
# Hydro One Brampton Networks Inc.

# Conservation and Demand Management Plan

# Annual Report to December 31, 2005

**RP-2004-0203 \ EB-2005-0377**

**March 31, 2006**

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## Introduction

On February 18, 2005 Hydro One Brampton Networks Inc. ("HOB") received final approval from the Board for their Conservation and Demand Management Plan ("CDM Plan") covering the period 2005 – 2007.

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, HOB has complied with the requirement of the Procedural Order. HOB has also provided the information requested in the Guideline.

In preparing the CDM Plan, HOB based their initiatives on the following objectives:

- Contribute to the creation of a conservation culture in Ontario
- Help consumers and businesses manage their electricity use
- Contribute to the Province's target of reducing energy demand
- Support community-based programs and foster co-operation with municipal local distribution companies

The following criteria were used to assist in program design and cost allocation:

- Customer Needs – programs meet the needs of HOB's customer base
- Benefit Allocation – benefits arising from the planned initiatives be distributed across HOB's customer base
- Benefit Assurance – potential to realize energy savings and cost of delivery
- Leveraging Partnerships – partnerships that will make use of economies associated with greater scale of delivery or existing delivery channels
- Activities Support Minister's Plans – preferred concepts or initiatives fit within the activities identified in the Minister's May 31, 2004 letter to distributors

## Results Summary

HOB has been successful at launching programs across various sectors, including residential and commercial and industrial. Our innovative approach to program design has become a model for other utilities to follow. HOB has worked in conjunction with Hydro One Networks Inc. ("HONI") to develop joint programs where possible. HOB has also participated in 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, developing programs for roll-out, and was consumed by regulatory reviews.

In addition to developing programs, HOB in partnership with HONI, 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 HOB's customer base. We believe that it is important to test the benefits and costs of programs before widespread deployment, because ultimately the customer pays.

HOB's CDM Plan presents a balanced approach to both conservation and load control initiatives. Our programs in partnership with HONI are designed to offer opportunities for all customers within our service territory to contribute to and benefit from a culture of conservation. HOB's 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.

The following figure provides an overview of HOB's 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 | 140 | | | | | |
| Real Time Monitoring Pilot | 40 | 37 | 1.92 | 16,055 | 80,275 | .46 |
| Mass Market Coupon Initiative | 500 | 45 | 33 | 577,441 | 6,204,115 | .007 |
| LED | 100 | 81 | | 85,344 | 2,560,317 | .03 |
| Load Control Pilot | 80 | 70 | 16.2 | | | |
| **Total** | 860 | 233 | 51.12 | 678,840 | 8,844,707 | |
| **Commercial/Industrial** | | | | | | |
| Conservation Assets Program (Interval Meters) | 1,285 | 257 | | | | |
| C/I Power Factor Correction Pilot | 150 | 2 | | | | |
| C/I Load Control | 500 | 10 | | | | |
| Technology Demonstration Project | 135 | | | | | |
| **Total** | 2,070 | 269 | | | | |
| **Common** | | | | | | |
| Distribution Loss Reduction | 100 | 46 | | | | |
| Research Planning and Development | 36 | 7 | | | | |
| Communication and Education | 165 | 25 | | | | |
| Internal Building Efficiency | 5 | | | | | |
| **Total** | 306 | 78 | | | | |
| **Grand Total** | 3,236 | 580 | 51.12 | 678,840 | 8,844,707 | |

# Program Overviews

## Residential Smart Metering Pilot Program

**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.

**Design:**
HOB recognizes that there many LDC's are undertaking smart metering pilot projects, utilizing metering from various manufacturers. When the results from the various pilot projects are available HOB will review the results and will then implement its pilot program 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:**
HOB was scheduled to implement this pilot project in 2005. In light of the uncertainty surrounding smart metering legislation during this year, HOB staff contacted OEB staff to confirm if HOB should proceed with this pilot. After discussing these issues it was decided by that it was better to delay the implementation of this pilot until further clarification was provided. HOB will be reviewing the results of other pilots from other LDC's before initiating this pilot in 2006.

**Evaluation:**
There are no results to report for 2005.

| Program | Budget ($K) | Spending to Dec 2005 ($K) | Annual Savings kWh | Lifecycle kWh |
|---|---|---|---|---|
| Smart Meters | 140 | 37 | N/A | N/A |

## Residential: Residential Real Time Monitoring Pilot

**Description:**
In 2004, 45 customers 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. This pilot was performed in conjunction with HONI's pilot, which formed the largest pilot project 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 HOB's resources and expertise.

**Evaluation:**
Overall, the aggregate reduction in electricity consumption (kWh) across the HOB sample was 4.917 %. The provincial average for similar customer base was 5.1% 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 for the province as a whole are as follows:

- The results (for the entire study) 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.

The results were favourable for this pilot project. HOB having only budgeted for the pilot project and not for a follow up program, and originally budgeted funds having been exhausted this program will not be extend.

| Program | Budget ($K) | Spending to Dec 2005 ($K) | Annual Savings kWh | Annual Savings KW | Lifecycle kWh |
|---|---|---|---|---|---|
| Real Time Monitoring Pilot | 40 | 36.6 | 16,055 | 1.92 | 80,275 |
| | | | | | |

## Residential: Mass Market Coupon Initiative

**Description:**
The Residential Energy Coupon Initiative was offered to HOB's residential distribution base. All HOB's residential 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 CFLs, LED holiday lighting, programmable thermostats, outdoor/block heater timers, indoor timers and ceiling fans.

**Design:**
Using the HOB's 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:**
This was a joint project along with HONI, 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:**
A total of 3,840 HOB's coupons were redeemed at Canadian Tire retail stores from October to December 2005. The redeemed coupons amounted to 6002 energy saving products being sold.

Customer response rate for coupon programs is typically low in the range of 2 – 3 percent; however, HOB's 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 | 500 | 67 | 577,441 | 33 | 6,204,115 |

## Residential: Seasonal Light Emitting Diodes

**Description:**
The LED (Light Emitting Diode) Exchange Program was marketed to residential customers over the holiday season. The program was offered to residential customers only. HOB gave out a total of 6,000 strings of SLEDs (Seasonal Light Emitting Diodes) throughout the duration of the program.

**Design:**
HOB partnered up with the City of Brampton and a local shopping center for a targeted promotion campaign, during which customers turned in incandescent strings of lights for a string of SLEDs.

**Intent:**
The objective of the LED program was to create awareness of the benefits of LED lights to drive change in consumer behaviour and to reduce the seasonal load. LEDs 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 “One to One” SLED exchange, where customers exchanged incandescent strings for a SLED string. The second phase was where quantities of SLEDs were given to the City of Brampton to be used for the Tree Lighting celebration in conjunction an exchange program took place during the event.

**Evaluation:**
6000 SLED strings were provided to residential customers and to the City of Brampton. Through the exchange component of the program 5,412 SLED strings were given away and 5,953 incandescent strings were collected.

| Program | Budget ($K) | Spending to Dec 2005 ($K) | Annual Savings kWh | Lifecycle kWh |
|---|---|---|---|---|
| SLEDs Distributed | 100 | 81 | 85,344 | 2,560,317 |

## Residential: Load Control Pilot

**Description:**
In 2004, 30 HOB customers had load control units installed in their homes. The loads that were being controlled include central air conditioners and pool pumps. 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 HOB's 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' 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
    - 0.60 KW/unit for air conditioners

- The number of units controlled
    - 27 air conditioners
    -
- Summer peak savings are 17.2 KW

The results for this pilot program the favourable. HOB have spent the budgeted amount for the pilot project and have not committed additional resources for further programs.

| Program | Budget ($K) | Spending to Dec 2005 ($K) | Annual Savings KW |
|---|---|---|---|
| Load Control Pilot | 80 | **70** | 16.2 |
| | | | |

## Commercial/Industrial: Power Factor Correction Program

**Description:**
The pilot offers customers incentives to HOB's commercial and industrial customers to install power factor correction equipment in their facilities thereby reducing the kVA portion of their electrical demand. The customer base is comprised of a large manufacturing component as well as many large commercial facilities that contribute to poor power factor.

**Design:**
HOB will offer an incentive that will reduce the cost barrier that may impede installation of such equipment. Customers with power factors below 90% with demands greater than 200 kW will be educated upon power factor and encouraged to install power factor correction capacitors. Individual customer power factor analysis will determine which customers qualify for incentive.

**Intent:**
The intent is to have customers who have low power factors install power factor correction equipment thereby reducing the kVA demand on the grid. Determining what level of incentive is required to have customers correct poor power factors and what levels of correction can be obtained will be the base for a continued program. Encouraging commercial and industrial customers to correct low power factors will benefit both the customer and the electricity system as a whole. The benefit will be the reduction of system losses and the required kVA due to reduced electrical current levels in the distribution system.

**Delivery:**
Customers whose billing and usage profiles qualify for the program will be targeted and will be eligible to participate in the pilot. This pilot project will be delivered in 2006

**Evaluation:**
This program will not be delivered until Q2 of 2006 and as such no results to report at this time.

| Program | Budget ($K) | Spending to Dec 2005 ($K) | Annual Savings KW |
|---|---|---|---|
| Power Factor Correction | 150 | 2.4 | **N/A** |

## Commercial Industrial: Conservation Assets Program

**Description:**
Interval metering provides the ability to record consumption in time intervals that can be matched to price signals aligned to reflect the true cost of power. HOB's current phase of this project is to install interval metering on customers that have monthly demands greater than 200 kW.

**Design:**
The conservation Assets Program will be executed in two phases. Firstly, all customers who have demands above 50 kW will be retrofitted with smart ( interval ) meters. The second phase of the project will be the introduction of and access to web based load profiling data for all customers with interval metering.

**Intent:**
The integration of smart metering and data warehousing with timely customer access to this data is essential for an improved customer understanding of consumption patterns as they occur.

**Delivery:**
This program will be rolled out in the first quarter of 2006. All metering equipment was purchased in 2005 for the 2006 implementation date. The web base component was also launched in 2006.

**Evaluation:**
There are no results to report at this time.

| Program | Budget ($K) | Spending to Dec 2005 ($K) | Annual Savings kWh | Lifecycle kWh |
|---|---|---|---|---|
| Conservation Assets Pgm | 1,285 | 257 | **N/A** | **N/A** |

## Commercial / Industrial: C/I Load Control Pilot Project

**Description:**
The C/I load control project is similar in its main objectives to the Residential Load Control Project. The objective is to shave summer peak via control of C/I loads. The portion of the program completed to date evolved the installation of Smart Thermostats to control air conditioning for use in small commercial industrial facilities. In partnership with HONI 11 smart stats were installed in Brampton during the summer 2005.

**Design:**
HOB installed11 Smart Thermostats during the pilot project phase, into facilities in Brampton. This program is being carried out in conjunction with HONI smart thermostat program.

**Intent:**
Utilizing a smart thermostat provides the ability to reduce summer peak by means of direct control. This will provide the ability to reduce the coincident demand on the distribution system through control of air conditioning.

**Delivery:**
For the pilot project HOB will partner with HONI and use a third party to deliver this project.

**Evaluation:**
This program was initiated in 2005 and the results are not yet available.

| Program | Budget ($K) | Spending to Dec 2005 ($K) | Annual Savings kWh | Annual Savings KW | Lifecycle kWh |
|---|---|---|---|---|---|
| C/I Load Control Pilot | 500 | 10 | **N/A** | **N/A** | **N/A** |

## Commercial / Industrial: Technology Demonstration Project

**Description:**
This program will provide and incentive to HOB commercial and industrial customers to install emerging energy technologies. Such initiatives would serve as a new technology showcase, which could then be promoted to other HOB customers

**Design:**
As with other aspects of this CDM program, HOB's approach to energy efficiency has been to seek out beneficial partners wherever possible to deliver the appropriate technology to the customer.

**Intent:**
The objective of the Technology Demonstration Project is to bring new and innovative technologies to customers, and where necessary, provide an incentive to encourage the installation of the new technologies. The energy savings will result in cost savings for the industries and help reach the government's objectives.

**Delivery:**
Co-operative efforts with partners will be required to identify customers who would benefit from new emerging energy efficient technologies. The economic merits of the technologies would be determined and where the results are favourable incentives would be made available to encourage the purchase and installation of the technologies.

**Evaluation:**
This program will be introduced in 2006 and presently there are no results to report.

| Program | Budget ($K) | Spending to Dec 2005 ($K) | Annual Savings kWh | Annual Savings KW | Lifecycle kWh |
|---|---|---|---|---|---|
| Technology Demonstration Project | 135 | 0 | **N/A** | **N/A** | **N/A** |

## Common: Distribution System Loss Reduction

**Description:**
The Distribution System Loss Reduction Program involves the optimization of HOB's distribution system. Specific focus on voltage conversion, power factor correction, and power system load balancing system optimization

**Design:**
Using computerized modelling programs, the distribution system will be modeled to identify which aspects of the distribution system offer the greatest potential for gains.

**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:**
The modelling of the system commenced in 2005 but the project will not be completed until 2006. A report will then identify which initiatives offer the greatest potential.

**Evaluation:**
This program was started in 2005 and won't be completed until 2006. No results are available at this time.

| Program | Budget ($K) | Spending to Dec 2005 ($K) | Annual Savings kWh | Lifecycle kWh |
|---|---|---|---|---|
| Distribution System Loss Reduction | 100 | 46 | **N/A** | **N/A** |

## Common: Research Planning and Development

**Description:**
HOB have partnered with HONI on customer research projects the first of which entails a detailed residential appliance survey. The research will provide valuable data for design of future CDM programs and initiatives.

**Design:**
The program was designed to establish baseline data using participant surveys which would then be used for developing specific CDM programs.

**Intent:**
The intent is to have develop a typical residential customer appliance load make up for Brampton customers.

**Delivery:**
External consultants and service providers were employed to supplement available HOB resources. This program was supported by bill messaging and bill inserts.

**Evaluation:**
This program was started in 2005 and the final report has not been issued. No results are available at this time.

| Program | Budget ($K) | Spending to Dec 2005 ($K) | Annual Savings kWh | Lifecycle kWh |
|---|---|---|---|---|
| Research Planning and Development | 36 | 6.7 | **N/A** | **N/A** |

## Common: Customer Communication and Education Program

HOB has undertaken various 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. HOB's education initiatives are divided into three categories listed below. HOB also appeared at several forums, trade shows and community events to discuss conservation and demand management and our programs.

**Energy Management Focused Web Site:**
During 2005, HOB was in the process of redesigning the utility's web site to provide a comprehensive energy awareness component for our customers to use. The web site will provide information on energy usage along with tips for reducing energy usage. This will be launched in the first quarter of 2006.

**Tradeshows**
HOB has attended numerous workshops and community events with a display that is solely focused on energy efficiency and tips on how to reduce usage. HOB has also appeared at commercial and industrial customer facilities to assist them in their energy awareness campaigns that they run for their employees.

**School Programs**
HOB has also made presentation to various schools to educate students on how to conserve the use less electricity.

## Evaluation:

These programs are designed to be educational and contribute towards a culture of conservation.

| Program | Budget ($K) | Spending to Dec 2005 ($K) | Annual Savings kWh | Lifecycle kWh |
|---|---|---|---|---|
| Communication and Education | 165 | 25 | NA | NA |

**Common : Internal Building Efficiency**

**Description:**
In order to meet the provincial goal of reducing energy consumption in all government building by 5% HOB will identify any energy savings opportunities that may be present for its main facility. The facility was constructed to a very high energy efficiency standard. Any additional savings would be used as technology demonstrations to illustrate how even energy efficient facilities opportunities for further reductions can be found. Lighting efficiencies will be explored.

**Design:**
A lighting audit of the building will be completed and the recommendations will be evaluated in order to facilitate a course of action.

**Intent:**
Energy efficient lighting will reduce overall peak demand and energy consumption from both the existing lighting system and reduction in air conditioning requirements.

**Delivery:**
Once the recommendations have been evaluated and the best option has been determined the project will proceed and promoted as a technology showcase.

**Evaluation:**
This program will be completed in 2006.

| Program | Budget ($K) | Spending to Dec 2005 ($K) | Annual Savings kWh | Lifecycle kWh |
|---|---|---|---|---|
| Internal Building Efficiency | 5 | | **N/A** | **N/A** |

## 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 i.e. for the 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 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 (pre-commercial) technologies and enabling “start-up” companies to compete in the electricity sector.
- 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 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 5,500 energy efficient products and savings of over 6 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.

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.

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 (related to air conditioning, lighting, space heating, and water heating)
- Residential energy efficiency product coupons / direct mail (for air conditioning, lighting, space heating)
- Commercial / Industrial Load Control
- Energy Efficient Technology Demonstrations
- Commercial and Industrial lighting
- Power factor correction
- LED traffic lights
- Smart metering implementation will begin
- Line loss reduction work will begin
- 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.

# Appendix A

# Evaluation of CDM Plan

# Appendices B

# Appendix A - Evaluation of the CDM Plan

| | Total | Residential | Commercial | Institutional | Industrial | Agricultural | LDC System | INTERNAL PROGRAMS |
|---|---|---|---|---|---|---|---|---|
| ***Net TRC value ($):*** | *$315,560.53* | 315,560.53 | $0 | $0 | $0 | $0 | $0 | $0 |
| ***Benefit to cost ratio:*** | 1.40 | 1.68 | NA | NA | RESULTS IN 2006 | NA | NA | RESULTS IN 2006 |
| ***Number of participants or units delivered:*** | *12019.00* | 12019.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| ***Total KWh to be saved over the lifecycle of the plan (kWh):*** | *8844707.00* | 8844707.00 | NA | NA | NA | NA | NA | NA |
| ***Total in year kWh saved (kWh):*** | *678840.00* | 678840.00 | NA | NA | NA | NA | NA | NA |
| ***Total peak demand saved (kW):*** | *51.48* | 51.48 | NA | NA | NA | NA | NA | NA |
| ***Total kWh saved as a percentage of total kWh delivered (%):*** | *0.06%* | 0.06% | NA | NA | NA | NA | NA | NA |
| ***Peak kW saved as a percentage of LDC peak kW load (%):*** | 0.01% | 0.01% | NA | NA | NA | NA | NA | NA |
| ***Gross in year C&DM expenditures ($):*** | *$579,740.61* | $274,166.26 | $0 | $0 | $259,317 | $0 | $0 | $46,258 |
| ***Expenditures per KWh saved ($/kWh)*:*** | $0.057 | | | | | | | |
| ***Expenditures per KW saved ($/kW)**:*** | $1,544 | | | | | | | |

| | |
|---|---|
| ***Utility discount rate (%):*** | 7.87 |

*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

A. **Name of the Program:** Residential 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 all customers. Coupons with the product discounts were redeemed by the exclusive retailer (Canadian Tire) chosen through RFP process. This program was operated in cooperation with other LDCs. This program ran from October 1, 2005 to December 31, 2005. Program results were excellent with 3840 coupons redeemed and 6002 products purchased.

**Measure(s):**

| | Compact Fluorescent Lights | Seasonal LED-5W / Minis | Outdoor timer |
|---|---|---|---|
| *Base case technology:* | 139 | 19.4 / 7.8 | 876 |
| *Efficient technology:* | 35 | 0.5 / 0.6 | 584 |
| *Number of participants or units delivered:* | 3729 bulbs | 1706 | 200 |
| *Measure life (years):* | 4 | 30 | 20 |

| | INDOOR TIMER Lights/AC | Programmable Thermostat | CEILING FAN |
|---|---|---|---|
| *Base case technology:* | | H-18,103; C-1,964 | NA |
| *Efficient technology:* | saving 98 ; 108 KWh/yr | H-16,637;C-1,805 | NA |
| *Number of participants or units delivered:* | lights 32, AC 31 | 253 | 51 |
| *Measure life (years):* | 20 | 18 | 20 |

B. **TRC Results:**

| | | | |
|---|---|---|---|
| *TRC Benefits ($):* | | *$307,765* | |
| *TRC Costs ($):* | | | |
| | *Utility program cost (less incentives):* | $24,114.98 | |
| | *Participant cost:* | *$29,534.00* | |
| | *Total TRC costs:* | $53,648.98 | |
| *Net TRC (in year CDN $):* | | 254116.02 | |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | 5.74 | |

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

**Conservation Programs:**

| | | | |
|---|---|---|---|
| *Demand savings (kW):* | *Summer* | 33.36 | |
| | *Winter* | 143.19 | |
| | *lifecycle* | *in year* | |
| *Energy saved (kWh):* | *6204115* | 577441 | Calculated by seeline |
| *Other resources saved :* | | | |
| *Natural Gas (m3):* | | | |
| *Other (specify):* | | | |

**Demand Management Programs:**

| | |
|---|---|
| *Controlled load (kW)* | n/a |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | | |
|---|---|---|
| *Amount of KVar installed (KVar):* | | n/a |
| *Distribution system power factor at begining of year (%):* | | n/a |
| *Distribution system power factor at end of year (%):* | | n/a |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | | |
|---|---|---|
| *Amount of DG installed (kW):* | | n/a |
| *Energy generated (kWh):* | | n/a |
| *Peak energy generated (kWh):* | | n/a |
| *Fuel type:* | | n/a |

**Other Programs (specify):**

| | | |
|---|---|---|
| *Metric (specify):* | | n/a |

D. **Program Costs*:**

| | | | |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0 | |
| | *Incremental O&M:* | 24114.98 | |
| | *Incentive:* | 21268.49 | Incentive paid Feb 10/06 |
| | *Total:* | 45383.47 | |
| *Utility indirect costs ($):* | *Incremental capital:* | 0 | |
| | *Incremental O&M:* | 0 | |
| | *Total:* | 0 | |
| *Participant costs ($):* | *Incremental equipment:* | 29534.00 | |
| | *Incremental O&M:* | | |
| | *Total:* | 29534.00 | |

**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:** C/I Load Control Program

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

This program involve the installation of smart thermostats that could remotely control air conditioning load for small C&I customers.This program was started in 2005, and concluding in 2006. No results are available at this time.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | Std. Thermostat Control | | |
| *Efficient technology:* | Smart Thermostat with Feedback | | |
| *Number of participants or units delivered:* | 11 | | |
| *Measure life (years):* | | | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | *Pilot Program* |
| *TRC Costs ($):* | | |
| *Utility program cost (less incentives):* | | $ 9,761.40 |
| *Participant cost:* | | $ - |
| *Total TRC costs:* | | $ 9,761.40 |
| *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)* | n/a |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | n/a |
| *Distribution system power factor at begining of year (%):* | n/a |
| *Distribution system power factor at end of year (%):* | n/a |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | n/a |
| *Energy generated (kWh):* | n/a |
| *Peak energy generated (kWh):* | n/a |
| *Fuel type:* | n/a |

**Other Programs (specify):**

| | |
|---|---|
| *Metric (specify):* | n/a |

D. **Program Costs*:**

| | | | |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ | - |
| | *Incremental O&M:* | $ | 9,761.40 |
| | *Incentive:* | $ | 25.00 |
| | *Total:* | $ | 9,786.40 |
| *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:**

# Appendix B - Discussion of the Program

A. **Name of the Program:** Common Communication & Education Program

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

This program has two main components. Firstly the reworked corporate website with emphasis on energy conservation. the second is the participation at trade shows, energy forums and school presentations. This program was launched in 2005 but there are no results to report at this time.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | Standard Website | | |
| *Efficient technology:* | Enhanced website | Display | |
| *Number of participants or units delivered:* | | | |
| *Measure life (years):* | | 10 | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | *n/a* |
| *TRC Costs ($):* | | |
| *Utility program cost (less incentives):* | $ | 25,369.57 |
| *Participant cost:* | $ | - |
| *Total TRC costs:* | $ | 25,369.57 |
| *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)* | n/a |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | n/a |
| *Distribution system power factor at begining of year (%):* | n/a |
| *Distribution system power factor at end of year (%):* | n/a |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | n/a |
| *Energy generated (kWh):* | n/a |
| *Peak energy generated (kWh):* | n/a |
| *Fuel type:* | n/a |

**Other Programs (specify):**

| | |
|---|---|
| *Metric (specify):* | n/a |

D. **Program Costs*:**

| | | |
|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ - |
| | *Incremental O&M:* | $ 25,369.57 |
| | *Incentive:* | |
| | *Total:* | $ 25,369.57 |
| *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:**

# Appendix B - Discussion of the Program

A. **Name of the Program:** Commercial & Industrial Conservation Assets Program

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

This program contains to phases the first is the installation of interval (smart) meters for C&I customer down to a demand level of 200 kW. The second phase is the education of the client to the emeter web data to encourage understanding of their energy consumption and to encourage energy reduction. This program has already started to be rolled out and will be completed by the end of 2006

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | Conventional Meter | Interval Meter | |
| *Efficient technology:* | Interval meter | Interval Meter with Web Data | |
| *Number of participants or units delivered:* | | | |
| *Measure life (years):* | | | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | |
| *TRC Costs ($):* | | |
| *Utility program cost (less incentives):* | $ 33,297.63 | |
| *Incremental equipment cost* | $ - | incremental cost (To be decided) |
| *Total TRC costs:* | | |
| *Net TRC (in year CDN $):* | n/a | |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | n/a | |

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)* | n/a |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | n/a |
| *Distribution system power factor at begining of year (%):* | n/a |
| *Distribution system power factor at end of year (%):* | n/a |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | n/a |
| *Energy generated (kWh):* | n/a |
| *Peak energy generated (kWh):* | n/a |
| *Fuel type:* | n/a |

**Other Programs (specify):**

| | |
|---|---|
| *Metric (specify):* | n/a |

D. **Program Costs*:**

| | | | |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | | |
| | *Incremental O&M:* | $ 33,297.63 | |
| | *Incentive:* | $ 223,578.57 | expected |
| | *Total:* | $ 256,876.20 | |
| *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:** Common Hydro One Brampton Distribution Efficiency Program

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

Through the use of a computerized modelling system the optimization of Brampton's distribution system will be performed with a focus on voltage conversion, power factor improvement, power system load balancing and system optimization. The modelling was started in 2005 with results expected in Q3 of 2006

**Measure(s):**

| | Measure 1 | | |
|---|---|---|---|
| *Base case technology:* | | | |
| *Efficient technology:* | Optimizing Switching Configurations | | |
| *Number of participants or units delivered:* | | | |
| *Measure life (years):* | | | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | *Results expected in 2006* |
| *TRC Costs ($):* | | |
| | *Utility program cost (less incentives):* | $ 46,257.75 |
| | *Participant cost:* | $ - |
| | *Total TRC costs:* | $ 46,257.75 |
| *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)* | n/a |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | n/a |
| *Distribution system power factor at begining of year (%):* | n/a |
| *Distribution system power factor at end of year (%):* | n/a |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | n/a |
| *Energy generated (kWh):* | n/a |
| *Peak energy generated (kWh):* | n/a |
| *Fuel type:* | n/a |

**Other Programs (specify):**

| | |
|---|---|
| *Metric (specify):* | n/a |

D. **Program Costs*:**

| | | |
|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ - |
| | *Incremental O&M:* | $ 46,257.75 |
| | *Incentive:* | |
| | *Total:* | $ 46,257.75 |
| *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:**

# Appendix B - Discussion of the Program

A. **Name of the Program:** Common Hydro One Brampton Internal Efficiency Program

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

Program has been designed to investigate all energy saving opportunities for the HOB main office. The intent it to show that energy savings opportunities still exist in an energy efficient facility. This will also be a technology demonstration project.This will be under taken in 2006

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | T12 Lighting | | |
| *Efficient technology:* | T8 Lighting | | |
| *Number of participants or units delivered:* | | | |
| *Measure life (years):* | 5 | | |

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)* | n/a |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | n/a |
| *Distribution system power factor at begining of year (%):* | n/a |
| *Distribution system power factor at end of year (%):* | n/a |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | n/a |
| *Energy generated (kWh):* | n/a |
| *Peak energy generated (kWh):* | n/a |
| *Fuel type:* | n/a |

**Other Programs (specify):**

| | |
|---|---|
| *Metric (specify):* | n/a |

D. **Program Costs*:**

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

This program has not been completed and will be completed in Q2 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 HOLIDAY LED LIGHTING

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

The Holiday light exchange promoted the one for one replacement of old incandescent 5 watt and mini light with LED lights, Hydro One Brampton partnered with the City of Brampton in their Annual tree Lighting ceremony as well as a local shopping mall. The program was promoted through various channels such as: bill inserts, local print media and the City of Brampton flyers. A total of 6000 LED lights were distributed while 5412 LED lights were part of the one for one exchange program. Hydro One Brampton received more than 10 % extra old lights from the participants, so 5953 is used for exchange and for TRC calculations.

**Measure(s):**

| | ONE FOR ONE EXCHAGE | ONE FOR ONE EXCHAGE | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | Incandescent Holiday Lights 5W | Incandescent Holiday Lights Mini | |
| *Efficient technology:* | LED Holiday Lights 5W | LED Holiday Lights Mini | |
| *Number of participants or units delivered:* | 4027 | 1,926 | |
| *Measure life (years):* | 30 | 30 | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | *$* | *97,068* |
| *TRC Costs ($):* | | |
| *Utility program cost (less incentives):* | $ | 34,449 |
| *Participant cost (Total incremental cost)* | $ | 11,310 |
| *Total TRC costs:* | $ | 45,759 |
| *Net TRC (in year CDN $):* | $ | 51,309 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | 2.12 |

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

**Conservation Programs:**

| | | | |
|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | - |
| | *Winter* | | 36 |
| | | *lifecycle* | *in year* |
| *Energy saved (kWh):* | | *2560317* | 85,344 |
| *Other resources saved :* | | | |
| *Natural Gas (m3):* | | | |
| *Other (specify):* | | | |

**Demand Management Programs:**

| | |
|---|---|
| *Controlled load (kW)* | n/a |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | n/a |
| *Distribution system power factor at begining of year (%):* | n/a |
| *Distribution system power factor at end of year (%):* | n/a |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | n/a |
| *Energy generated (kWh):* | n/a |
| *Peak energy generated (kWh):* | n/a |
| *Fuel type:* | n/a |

**Other Programs (specify):**

| | |
|---|---|
| *Metric (specify):* | n/a |

D. **Program Costs*:**

| | | |
|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ - |
| | *Incremental O&M:* | $ 34,449.06 |
| | *Incentive:* | $ 46,167.26 |
| | *Total:* | $ 80,616.32 |
| *Utility indirect costs ($):* | *Incremental capital:* | $ - |
| | *Incremental O&M:* | $ - |
| | *Total:* | $ - |
| *Participant costs ($):* | *Incremental equipment:* | $ 11,310 |
| | *Incremental O&M:* | $ - |
| | *Total:* | $ 11,310 |

**E. Comments:**

Winter Peak Demand saving was not used in TRC calculations

# Appendix B - Discussion of the Program

A. **Name of the Program:** Commercial & Industrial Power Factor Correction Program

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

This program design has been completed and it is intended to reduce system loading through the addition of power factor correction equipment. The program will be rolled out in Q2 of 2006

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | No correction in place | | |
| *Efficient technology:* | PF Correction Program | | |
| *Number of participants or units delivered:* | | | |
| *Measure life (years):* | | | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | *$* | - |
| *TRC Costs ($):* | *$* | - |
| *Utility program cost (less incentives):* | $ | 2,440.40 |
| *Participant cost:* | $ | - |
| *Total TRC costs:* | $ | 2,440.40 |
| *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)* | n/a |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | 0 |
| *Distribution system power factor at begining of year (%):* | 0 |
| *Distribution system power factor at end of year (%):* | 0 |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | n/a |
| *Energy generated (kWh):* | n/a |
| *Peak energy generated (kWh):* | n/a |
| *Fuel type:* | n/a |

**Other Programs (specify):**

| | |
|---|---|
| *Metric (specify):* | n/a |

D. **Program Costs*:**

| | | | |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ | - |
| | *Incremental O&M:* | $ | 2,440.40 |
| | *Incentive:* | | |
| | *Total:* | $ | 2,440.40 |
| *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:**

# Appendix B - Discussion of the Program

A. **Name of the Program:** Common Research and Planning

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

This program involves various custome research projects the first of which entails a detailed residential appliance survey. The research will provide valuable data for design of future CDM programs and initiatives.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | | | |
| *Efficient technology:* | Residentail Appliance Survey | | |
| *Number of participants or units delivered:* | | | |
| *Measure life (years):* | | | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | |
| *TRC Costs ($):* | | |
| *Utility program cost (less incentives):* | | $6,728.50 |
| *Participant cost:* | | |
| *Total TRC costs:* | | $6,728.50 |
| *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)* | n/a |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | n/a |
| *Distribution system power factor at begining of year (%):* | n/a |
| *Distribution system power factor at end of year (%):* | n/a |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | n/a |
| *Energy generated (kWh):* | n/a |
| *Peak energy generated (kWh):* | n/a |
| *Fuel type:* | n/a |

**Other Programs (specify):**

| | |
|---|---|
| *Metric (specify):* | n/a |

D. **Program Costs*:**

| | | |
|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ - |
| | *Incremental O&M:* | $ 6,728.50 |
| | *Incentive:* | |
| | *Total:* | $ 6,728.50 |
| *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:**

# Appendix B - Discussion of the Program

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

**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 and pool pumps during system peak periods, through installations of load control units and interval meters. Controls were placed on 32 randomly selected homes. The project ran from July 2004 to December 2005. Participants were paid a monthly incentive for their participation.

**Measure(s):**

| | Central Air Conditioner | Pool Pump | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | No Control | No Control | |
| *Efficient technology:* | Control in place | Control in place | |
| *Number of participants or units delivered:* | 27 | 1 | |
| *Measure life (years):* | | | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | *Pilot for one year* |
| *TRC Costs ($):* | | |
| *Utility program cost (less incentives):* | $ | 66,302.00 |
| *Participant cost:* | $ | - |
| *Total TRC costs:* | $ | 66,302.00 |
| *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* | 16.2 | |
| | *Winter* | - | |
| | *lifecycle* | *in year* | |
| *Energy saved (kWh):* | | | |
| *Other resources saved :* | | | |
| *Natural Gas (m3):* | | | |
| *Other (specify):* | | | |

**Demand Management Programs:**

| | | |
|---|---|---|
| *Controlled load (kW)* | n/a | |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a | Clement Li to provide. |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a | |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a | |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | 0 |
| *Distribution system power factor at begining of year (%):* | |
| *Distribution system power factor at end of year (%):* | |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | n/a |
| *Energy generated (kWh):* | n/a |
| *Peak energy generated (kWh):* | n/a |
| *Fuel type:* | n/a |

**Other Programs (specify):**

| | |
|---|---|
| *Metric (specify):* | n/a |

D. **Program Costs*:**

| | | | |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ | - |
| | *Incremental O&M:* | $ | 66,302 |
| | *Incentive:* | $ | 3,377 |
| | *Total:* | $ | 69,679 |
| *Utility indirect costs ($):* | *Incremental capital:* | | 0 |
| | *Incremental O&M:* | | 0 |
| | *Total:* | | 0 |
| *Participant costs ($):* | *Incremental equipment:* | $ | - |
| | *Incremental O&M:* | $ | - |
| | *Total:* | $ | - |

**E. Comments:**

# 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 saving 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 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | Avg. 15700 KWh / yr | | |
| *Efficient technology:* | Avg 4.917% Saving - 764 KWh/yr | | |
| *Number of participants or units delivered:* | 21 | | |
| *Measure life (years):* | 5 | | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | *$* | *5,027.00* |
| *TRC Costs ($):* | | |
| *Utility program cost (less incentives):* | $ | 36,433.00 |
| *Participant cost:* | $ | - |
| *Total TRC costs:* | $ | 36,433.00 |
| *Net TRC (in year CDN $):* | -$ | 31,406.00 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | 0.138 |

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

**Conservation Programs:**

| | | | |
|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | 1.92 |
| | *Winter* | | 4.05 |
| | | *lifecycle* | *in year* |
| *Energy saved (kWh):* | | *80275* | 16055 |
| *Other resources saved :* | | | |
| *Natural Gas (m3):* | | | |
| *Other (specify):* | | | |

**Demand Management Programs:**

| | |
|---|---|
| *Controlled load (kW)* | n/a |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | n/a |
| *Distribution system power factor at begining of year (%):* | n/a |
| *Distribution system power factor at end of year (%):* | n/a |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | n/a |
| *Energy generated (kWh):* | n/a |
| *Peak energy generated (kWh):* | n/a |
| *Fuel type:* | n/a |

**Other Programs (specify):**

| | |
|---|---|
| *Metric (specify):* | n/a |

D. **Program Costs*:**

| | | |
|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ 36,433.00 |
| | *Incremental O&M:* | |
| | *Incentive:* | $ 170.00 |
| | *Total:* | $ 36,603.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | $0 |
| | *Incremental O&M:* | |
| | *Total:* | $0 |
| *Participant costs ($):* | *Incremental equipment:* | $0 |
| | *Incremental O&M:* | *$0* |
| | *Total:* | $0 |

**E. Comments:**

# Appendix B - Discussion of the Program

A. **Name of the Program:** Smart Meters

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

This pilot program was initially intended to be launched in 2005 after discussions with OEB staff members it was decided to wait until 2006 to roll out this program

**Measure(s):**

| | Measure 1 | | |
|---|---|---|---|
| *Base case technology:* | Conventional Meter | | |
| *Efficient technology:* | Smart Meter | | |
| *Number of participants or units delivered:* | | | |
| *Measure life (years):* | | | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | *Expected in 2006* |
| *TRC Costs ($):* | | |
| | *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)* | n/a |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | 0 |
| *Distribution system power factor at begining of year (%):* | |
| *Distribution system power factor at end of year (%):* | |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | n/a |
| *Energy generated (kWh):* | n/a |
| *Peak energy generated (kWh):* | n/a |
| *Fuel type:* | n/a |

**Other Programs (specify):**

| | |
|---|---|
| *Metric (specify):* | n/a |

D. **Program Costs*:**

| | | |
|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ - |
| | *Incremental O&M:* | |
| | *Incentive:* | |
| | *Total:* | $ - |
| *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:** Commercial & Industrial Technology Demonstration Program

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

The objective of the Technology Demonstration Program is to bring new and innovative technologies to customers and work with the customers to overcome the roadblocks preventing the installation. This program has been designed and is going to be delivered in Q2 of 2006

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | TBD | TBD | TBD |
| *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)* | n/a |
| *Energy shifted On-peak to Mid-peak (kWh):* | n/a |
| *Energy shifted On-peak to Off-peak (kWh):* | n/a |
| *Energy shifted Mid-peak to Off-peak (kWh):* | n/a |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | n/a |
| *Peak hours dispatched in year (hours):* | n/a |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | 0 |
| *Distribution system power factor at begining of year (%):* | |
| *Distribution system power factor at end of year (%):* | |

**Line Loss Reduction Programs:**

| | | |
|---|---|---|
| *Peak load savings (kW):* | | n/a |
| | *lifecycle* | *in year* |
| *Energy savngs (kWh):* | n/a | n/a |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | n/a |
| *Energy generated (kWh):* | n/a |
| *Peak energy generated (kWh):* | n/a |
| *Fuel type:* | n/a |

**Other Programs (specify):**

| | |
|---|---|
| *Metric (specify):* | n/a |

D. **Program Costs*:**

| | | |
|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ - |
| | *Incremental O&M:* | |
| | *Incentive:* | |
| | *Total:* | $ - |
| *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.