very valuable in:
    - establishing the effectiveness of the device in either reducing energy consumption or shifting peak demand
    - refining logistics, incentive levels, and product selection,
    - assessing delivery channels, marketing and delivery costs,
    - determining customer acceptance and overcoming barriers to customer participation.

- CDM programs can provide a powerful incentive for encouraging use of innovative market transformation technologies, such as the real-time monitor.
- Using expertise available in Ontario universities can help to develop specific initiatives and assessment tools that provide a basis for sound decisions.
- Partnering with organizations that have experience with targeted technologies and/or targeted customers brings existing skills and knowledge to bear.
- The Hydro One service territory, due to its large size but low population density, is a difficult and less attractive one for retailers, suppliers and other partners to serve.
- The TRC Guide needs to be expanded and updated to reflect new and emerging technologies (e.g. real-time monitoring).
- Clearer direction and consistent communication on smart metering will lead to a more efficient and effective implementation.

Conclusions

As we ended 2005 a great deal of activity was underway.
Programs had been launched, and a number had been completed with results received.

- The residential coupon program produced sales of over 72,000 energy efficient products and savings of over 70 million lifecycle kWh.
- The Real-Time Monitoring pilot determined that 7-10% energy savings were possible through provision on a real-time energy and dollar monitor in the home.
- The Low Income and Social Housing programs were launched and have become a model for other utilities to follow.

Other programs were still underway and customers still being engaged.

Still other efforts were underway through pilot programs to determine the best products, delivery mechanisms and tactics so as to enhance customer value and program efficiency.

In other areas, work was underway to quantify benefits of various technologies, to better understand specific customer needs, to identify and develop relationships with organizations with strengths in areas important to our programs' successes, to optimize incentive levels required for customer participation, and to ensure any program concepts meet required thresholds.

Much effort was also put forth in 2005 on regulatory issues. This included meeting regulatory requirements for CDM Plan approvals, commissioning and submitting subsequent studies (e.g. avoided cost,) a revised Plan submission, meeting required quarterly and year-end reporting requirements, and additional submissions and hearings on intervenor issues.

In 2006 we will move from a pilot stage to implementing more full scale programs. We will continue to identify and seek partnerships with organizations where we can derive synergies and economies of scale.

Programs that are expected to launch or continue into 2006 include:

- an in-home residential energy efficiency initiative
- residential energy efficiency product coupons / direct mail
- community-based traveling energy efficiency initiative with a major retailer (with space cooling focus)
- rollout of a residential real-time monitoring program (based on pilot results)
- rollout of a residential load control program (based on pilot results)
- residential on-line home audit
- further outreach of the Low Income and Social Housing programs
- commercial and industrial lighting
- energy efficient motors
- power factor correction
- LED traffic lights
- agricultural energy efficiency incentives
- smart metering implementation will begin

- line loss reduction work will begin
- ice rink efficiency program
- various educational initiatives

A number of other program concepts are being developed and assessed to determine whether they are appropriate for our customers and our service territory, and which may lead to their introduction during the year.

We also move forward with some remaining uncertainties:

- the results of the Integrated Power System Plan (IPSP), and its consequences on LDCs
- the role of the Conservation Bureau (OPA) in the CDM arena, in the face of the LDCs need to move forward in implementing their approved plans
- leveraging existing infrastructure and existing programs makes efficient use of resources and creates value, however the attribution decision of March 3, 2006 and the adoption of Hydro One programs by outside agencies for broader territories may affect adversely affect this leveraging strategy.

Appendices B

Appendix A - Evaluation of the CDM Plan

	Total	Residential	MUSH***/Commercial	Industrial	Agricultural	Other
Net TRC value ($):	$3,374,462	$4,611,905	-$37,550	-$261,000	-$109,935	-$828,958
Benefit to cost ratio:	1.88	2.76	NA	NA	NA	NA
Number of participants or units delivered:	56,857	56,059	750	15	33	NA
Total KWh to be saved over the lifecycle of the plan (kWh):	79,868,770	79,868,770	0	0	0	NA
Total in year kWh saved (kWh):	8,169,013	8,169,013	0	0	0	NA
Total peak demand saved (kW):	681	681	0	0	0	NA
Total kWh saved as a percentage of total kWh delivered (%):	0.03%	0.07%	0.00%	0.00%	0.00%	NA
Peak kW saved as a percentage of LDC peak kW load (%):	0.01%	NA	NA	NA	NA	NA
Gross in year C&DM expenditures ($):	$4,006,280	$2,530,835	$37,550	$499,002	$109,935	$828,958
Expenditures per lifecycle KWh saved ($/kWh):*	$0.021	$0.015	NA	NA	NA	NA
*Expenditures per KW saved ($/kW)**:*	$1,500	$1,150	NA	NA	NA	NA

Utility discount rate (%):	5.77%

*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.
*** MUSH = Municipalities, Universities, Schools and Hospitals

Appendix B - Discussion of the Program

A. **Name of the Program:** MASS MARKET COUPON INITIATIVE

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

This mass market residential program featured six energy efficient products for the home - compact fluorescent lighting, seasonal LED lights, programmable thermostats, indoor timers, outdoor timers, and ceiling fans. It was promoted through bill inserts to 1.1 million customers. Coupons with the product discounts were redeemed by the exclusive retailer (Canadian Tire) chosen through RFP process. The program was operated in cooperation with 27 other LDCs including the CLD utilities less Toronto. The program ran from October 1, 2005 to December 31, 2005.
Program results were excellent with over 41,000 coupons redeemed and over 72,000 products purchased.

Measure(s):

	Compact Fluorescent Lights	Seasonal LEDs- from 5W/Minis	Programmable Thermostats
Base case technology (kWh/yr.):	139	19.4 / 7.8	H-18,103; C-1,964
Efficient technology (kWh/yr.):	35	0.5 / 0.5	H-16,637; C-1,805
Number of participants/units deliv'd:	19,244 coupons / 50,997 bulbs	7262 / 7262	Total - 3484 (H-850 ; C-1498)
Measure life (years):	4	30	18

Note: H - Heating ; C - Cooling

	Outdoor Timers	Indoor Timers-Lights/AC/unused	Ceiling Fans
Base case technology (kWh/yr.):	876	-	NA
Efficient technology (kWh/yr.):	584	savings - 98 / 108 / 0 kwh/yr.	NA
Number of participants/units deliv'd:	2,477	893 (Lgt-313/AC-313/unus'd-267	752
Measure life (years):	20	20	20

B. **TRC Results:**

TRC Benefits ($):	*$*	*6,711,739*
TRC Costs ($):		
Utility program cost (less incentives):	$	81,279
Participant cost:	$	384,485
Total TRC costs:	$	465,764
Net TRC (in year CDN $):		$ 6,245,975
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		14.41

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

Conservation Programs:

		lifecycle	in first year
Demand savings (kW):	*Summer*		285
	Winter		1,789
Energy saved (kWh):		70,142,678	7,261,874
Other resources saved :			
Natural Gas (m3):		3,806,658	211,481
Oil (litres)		3,073,176	170,732
Propane (litres)		996,462	55,359

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:	$ 81,279
	Incentive:	$ 195,797
	Total:	$ 277,076
Utility indirect costs ($):	*Incremental capital:*	$ -
	Incremental O&M:	$ -
	Total:	$ -
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	*$ 384,485*
	Total:	$ 384,485

E. Comments:

Incentives of $500,000 were accrued and reported in Q4 Report. Actual spend has been revised here to $195,797 .

Other fuel savings (natural gas, oil and propane) for programmable thermostats accounted for Net TRC Benefits of $2,681,577.

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

Appendix B - Discussion of the Program

A. **Name of the Program:** RESIDENTIAL HOLIDAY LED LIGHTING

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

There were two components to this program - an exchange program and a customer trial program.
The exchange program was run in cooperation with local seasonal events in 20 communities across Ontario. A string of seasonal LED lights were provided to customers who turned in 2 strings of seasonal incandescent lighting. The events ran from Nov. 5 to Dec. 4, 2005. 6,300 strings of LED lights were distributed and over 12,000 strings of incandescent lighting were collected and recycled.
The customer trial program involved providing strings of LED lights to a number of municipalities, charitable groups, community groups and customer events. 4,500 strings of LED lights were distributed.

Measure(s):

	Exchange - from 5 Watt bulbs	Exchange - from Mini-Lights	Trial - from 5W & Minis
Base case technology:	36.9 kWh/yr	14.8 kWh/yr	19.4 kWh/yr / 7.8 kwh/yr
Efficient technology:	0.5 kWh/yr	0.5 kWh/yr	0.5 kWh/yr / 0.5 kWh/yr
Number of participants/units deliv'd:	3691	2622	2258 / 2258
Measure life (years):	30	30	30

B. **TRC Results:**

TRC Benefits ($):	*$*	*312,838*
TRC Costs ($):		
Utility program cost (less incentives):	$	85,356
Participant cost:	$	20,573
Total TRC costs:	$	105,929
Net TRC (in year CDN $):	$	206,909
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	$	2.95

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

Conservation Programs:

Demand savings (kW):	*Summer*		0
	Winter		94.4
		lifecycle	*in first year*
Energy saved (kWh):		6,572,370	219,079
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:			
Peak load savings (kW):			
	lifecycle	*in year*	
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:	$	85,356
	Incentive:	$	86,085
	Total:	$	171,441
Utility indirect costs ($):	*Incremental capital:*	$	-
	Incremental O&M:	$	-
	Total:	$	-
Participant costs ($):	*Incremental equipment:*	$	-
	Incremental O&M:	*$*	*20,573*
	Total:	$	20,573

E.

Utility costs for advertising, promotion, and event management of $85,356 were paid from Communications budget in 2005, but will be transferred back to the CDM cost centre in Q1 2006.

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

Appendix B - Discussion of the Program

A. **Name of the Program:** RESIDENTIAL LOAD CONTROL PILOT

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

The objectives of this pilot were to assess residential customer response and potential load impact of controlling central air conditioning, pool pumps, and electric water heating during system peak periods, through installations of load control units and interval meters. Controls were placed on 581 devices in 416 randomly selected homes in three HONI service areas (Kingston, Simcoe, Newmarket). The project ran from July 2004 to December 2005. Participants were paid a monthly incentive for their participation.

Measure(s):

	Central Air Conditioners	Electric Water Heaters	Pool Pumps
Base case technology:			
Efficient technology:	savings - 0.75 kW	savings - 0.53 kW	savings - data not yet available
Number of participants/units deliv'd:	293 units	257 units	31 units
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	*$*	-
TRC Costs ($):		
Utility program cost (less incentives):	$	741,892
Participant cost:	$	-
Total TRC costs:	$	741,892
Net TRC (in year CDN $):	-$	741,892
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 first 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):	358
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:	$	741,892
	Incentive:	$	41,038
	Total:	$	782,930
Utility indirect costs ($):	*Incremental capital:*		0
	Incremental O&M:		0
	Total:		0
Participant costs ($):	*Incremental equipment:*		0
	Incremental O&M:		0
	Total:		0

E. Comments:

The 358 kW summer demand savings that this program achieved did not produce any TRC benefits due to the pilot lasting for one year only and that the avoided costs for the control period were zero according to the TRC Guide. This assumption is questionable given the electricity shortages which occurred last summer.

32 customers from Hydro One Brampton were also included in study, but are not included in results shown in this report.

Correction made in March 2006 to increase direct program costs for LTD 2005 by $42,954 for labour previously unreported.

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

Appendix B - Discussion of the Program

A. **Name of the Program:** RESIDENTIAL REAL-TIME MONITORING - PILOT

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

Objectives of this pilot were to assess residential customer behaviour and quantify potential energy savings arising from the provision of real-time energy usage and cost data. The real-time monitor is an in-home display device that receives a wireless signal from a sensor placed on the exterior electro-mechanical electricity meter. The study operated from July 2004 to August 2005, thus capturing both winter and summer peak periods. Customers were able to track their energy consumption (in kWh) and cost, and also receive instant feedback on actions taken.

Measure(s):

	Measure		
Base case technology:	Ave. 16,176 kWh/yr.		
Efficient technology:	1051 kWh - ave. 6.5% savings		
Number of participants/units deliv'd:	382		
Measure life (years):	5		

B. **TRC Results:**

TRC Benefits ($):	*$*	*127,038*
TRC Costs ($):		
Utility program cost (less incentives):	$	463,411
Participant cost:	$	5,730
Total TRC costs:	$	469,141
Net TRC (in year CDN $):	-$	342,103
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	$	0.27

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

Conservation Programs:

Demand savings (kW):	*Summer*		38
	Winter		114
	lifecycle		*in first year*
Energy saved (kWh):	*2,007,410*		401,482
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:	$	463,411
	Incentive:	$	3,060
	Total:	$	466,471
Utility indirect costs ($):	*Incremental capital:*		0
	Incremental O&M:		0
	Total:		0
Participant costs ($):	*Incremental equipment:*		0
	Incremental O&M:		5,730
	Total:		5,730

E. Comments:

455 participants were initially enrolled in the pilot, however for various reasons, there were some participants for which data collected was insufficient. Results are based solely on the 382 participants with complete data, while costs for all participants are included. Therefore the total kWh savings are conservative.

45 additional participants from Hydro One Brampton were included in study, but not included in results presented in this report.

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

Appendix B - Discussion of the Program

A. **Name of the Program:** RESIDENTIAL LOW INCOME PROGRAM

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

Hydro One's Low Income program (Home Energy Efficiency grant) provides financial incentives for energy-efficiency upgrades to low income Hydro One customers who heat their homes with electricity. The program offers up to $3,000 per qualifying household. The program will be administered by Canada Mortgage and Housing Corporation (CMHC) through their Homeowner Residential Rehabilitation Assistance Program (RRAP), and in partnership with Natural Resources Canada's Energuide for Houses service. The program launched in September 2005.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	NA		
Efficient technology:	NA		
Number of participants/units deliv'd:	10 customers*		
Measure life (years):	NA		

B. **TRC Results:**

TRC Benefits ($):	*$*	-
TRC Costs ($):		
Utility program cost (less incentives):	$	8,758
Participant cost:	$	-
Total TRC costs:	$	8,758
Net TRC (in year CDN $):	-$	8,758
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	-$	8,758

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

Conservation Programs:

Demand savings (kW):	*Summer*		NA
	Winter		NA
	lifecycle		*in first year*
Energy saved (kWh):	*NA*		NA
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:	$	8,758
	Incentive:	$	-
	Total:	$	8,758
Utility indirect costs ($):	*Incremental capital:*		0
	Incremental O&M:		0
	Total:		0
Participant costs ($):	*Incremental equipment:*		0
	Incremental O&M:		*0*
	Total:		0

E. Comments:

Due to program launch in Fall of 2005, no customers have yet completed energy efficiency retrofits.

* Update - 42 customers have registered with program as of Mar.13/06

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

Appendix B - Discussion of the Program

A. **Name of the Program:** SOCIAL HOUSING PROGRAM

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

The Social Housing program, working through the Social Housing Services Corporation (SHSC), will help social housing communities in the Hydro One service area reduce their energy consumption with grants of up to $550 per housing unit for audits and subsequent energy efficiency improvements. This is a 3 year program with $1.5 million of committed funding. SHSC is an independent corporation established by the province to support affordable housing in Ontario. To date audits have been completed on buildings owned by three organizations and comprising a total of 750 units.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	NA		
Efficient technology:	NA		
Number of participants/units deliv'd:	3 buildings with 750 units		
Measure life (years):	NA		

B. **TRC Results:**

TRC Benefits ($):	*$*	-
TRC Costs ($):		
Utility program cost (less incentives):	$	37,550
Participant cost:	$	-
Total TRC costs:	$	37,550
Net TRC (in year CDN $):	-$	37,550
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	NA	

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

Conservation Programs:

Demand savings (kW):	*Summer*	0	
	Winter	0	
	lifecycle	*in first year*	
Energy saved (kWh):	*0*	0	
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:	$	37,550
	Incentive:	$	-
	Total:	$	37,550
Utility indirect costs ($):	*Incremental capital:*		0
	Incremental O&M:		0
	Total:		0
Participant costs ($):	*Incremental equipment:*		0
	Incremental O&M:		*0*
	Total:		0

E. Comments:

Audits have been conducted on buildings owned by three organizations, but no energy efficiency measures have proceeded yet.

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

Appendix B - Discussion of the Program

A. **Name of the Program:** SMART METERING

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

The smart meter program approved by the OEB for 2005 was $1.4M in OM&A and $6.4M in capital. The funding was to cover activities related to meter installation in 2005 that would have put Hydro One in a position to begin deployment leading to 800,000 meters installed by the end of 2007. In preparation, Hydro One acquired 25,000 smart meters and related software. Computerized programs that would make the change meter process paperless and significantly more efficient were also developed. The project was put on hold in 2005 due to the Ontario government's introduction of Bill 21. Installation of smart meters will proceed in 2006. Deployment of the initial 25,000 meters has recently been approved.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants/units deliv'd:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	*$*	-
TRC Costs ($):		
Utility program cost (less incentives):	$	519,000
Participant cost:	$	-
Total TRC costs:	$	519,000
Net TRC (in year CDN $):	-$	519,000
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		

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

Conservation Programs:

Demand savings (kW):	*Summer*		0
	Winter		0
		lifecycle	*in first year*
Energy saved (kWh):		*0*	0
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:	$	519,000
	Incentive:	$	-
	Total:	$	519,000
Utility indirect costs ($):	*Incremental capital:*		0
	Incremental O&M:		0
	Total:		0
Participant costs ($):	*Incremental equipment:*		0
	Incremental O&M:		*0*
	Total:		0

E. Comments:

Due to the program being put on hold, no meters have yet been installed.

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

Appendix B - Discussion of the Program

A. **Name of the Program:** COMMUNICATION AND EDUCATION PROGRAM

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

A number of Communication and Education initiatives have been conducted. The Earth Angels Student Energy Challenge provided education on energy conservation to students in 20 schools aross Ontario. Much positive response was received from both students and parents.
The "Switch to Cold" program encouraged consumers to wash their clothes in cold water. Bill inserts were sent to all customers twice as part of this initiative, and promotion of the program on the website was also included.
Other education and communication activities undertaken include the distribution of a series of nine customer brochures with No Cost/Low Cost energy efficiency measures that customers could undertake, "Energuide for Houses" bill inserts, "Switch and Save" compact fluorescent (CFL) promotion bill inserts, distribution of over 3,000 CFLs at shows and energy forums, and promotion of Compact Fluorescent lighting on the back of customer billing envelopes.

Measure(s):

	"Switch to Cold" Wash	"Switch and Save" CFLs	Energuide for Houses
Base case technology:	NA	NA	NA
Efficient technology:	NA	NA	NA
Number of participants/units deliv'd:	1.2 million inserts X 2	1.2 million inserts	1.25 million inserts
Measure life (years):	NA	NA	NA

B. **TRC Results:**

TRC Benefits ($):	*$*	*73,798*
TRC Costs ($):		
Utility program cost (less incentives):	$	297,534
Participant cost:	$	5,490
Total TRC costs:	$	303,024
Net TRC (in year CDN $):	-$	229,226
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	$	0.24

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

Conservation Programs:

Demand savings (kW):	*Summer*		0
	Winter		0
		lifecycle	*in first year*
Energy saved (kWh):		*1,146,312*	286,578
Other resources saved :			
Natural Gas (m3):		NA	NA
Other (specify):		NA	NA

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:	$	297,534
	Incentive:	$	7,625
	Total:	$	305,159
Utility indirect costs ($):	*Incremental capital:*		0
	Incremental O&M:		0
	Total:		0
Participant costs ($):	*Incremental equipment:*		0
	Incremental O&M:		*5490*
	Total:		5490

E. Comments:

Some of these programs were funded though Communications Dept., totalling $ 213,000. These costs are not currently reflected in CDM budget spent, but will be transferred to the CDM cost centre in Q1 2006.

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

Appendix B - Discussion of the Program

A. **Name of the Program:** INDUSTRIAL/ COMMERCIAL ENERGY EFFICIENCY

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

This program includes three components to date :
- Energy audits of industrial and institutional facilities through Hatch Ltd. - 11 companies have had initial diagnostic session ; 1 firm has proceeded to second stage (process and operational review)
- energy efficiency workshop for municipal arena operators
- a variety of energy efficiency initiatives through the Toronto Region Conservation Authority, which extend into the Hydro One service territory

Measure(s):

	Hatch Diagnostic audits	TRCA	Ice Rink Efficiency
Base case technology:			
Efficient technology:			
Number of participants/units deliv'd:	11		1 workshop
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	*$*	-
TRC Costs ($):		
Utility program cost (less incentives):	$	261,000
Participant cost:	$	-
Total TRC costs:	$	261,000
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*		NA
	Winter		NA
		lifecycle	*in first year*
Energy saved (kWh):		*NA*	NA
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:	$	261,000
	Incentive:	$	-
	Total:	$	261,000
Utility indirect costs ($):	*Incremental capital:*		0
	Incremental O&M:		0
	Total:		0
Participant costs ($):	*Incremental equipment:*		0
	Incremental O&M:		*0*
	Total:		0

E. Comments:

The Hatch Ltd. process involves :
Stage 1 - Identifying and recruiting the participation of industrial customers with 2-5 MW demand across a variety of sectors. This is followed by an energy diagnostic session with the key personnel from each participating company, which covers 22 elements of energy management practices. Each participating firm then receives a diagnostic report that includes the savings potential, critical actions for improvement, and a benchmarking comparson with other firms in their sector.
Stage 2 - A smaller sub-set of companies will then proceed with a more in-depth energy review which leads to a report providing the key energy saving opportunities, an on-site workshop with staff to prioritize the opportunities, and a short-term action plan to get implementation underway. There will be subsequent followup with participants to determine the degree of progress achieved in implementing these measures.

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

Appendix B - Discussion of the Program

A. **Name of the Program:** INTERIM TIME OF USE

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

Interim Time of Use (TOU) rates were offered to general service customers who could achieve an off-peak demand (kW) at least twice their on-peak demand. Distribution rates were the same as for other comparable distribution customers but demand charges are only applied to the peak demand during on-peak hours.
The LTD costs are the difference in revenues that would have been collected at standard distribution rates and what is being collected at TOU distribution rates, plus initial set up costs. This program began in 2004 and is expected to run until 2007. Four customers below 5 MW are currently participating.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants/units deliv'd:	4 customers		
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):		NA

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

Conservation Programs:

Demand savings (kW):	*Summer*		0
	Winter		0
		lifecycle	*in first year*
Energy saved (kWh):		*0*	0
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:

Peak load savings (kW):		
	lifecycle	*in year*
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:	$ 238,002
	Total:	$ 238,002
Utility indirect costs ($):	*Incremental capital:*	0
	Incremental O&M:	0
	Total:	0
Participant costs ($):	*Incremental equipment:*	0
	Incremental O&M:	*0*
	Total:	0

E. Comments:

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

Appendix B - Discussion of the Program

A. **Name of the Program:** FARM ENERGY EFFICIENCY

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

Hydro One has undertaken many co-operative efforts with the Ministry of Agriculture, Food and Rural Affairs, Ontario Power Authority, Ontario Ministry of Energy and the Ontario Federation of Agriculture, as well as other parties. This relationship was formalized in the form of a Memorandum of Understanding (MOU) late in 2005.
Cooperation commenced with the development of energy audit software, related tools and training materials and with audits of dairy, poultry and swine operations. Assessment of the audits and the state of the industry led to the development of informational material to increase farmers' knowledge and awareness of efficiency improvements that could be applied to their operations. Fact sheets, educational television segments, as well as informational DVDs were produced.
Subsequent additional audits and analysis have provided information regarding potential incentive programs for Networks' farm customers, to be implemented in 2006.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Farm efficiency audits		
Efficient technology:			
Number of participants/units deliv'd:	33		
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	*$*	-
TRC Costs ($):		
Utility program cost (less incentives):	$	109,935
Participant cost:	$	-
Total TRC costs:	$	109,935
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*	0
	Winter	0
	lifecycle	*in first year*
Energy saved (kWh):	*0*	0
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:

Peak load savings (kW):		
	lifecycle	*in year*
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:	$	109,935
	Incentive:	$	-
	Total:	$	109,935
Utility indirect costs ($):	*Incremental capital:*		0
	Incremental O&M:		0
	Total:		0
Participant costs ($):	*Incremental equipment:*		0
	Incremental O&M:		*0*
	Total:		0

E. Comments:

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

Appendix B - Discussion of the Program

A. **Name of the Program:** PROGRAM MANAGEMENT AND RESEARCH

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

This program includes :
- CDM reports and studies commissioned or purchased in order to generate or evaluate CDM program concepts, or to assist in program development.
- market and technical research studies
- development of CDM processes, such as a project management system
- association membership fees
- trade publications

Measure(s):

Base case technology:			
Efficient technology:			
Number of participants/units deliv'd:	Not Applicable		
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	*$*	-
TRC Costs ($):		
Utility program cost (less incentives):	$	804,077
Participant cost:	$	-
Total TRC costs:	$	804,077
Net TRC (in year CDN $):		NA
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		NA

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

Conservation Programs:

Demand savings (kW):	*Summer*		NA
	Winter		NA
		lifecycle	*in first year*
Energy saved (kWh):		*NA*	NA
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:	$	804,077
	Incentive:	$	-
	Total:	$	804,077
Utility indirect costs ($):	*Incremental capital:*		0
	Incremental O&M:		0
	Total:		0
Participant costs ($):	*Incremental equipment:*		0
	Incremental O&M:		*0*
	Total:		0

E. Comments:

Correction made in March 2006 to increase direct program costs for LTD 2005 by $198,277 for labour previously unreported.

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