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# **Horizon Utilities Corporation**

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## **Conservation and Demand Management**

### **2007 Annual Report**

**Ontario Energy Board File No. RP-2004-0203  
Distribution License ED-2006-0031**

March 31, 2008

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## 1. Introduction

On December 10, 2004 the Ontario Energy Board (“Board”) issued its oral decision in the RP-2004-0203 proceeding, with respect to six (6) applications filed by the Coalition of Large Distributors (“CLD”) comprising Enersource Hydro Mississauga, Horizon Utilities Corporation, Hydro Ottawa Limited, PowerStream Inc. Toronto Hydro-Electric System Limited and Veridian Connections. This report is a requirement of that decision. In respect of the application filed by Horizon Utilities Corporation, the Board issued its Final Order on February 3, 2005 under docket number RP-2004-0203/ EB-2004-0488.

The Board’s decision indicated that annual reporting “should be done on a calendar year and should be filed with the Board no later than March 31<sup>st</sup> of the following year” and would be subject to a public review. On December 21, 2005 the Board issued a Guideline for Annual Reporting of CDM Initiatives that explained the detailed requirements. The Board issued amended requirements for reporting CDM activities on March 3, 2008. This report has been prepared in accordance with those guidelines and amended requirements.

Currently, Horizon Utilities has two separate Conservation and Demand Management Plans filed with the OEB for the former Hamilton Hydro Inc. (HHI) RP-2004-0203 / EB-2004-0488 and St. Catharines Hydro Utility Services Inc. (SCHUSI) RP-2004-0203 / EB-2004-0523. On November 7, 2006, Board staff agreed with Horizon’s recommendation to account for CDM spending on a consolidated basis under the single Distribution License No. ED-2006-0031.

On February 12, 2007 Horizon Utilities submitted a request to the Board to transfer funds between programs. Included in this request was a deadline extension for the Standby Generation and LED Traffic Light Retrofit programs until March 31, 2008.

Horizon Utilities finalized and completed all of its CDM programs in 2007. However expenditures associated with providing incentives to the LED traffic light projects in St. Catharines and Hamilton were not fully paid out until the 1<sup>st</sup> Qtr of 2008. As of the date of filing this report Horizon Utilities has received final reporting on the 2007 completed expenditures for all 12-program categories. The CDM activities carried out by Horizon Utilities in 2007 were intended to finalize the commitments to the projects funded through 3<sup>rd</sup> Tranche MARR. We are submitting this report as the final report for the 3<sup>rd</sup> Tranche MARR.

Horizon Utilities demonstrated the ability to deliver conservation programs in a resourceful and cooperative manner. Important partners, including the CLD, NEPA, OPA, local gas distributors and local community groups, enhanced the efforts of the Horizon Utilities CDM team. Horizon Utilities is committed to helping the government build a sustainable long-term conservation culture in Ontario.

## **1.1 Ongoing Opportunities**

As Ontario develops the conservation culture, it is necessary to balance the need for short-term results while fostering a long-term conservation attitude among provincial citizens and businesses. The industry must continue to coordinate its efforts to ensure that program delivery is efficient and available to all customers. Our goal should be rapid program deployment using the LDC's clear channel to market. Horizon Utilities best serves its customers as the main channel for effective conservation and demand management programs. Horizon Utilities has now completed its plans and projects funded through 3<sup>rd</sup> Tranche MARR. At this time, Horizon Utilities has proven to be an effective delivery agent for the OPA core programs in 2007, despite the limited time to market made available for these programs. Registration for the core OPA programs in 2008 has been carried out. Horizon Utilities is currently evaluating with intentions of applying for funding from the OPA for custom program funding.

Beyond final completion of the programs in Horizon Utilities' 3<sup>rd</sup> Tranche CDM plan in 2007 we also have been resourceful with implementation of four core OPA programs; Great Refrigerator Round Up, PeakSAVER, Summer Savings, and Electricity Retrofit Incentives Program.

Horizon Utilities is also planning to explore OPA funding for custom programs in conjunction with the Coalition of Large Distributors in 2008.

## 2. Evaluation of Overall Plan

CDM program development is a complex and time-consuming process. Procurement and legal processes were more costly and time consuming than originally expected. Horizon Utilities was able to maximize our results by working with the Coalition of Large Distributors, which provided a significant advantage in knowledge and resource sharing, efficiency and cost effectiveness. As we gained market experience, we were able to fine-tune our individual CDM plans as well. The winding down of the **peaksaver**<sup>™</sup> program, limited our results. The delays in starting up the OPA peakSAVER program created a gap in marketing and enrolment opportunities.

In reviewing the information provided in both Appendices A, B and C, it should be noted that 46% of the 2007 overall costs were related to the standby generation project. This component of Horizon Utilities' CDM plan met with the capital expenditure amount that was filed in our plan and the subsequent notice to transfer capital funds filed with the Board, aligned with provincial government policy direction. The impact of smart meters on kWh consumption and kWh demand has not been assessed, and therefore has not been included in this report. Capital cost of implementing the smart metering and standby generation projects impacts the overall cost benefit analysis provided in Appendix A.

Appearing at over 28 community events last year, Horizon Utilities offered a unique opportunity to engage over 50 staff volunteers in learning about conservation measures, then extending this knowledge and leadership to the public. An addition of the smart meter display has proven useful in preparing customers for time-of-use rates and introducing conservation concepts that will allow them to seek cost savings when those rates take effect.

Increasing awareness about key conservation concepts, including consumption (kWh), demand (kW) and underlying reasons for Ontario's CDM campaign has been challenging both internally and externally. Internally, the Conservation Champions Committee brings the message to each department. Externally, this message is shared with the community at events, programs and media channels.

Horizon Utilities is reviewing second-generation opportunities to carry this message further using established relationships with the CLD, Ontario Power Authority, NEPA, other LDC's and our local community partners.

### 3. Discussion of Programs & 2006 Activities

#### 3.1 Residential and Small Commercial (< 50 kW)

##### 3.1.1 Co-Branded Mass Market Program

###### Description

This flagship co-branded mass-market program (powerWISE®) is a multifaceted approach to fostering the conservation culture in Ontario. Through development of a significant cooperative effort among six of the largest municipal LDC's, this program has become aligned with specific initiatives such as Compact Fluorescent Lighting (CFL) change out programs, LED Christmas Light Exchanges, Energy Star, Multi-Choice, energy audits, hot water heater blanket wraps, school based education and a host of other programs aimed at providing customers with the tools and education needed to reduce their energy usage. Access to online services such as energy consumption calculators, an energy expert and personalized energy audit services are being considered as future components of this program.

###### Target users

Mass-market including residential and small commercial <50 kW of monthly demand

###### Benefits

Increased awareness, improved product supply, culture shift, and significant demand and energy reductions.

##### 3.1.1.1 Activity with the powerWISE<sup>o</sup> brand

###### Action

- o Hamilton Utilities Corp. (HUC) registered the powerWISE® mark prior to Ontario's CDM activities.
- o During CLD CDM plan preparation, it was agreed that the CLD would collectively develop and use the brand. HUC offered powerWISE® for license and the CLD agreed that we would use this mark.
- o The Ministry of Energy was licensed to use the brand and released the series of Dr. David Suzuki advertisements on billboards, radio and television in 2007 to raise awareness of energy conservation and the brand.

###### Results to Date

- o The Ministry of Energy was licensed to use the brand in 2007

###### Next Steps

- o At the end of 2007, HUC was in negotiations with the Ministry of Energy to acquire the brand for use in all provincial advertising.

### 3.1.1.2 Activity with powerWISE<sup>®</sup> Website

#### Action

- The powerWISE<sup>®</sup> website [www.powerwise.ca](http://www.powerwise.ca) was jointly developed and announced on April 1<sup>st</sup>, 2005.
- This website provides one common location for general electricity conservation information and useful industry links.
- Links have also been provided for customers to reach their CLD member's home website for specific local program information.
- The site also has an archive of the various advertising campaigns that ran throughout the year
- The website also features an "Ask the Expert" section.

#### Results to Date

- In 2007 the powerWISE<sup>®</sup> website had over 181,000 visitors.
- Since inception, the powerWISE<sup>®</sup> website has had over 218,000 visitors.

#### Next Steps

- The Ministry of Energy will have exclusive rights over the website [www.powerwise.ca](http://www.powerwise.ca) as part of the powerWISE brand.
- No further action will be taken with respect to this project.

### 3.1.1.3 Children's Discovery Centre (Conservation Model)

#### Action

- Horizon Utilities has purchased a powerWISE<sup>®</sup> Home for display at the YMCA Niagara Children's Discovery Centre.
- Hardware for the interactive theatre was purchased in 2006 but the media material, and theatre housing needed to be developed in 2007.
- The media script featured various conservation themes including the first talking smart meter animation. The video content is entitled "Power For Tomorrow" and features over 30 characters plus an original song.
- The video content is scripted with the theatre hardware features to create an interactive education model for all ages.

#### Results to Date

- On November 15, 2007 the "Power For Tomorrow – PowerWISE Home" was unveiled to the Grade 4 Class of Briardale Public School in a movie premier setting at the YMCA Children's Discovery Centre.
- The model is located at the YMCA - Children's Discovery Centre, where over 3000 primary school children will be educated on energy and water conservation concepts.

#### Next Steps

- Replicating the "Power for Tomorrow" video content to accompany the Generation Conservation Grade 5 curriculum.
- Interest from Model Tech other LDC's in use of the video content has been expressed.
- Use of the video content for all primary school events is intended.

### 3.1.1.4 Generation Conservation

#### Action

Recognizing that teaching children about energy conservation is key to creating a sustainable culture, Horizon Utilities launched the *kidzpower™* brand in 2007. The first project under the new brand was the sponsorship of *Generation Conservation*, a 10-lesson curriculum course for 7,500 Grade 5 students attending 200 schools in Hamilton and St. Catharines. *This program meets all the requirements of the new Science and Technology - Conservation of Energy and Resources curriculum released by the Ministry of Education in December 2007.* In addition to providing teacher training workshops, course materials and a website specific to the topics covered in Generation Conservation, Horizon Utilities supplied up-to-date information about Ontario's energy sector and smart meters. Public libraries in both communities provided resource lists. The libraries also have a supply of Kill-A-Watt meters provided by Horizon Utilities, which may be borrowed by the public for conducting their own experiments. By teaching children about various forms of energy and providing them with an in-depth understanding of why and how to conserve energy, *Generation Conservation* aims to do for energy conservation what was done for blue box recycling - mobilize youth to become a generation of conservers.

#### Results to Date

Teacher workshops have been held for approximately 100 teachers in all four school boards: Hamilton Wentworth District School Board, Hamilton Wentworth Catholic District School Board, District School Board of Niagara and Niagara Catholic District School Board. The originators of the program conducted sessions with assistance from Horizon Utilities staff. Teacher reaction to the program materials has been enthusiastic and uniformly positive. Elementary school teachers do not generally have a good understanding of electricity, sources of energy, smart meters, climate change and other topics that are encompassed in Generation Conservation. They greatly appreciated the opportunity to review the materials during the workshops and participate in the hands-on experiments. The result is teachers who better understand the subject matter and have the confidence to teach it. Teachers started rolling out the program in classrooms in January. Initial feedback from students indicates the course is successful in educating the students about energy and the ways in which they, personally, can change their behaviours to conserve energy. Children who complete the course will receive a certificate presented by Horizon Utilities.

#### Next Steps

Teachers are not required to start teaching the new Science and Technology - Conservation of Energy and Resources curriculum until September 2008. We are very pleased that most of the teachers who have attended the workshops wanted to begin teaching Generation Conservation immediately. However, full-scale deployment of the course will not take place until September. Further teacher workshops are planned.

In the meantime, all teachers who participated in the workshops were provided with Earth Hour materials to assist in raising the awareness about the need for energy conservation with their students. Tie-ins with Earth Day are being explored for launch in 2009.

### **3.1.1.5 Community Events**

#### Action

- Horizon Utilities participated in over 28 community events to bring the conservation message to our customers. Events included home shows, parades, festivals, community, school, and neighbourhood activities.
- Event management involved all logistics including volunteer management, ordering and provision of give-aways, registration, and co-ordination between all components.

#### Results to Date

- An events team was hired to assist with this process.
- The events van was purchased and decalated with conservation features to promote the message, and also enhance Horizon's presence at events.
- Horizon promoted energy efficiency in the home with 38,710 CFL's being distributed to customers at events which included a Brock University student housing light exchange event
- A wheel of conservation measures was created to increase public engagement at the Horizon booth.
- A lighting display was built to demonstrate the different styles of energy efficient light bulbs.
- The conservation model was used to enhance the message at events.
- High profile in the community has resulted in a demand for Horizon to attend and support numerous community events.

#### Next Steps

- Continue to bring the conservation message to the public.
- Evaluate future event opportunities to maximize customer engagement in energy efficiency and conservation in homes and businesses.

### **3.1.1.6 E-billing – Go Paperless**

#### Action

This promotion encouraged customers to Go Paperless with Horizon by adopting e-billing and pre-authorized automatic billing. The incentives included:

- For customers that adopt the e-billing services, a donation to support a local tree-planting initiative
- Customers that select both options will receive a conservation kit.

#### Results to Date

- 524 customers received conservation kits for participating in the Go Paperless campaign in 2007.
- A total of 1064 conservation kits have been sent out to date.

### Next Steps

- The E-billing Program is continuing on without the offering of conservation kits.
- No further action will be taken with respect to the conservation offering in conjunction with this project.

### **3.1.1.7 Horizon Utilities Website**

#### Action

- The website [www.horizonutilities.com](http://www.horizonutilities.com) was revised to provide a stronger emphasis on conservation.
- The website now offers numerous conservation options, including; information for residential customers, business customers, and general conservation advice under the powerWISE® category.
- This conservation component of the website is designed to provide Horizon customers with immediate access to local conservation initiatives
- Another highlight is the “ask-the-expert” feature whereby experts within the Horizon Conservation and Demand Management Department answer questions related to conservation.
- The website is also updated to provide links and details on active conservation programs.

#### Results to Date

- Since its launch [www.horizonutilities.com](http://www.horizonutilities.com) has received 244,807 visitors in 2007. Internally, the [www.horizonutilities.net](http://www.horizonutilities.net) has received 162,950 site visits. Traffic to Horizon Utilities’ website has increased by 15% from 2006 to 2007.
- Horizon Utilities also answers conservation related questions from:
  - 1) There were 67 Ask the Expert email inquiries answered in 2007.

### Next Steps

- Continue to enhance the website with new materials, links and applications.
- Continue to respond to customer enquiries.

### **3.1.1.8 Horizon Conservation Champions Committee**

#### Action

- The Conservation Champions committee includes employee volunteers from many departments interested in energy conservation at Horizon Utilities. Regular meetings are held to discuss Horizon’s external programs and to develop internal initiatives. Goals of the committee are to:
  1. Recommend ways to reduce Horizon’s demand by 5% and overall consumption by 10%.
  2. Create an energy and water use checklist to be used with our health and safety workplace inspections.
  3. Assist in creating an action plan around the IESO calls for reduced energy use, as part of preparation for 2006 summer peak.
  4. Design and implement an energy and water conservation awareness campaign at Horizon.

## Results to Date

- Developed an internal energy conservation audit for Horizon Utilities Buildings that was conducted in the spring and fall of 2007.
- Tracked energy consumption of Horizon facilities (consumption and demand) at meetings
- Provided volunteers and paid support at conservation events (including community events)
- Leadership in promoting and participating with internal programs including the employee incandescent light bulb exchange, Christmas light exchange, Kill-A-Watt-meter lending program, and others.
- Followed progress of the comprehensive building audits as completed by outside consultants.
- Track conservation opportunities as per audit recommendations.
- Met regularly to review conservation projects and bring that message back to respective departments.

## Next Steps

- The potential adoption of the Horizon program by other institutions is being explored.
- Creation of shut down practices for all employees relating use of PC's and other equipment.
- Encouraging Horizon employee and corporate leadership in embracing conservation opportunities.

### **3.1.1.9 Kill-A-Watt Meter Library Loaner Project**

#### Action

- In conjunction with the Kill-A-Watt Meter Library Loaner Project established by Hydro Ottawa and Enersource, Horizon Utilities developed a similar program in partnership with the Hamilton and St. Catharines Public Library Systems.
- Horizon also set up a loaner program for internal staff in March 2006.
- The Kill-A-Watt meter library loaner program is demonstrated and promoted at local community events by Horizon Utilities.
- In support of the library loaner program, meter instruction cards were developed bearing Horizon's logo and appropriate library contact details. These cards are distributed with the meter.

#### Results to Date

- Meters borrowed to date:

121 - St. Catharines Public Library  
554 - Hamilton Public Library  
52 - Horizon Loaner Program

- This project was launched at the Downtown Hamilton Public Library on January 23<sup>rd</sup> and 24<sup>th</sup>, 2006, with 2,500 CFL bulbs given out to library patrons.
- The internal Horizon lending program started on March 6, 2006, and the devices have been borrowed internally 50 times to date.

### Next Steps

- Horizon plans to provide posters to the libraries in 2008 in support of this program.

### **3.1.1.10 Ontario Power Authority – Every Kilowatt Counts Spring Coupon Campaign**

#### Action

- The Conservation Bureau of the OPA developed a major mass-market retail campaign to advance the penetration of energy efficient devices into the marketplace through point of purchase redeemable coupons
- Coupon and information booklets were distributed through the mail to all Ontario households for each campaign.
- Horizon supported the OPA in its endeavor to reach all customers.
- Horizon promoted these mail-out programs on the website and at all community events.
- Horizon promoted the program internally by distributing the coupon booklets with pay stubs.
- Horizon promoted the program externally by providing related training to CSR's.
- Horizon also cross-promoted this program with the City of Hamilton.

#### **3.1.1.10.1 Spring Campaign April 2007 to June 17, 2007**

The products promoted in the 2007 spring EKC coupon booklet were as follows:

- Outdoor Motion Sensor Lighting (\$5.00 off)
- Dimmer Switch (\$3.00 off)
- Furnace Filters (\$3.00 off)
- Outdoor Solar Lights (\$5.00 off)
- Compact Fluorescent Lights (\$3.00 off)
- Ceiling Fans (\$25.00 off)

#### Results to Date

- Redemptions from Horizon Utilities distributed coupons resulted in 6269 coupons being redeemed at retailers.
- These coupon redemptions resulted in gross annual energy savings of 304,472 kWh.

#### Next Steps

- Continue to provide booklets and support of the EKC coupon programs at Horizon community events.
- Continued support of this program to Horizon customers is to be provided.

### 3.1.2 Smart Meter Pilot

#### **Description**

A pilot program for residential SMART meters will be deployed to enable the assessment of metering, communications, settlement, load control and other technologies that may be used to accommodate the universal application of SMART meters in the future. Further, sub-metering opportunities for the purposes of customer information in bulk-metered situations (i.e. condominiums) may be considered.

This initiative will commence upon the release of a formal definition of a SMART meter by the Board.

#### **Target users**

Residential and small commercial customers.

#### **Benefits**

This program supports the Minister of Energy's commitment to the installation of 800,000 SMART meters across Ontario by 2010. It will provide Horizon with the experience and knowledge needed to efficiently expand the use of SMART meters over the next several years.

In conjunction with appropriate rate structures, the program will also provide customers participating in the pilot programs with an incentive to conserve or shift energy use.

#### **Action**

- A smart meter pilot of 7500 meters was undertaken in Hamilton in 2006 and work continued to complete this project in 2007. The purpose of this pilot project was to test technologies, systems and processes that would be required in a full deployment strategy.
- A meter management system was purchased to manage meter changes and data flow back to the CIS.
- Customer education materials were issued to all customers receiving a smart meter.
- Work management software and the necessary Personal Digital Assistance (PDA) were procured to simulate full deployment conditions.
- End to end testing of these implemented technologies was tested in 2006.

#### **Results to Date**

- All 7500 smart meters were installed on residential customer's homes.
- A small Web Presentment pilot was conducted to receive input and understand what customers wanted to be presented. Of the 100 customers solicited 22 took part in the pilot providing us with valuable input in designing a customer friendly web presentment tool.

- The smart meter pilot allowed us to prepare for mass deployment. The lessons learned about the Automated Metering Infrastructure allowed a smooth transition to mass deployment. Developing customer education tools and techniques helped with advancing the customer knowledge of smart meters and the important role they will play in the development of an energy savings culture in Ontario.

#### Next Steps

- Evaluate the effectiveness of the work management software and processes used in the smart meter pilot project.
- Continue on with smart meter full deployment strategy to residential customers in 2008 so that we are able to meet the goal of all residential customers receiving a smart meter by 2010.

### **3.1.3 Social Housing Program**

#### **Description**

A province-wide centralized energy management service for the social housing sector may be developed in collaboration with the Provincial Government, utilities (e.g. Enbridge, Union Gas) and others.

A pilot program will be conducted to determine feasibility with an expectation that a full-scale provincial program would follow.

#### **Target users**

Local social housing corporations, non-profit homes, co-op housing and low-income housing.

#### **Benefits**

Synergies will be created through the combined initiatives of various agencies.

- Action
- Horizon paid the final invoice to its service provider in 1<sup>st</sup> quarter 2007 for work completed on the Low Income housing program in 2006.
- Results to Date
- City of Hamilton Housing – handed out 475 conservation kits
- Victoria Park Community Homes – prescriptive incentive for over 7,055 light bulbs
- Niagara Regional Housing (Kenworth Acres Seniors Residence) – comprehensive conservation measures for 211 units under the prescriptive program design.
- Used the Horizon social housing prescriptive incentive guidelines for various 2006 social housing retrofit projects.
- Green Venture / Union Gas Low Income Housing Pilot Project – 39 audits

#### Next Steps

- Horizon to assist or direct low-income and social housing customers to Ontario Power Authority applicable conservation program initiatives.

## **3.2 Commercial, Industrial and Institutional (> 50 kW)**

### **3.2.1 Energy Audits and Feasibility Studies**

#### **Description**

The Energy Audits and Feasibility Studies program is being accomplished through the powerWISE® Energy Audit Incentive program. This program offers financial incentives to large customers for performing energy audits. Interested customers must submit an application along with the necessary documentation. All details for this program are available at [www.horizonutilities.com](http://www.horizonutilities.com).

#### **Target users**

Large customers with peak demand of at least 50 kW. This includes schools, large commercial facilities, institutional facilities, industrial facilities, and municipal facilities such as recreation centres, arenas, and libraries.

#### **Benefits**

Customers applying for the powerWISE® Energy Audit Incentive program can receive an incentive of up to \$5,000. Customers performing feasibility studies may be eligible for higher monetary incentives.

#### **Actions:**

- Provided incentives to the City of Hamilton for an Energy Reduction Solutions Design Report. Within this report energy reduction solutions were recommended as part of the renovation plans for City Hall. The recommended measures would qualify the City Hall building for a LEED Silver certification.
- Core cooling plant chillers located in the central downtown district of Hamilton are reaching end of life. A feasibility study to centralize core-cooling plant was carried out. The findings reported estimated demand savings of 1400 kilowatts of demand savings could be achieved by implementing an upgraded centralized cooling plant strategy.
- Horizon assisted in funding studies for 5 arena facilities as part of the Toronto and Region Conservation Authority provincial study on arena facility energy use.

#### **Results to Date:**

- Received 5 powerWISE® Energy Audit Incentive applications as part of the arena facilities provincial study totaling a value of \$19,000 worth of incentives
- Approved incentive of \$12,100 to City of Hamilton for feasibility study to upgrade City Hall renovation design to a LEED standard.
- Core Cooling Plant Centralization feasibility study was funded by Horizon at a cost of \$12,900.

## Next Steps

- PowerWISE Energy Audit Incentive Program is completed now and Horizon will refer customers to the Electricity Retrofit Incentive Program

### **3.2.2 Smart Meter Program**

#### **Description**

Horizon Utilities will conduct a pilot to test Elster Smart Meter/Interval Meter technology by Commercial, Industrial and Institutional customers. The pilot will test meter technology, WAN backhaul capabilities and the integration to our current meter data collection computer and customer information system (CIS). Meters were ordered in 2006 for installation of meters in 2007. It is Horizon's intent to leverage the current Elster EnergyAxis Mesh technology in conjunction with an effective WAN backhaul communication technology for this pilot

#### **Target users**

Commercial, Industrial and Institutional customers larger than 50 kW.

#### **Benefits**

This program supports the Minister of Energy's commitment to the installation of 800,000 SMART meters across Ontario by 2007. These meters are seen as an important means of establishing a 'conservation culture' in Ontario. Customers will be able to view their consumption patterns daily and be able to prepare their operation for future rate design. The Customer's ability to better understand the load profile and in conjunction with appropriate rate structures, will encourage customers to conserve or shift energy use.

#### **Action**

- Horizon Utilities 2006 expenditures in this program involved investigating cost effective communication technologies to be used for interval metering for customers >50 kW
- Ordering of Elster interval meters for a pilot project in 2006 was performed.

#### **Results to Date**

- Horizon has revised their conditions of service to reflect the requirement of interval metering for customers with >50kW demand.
- Installed 500 Elster Alpha 3 Interval meters on commercial customers services.
- All meter data collected from these meters through Elster EnergyAxis AMI, leveraging the existing smart meter hardware and software.
- Meter data is collected and transmitted to the Meter Acquisition Software (MAS) using wireless GPRS modems reducing the need and cost of plain old telephone lines.
- Internal web presentment tool for customers to access meter data was developed and ready for customer use.
- Through this pilot, Horizon was able to obtain significant knowledge and understanding of this technology to be able change out, with confidence all

Commercial and Industrial customer meters using the selected technology as meter seal expired while minimizing customer costs.

- By inviting our pilot customer participants to a breakfast meeting we were able to inform them of our progress with the pilot as well as provide information of the benefits of an interval meter over a traditional electro-mechanical meter. Customers will have the ability to view hourly meter data providing an understanding of their daily load consumption patterns. The take away from the meeting was that not only is there potential that an interval meter may save the customer money by being able to shift loads from on-peak times to off or mid-peak times, as customers they would be able to contribute in the reduction of green-house gases by shifting peak loads from peak time to off-peak times.

#### Next Steps

- As per Horizon's conditions of service installation of Interval Meters for customers will continue as required.

### **3.2.3 LED Retrofits for Traffic Lights**

#### **Description**

This initiative supports the replacement of existing traffic signals at intersections with new light-emitting diode (LED) technology.

#### **Target users**

Municipalities

#### **Benefits**

This program results in significant energy savings since the LED technology uses approximately 80% less electricity. Other benefits include reduced maintenance (LED's last longer) and improved visibility.

#### Action

- The City of Hamilton established a 2007 budget for a large replacement of incandescent traffic lighting with LED technology. Horizon requested a transfer of funding to provide \$85,000 worth of incentives to the City of Hamilton for this project
- An extension for this program till March 31<sup>st</sup>, 2008 was requested to ensure completion of the LED retrofit installations by the City of Hamilton and St. Catharines.

#### Results to Date

- The City of Hamilton installed LED traffic light technology at 413 intersections in 2007. This conversion of lighting resulted in a reduction of 401 kilowatts in demand and 3.5 million kWh in savings. An incentive of \$85,000 was paid toward this project (\$62,900 was paid in 2007 and the balance of \$22,100. paid 1<sup>st</sup> Quarter 2008). Total capital costs of this Hamilton project were \$1,809,500.
- The City of St. Catharines reported LED traffic light technology at 19 intersections in 2007. This conversion of lighting resulted in a reduction of 26.03 kilowatts in demand and 227,760 kWh of annual energy savings. An incentive of \$18,000 was paid toward this project in March of 2008.

### Next Steps

- No further activity is required for this program as all projects were completed.

## **3.2.4 Leveraging Energy Conservation and Load Management**

### **3.2.4.1 powerWISE® Business Incentive Program**

#### **Description**

Leveraging Energy Conservation is being accomplished through the powerWISE® Business Incentive Program. This program offers financial incentives to large customers for projects that improve electricity consumption and reduce peak demand. Interested customers must submit an application along with the necessary documentation. All details for this program are available on [www.horizonutilities.com](http://www.horizonutilities.com). All other CLD members are participating in this program.

There are two application paths for customers: prescriptive and custom. The prescriptive path is for common measures and lighting retrofits. The custom path offers flexibility for customers performing retrofits that do not fall under the prescriptive path, and requires that the project reduce peak demand by at least 10 kW.

#### **Target Users**

Large customers with peak demand of at least 50 kW. This includes schools, large commercial facilities, institutional facilities, industrial facilities, and municipal facilities like recreation centres, arenas, and libraries.

#### **Benefits**

Under the prescriptive path, customers receive pre-set incentives per retrofit performed. Under the custom path, customers receive \$150 per kWh reduced. The maximum incentive to any one customer is \$50,000.

#### **Actions:**

- Expanded program to include St. Catharines.
- Processed and organized applications.
- Performed post-installation inspections.
- Held cheque presentation event at Mohawk College.
- Updated information and application forms at [www.horizonutilities.com](http://www.horizonutilities.com).

#### **Results to Date:**

- Final payment of 9 powerWISE® Business Incentive Program applications in the total amount of \$114,374 was completed in 2007. Of these applications 5 were prescriptive lighting in the amount of \$73,607. The remaining 4 applications were custom \$40,767.
- The custom applications resulted in a demand savings of 345 kW.

- The prescriptive project applications were not specific to demand savings, however the engineering report from the Mohawk Project stated that a peak demand savings of 270 kWh and annual energy savings 974,962 kWh was achieved from their lighting retrofit. The other applications could be estimated by dividing the prescriptive amount by \$150 resulting in a demand savings of 157 kilowatts.
- Total 2007 peak kWh demand savings from this program is estimated at 772 kWh.

#### Next Steps

- Refer customers to the Ontario Power Authority Electricity Retrofit Incentive Program.

### **3.2.5 Load Control Initiative**

#### **Description**

The Load Control Initiative materialized as the **peaksaver™** Pilot Program. It was officially launched in September of 2006.

This load control initiative involves the free installation of programmable thermostats (for central air conditioning) and load control switches (for electric water heaters and pool pumps). The devices (thermostats and switches) are being supplied by Cannon Technologies, while the service provider is Honeywell Utility Solutions. The target is 2000 points (approximately 2 MW), with 75% in Hamilton and 25% in St. Catharines. The control strategy will involve off/on cycling for air conditioning loads and complete shut-off for electric water heaters and pool pumps during the control period.

#### **Target Users**

Residential customers with consumption profiles indicative of the use of central air conditioning in the summer. Small commercial customers with small air conditioning units and electric water heaters.

#### **Benefits**

For customers who receive programmable thermostats, the benefits include free professional installation, ability to adjust the thermostat through the Internet, and call centre support. Customers who only receive a load control switch are given a \$25 cheque, as an additional incentive.

For Horizon Utilities, this program provides a mechanism to reduce load during times of peak electricity demand in the Province of Ontario.

#### Actions:

- Horizon Utilities carried forward with the **peaksaver™** pilot in 2007
- Horizon Utilities developed an Emergency Load Response Program procedure and internal notification protocol.
- PeakSAVER devices were made available for the IESO – Emergency Load Reduction Program during the summer of 2007.
- Horizon Utilities participated in a monitoring and verification study with the Coalition of Large Distributors. Twenty Horizon Utilities' customers with **peaksaver™** devices and activated smart meters were chosen to participate in this study. Activations of the peakSAVER devices were performed at various temperatures.
- Program information posted on website at [www.horizonutilities.com](http://www.horizonutilities.com).
- Direct mail pieces mailed out to more than 80,000 customers.
- Newspaper and radio advertisements.

#### Results to Date:

The following devices were installed in 2007 under the **peaksaver™** pilot funded through third tranche MARR:

- 678 residential thermostats
- 19 Commercial thermostats
- 8 load control switches

Total results for this program to date are as follows:

- 1559 residential thermostats
- 19 commercial thermostats
- 8 load control switches

#### Next Steps

- Upon Horizon enrolling for the Ontario Power Authority program all remaining inventory was made available for the OPA program and outstanding appointments.
- Horizon Utilities is now active in enrolling customers in the OPA residential and small commercial demand response program.

### **3.3 Distribution Loss Reduction**

#### **Description**

The Distribution Loss Reduction Program is a broad network based initiative to drive greater efficiencies within the distribution grid. This program will identify opportunities for system enhancements. Next steps will be to complete the engineering analysis and feasibility studies. Projects will be prioritized and selected based on the most attractive investment to results ratio. Items to be addressed may include, but are not limited to:

**Power Factor Correction** - Under the Power Factor Correction initiative, a power factor assessment will be completed which will identify locations for the installation of power factor correction capacitor banks. The results and available funding will determine which projects proceed.

**Voltage Conversion** - Voltage upgrades can save up to 90% of the losses associated with a feeder as higher voltages and lower current results in lower losses. This study will ascertain the locations and value of voltage conversions. This program could also involve changing out all the meters on a particular feeder to SMART Meters so that the exact losses can be determined.

**Power System Load Balancing** - This program is designed to ascertain where load shifting can occur within the grid to improve system efficiency including the location of optimized “open points”. It is estimated that approximately 5% - 10% of system losses could be saved.

**Voltage Profile Management** - Changing voltage profiles at the distribution station level can result in a peak reduction at the controllable distribution stations. This is in addition to the IMO’s voltage reduction program and will not interfere with the effectiveness of that program.

**Line Loss Reductions** - Replacement of conductors such as #6 AWG copper with #2 AWG aluminum can reduce line losses. An evaluation of where such opportunities exist may be undertaken. The results and available funding will determine which projects proceed.

**Transformer and Other Losses** – Using infrared scans of transformers this program will help to identify additional electricity losses including overloaded equipment. “Hot” transformers will be investigated further to determine operational improvement opportunities.

#### **Target users**

The results of this program will positively impact all of Horizon Utilities’ customers.

#### **Benefits**

Reduced electricity distribution system delivery losses will reduce system demand, relieve network capacity to accommodate growth, and reduce the requirement for new generating capacity in the Province. Costs associated with distribution system delivery losses are recovered through electricity distribution charges. Reductions in these costs will therefore benefit all customers.

#### Action

- All funding was transferred out of this program and into Distributed Energy – Standby Generation, as per our letter of January 12, 2007.

#### Results to Date

- Horizon Utilities purchased an infrared camera to monitor for hot spots in the distribution network, as well as support investigation of lost revenue opportunities within the service territory.

#### Next Steps

- This program was closed off once the request for transfer of funding was sent to the OEB, Jan 12, 2007.

### **3.4 Distributed Energy**

#### **3.4.1 Load Displacement**

##### **Description**

Distributed generation behind the customer's meter provides an excellent opportunity to displace load from the local distribution system's grid in a very effective manner. Load displacement technology, such as combined heat and power systems, provides increased power efficiency and thermal systems. Combined with an existing or new district heating distribution system this technology contributes to the development of sustainable energy networks within Ontario's communities.

Other technologies such as micro-turbines, wind, biomass fuels and solar provide additional options to meet the customer's needs. This initiative will facilitate the development and implementation of these opportunities. Financial incentives will be considered based on the project's viability.

Development of educational and technology programs in conjunction with local colleges and universities may be considered. Small pilots or demonstration projects to promote alternative and renewable energy sources may also be considered.

##### **Target Users**

Commercial, industrial, and residential, schools, colleges and universities.

##### **Benefit**

Benefits include additional capacity within the grid. Cleaner technologies result in reductions in Green House Gas (GHG) emissions. Other benefits include improved system reliability, reduced harmonics, back-up power possibilities, education and skills development.

#### Action

- Horizon Utilities partnered with the District School Board of Niagara to incent a standby generator load displacement pilot project.
- This pilot project will assist the District School Board of Niagara in becoming a participant in the Ontario demand response program offerings.

#### Results to Date

- District School Board of Niagara installed a 400 Kilowatt standby generator at their headquarters 191 Carlton Street St. Catharines. This generator was commissioned for operation December 15, 2007.
- Letter of understanding from the DSBN was received Sept. 26, 2007 indicating their intention to enter into a pilot demand response CDM agreement with Horizon Utilities.

#### Next Steps

- Preparations for the District School Board of Niagara to become a demand response participant will be made conditional upon their receipt of the conditions of authorization from the Ministry of Environment and executed operating agreement with Horizon Utilities.

### **3.4.2 Stand-by Generators**

#### **Description**

This program may provide for the use of customers' existing standby generators when required and/or economical. Environmentally friendly generators will be the primary focus of this initiative however all generators may be considered if needed during an emergency.

#### **Target Users**

Commercial and industrial customers with sufficiently sized standby generators.

#### **Benefits**

Reduction of customer and system peak demand and energy costs. This additional supply may be able to bid into the Ontario energy market in the future.

#### Action

- Horizon Utilities requested a transfer of its capital funds to this program by way of the January 12<sup>th</sup>, 2007 letter to the OEB.
- Horizon Utilities is carried out installation new standby generators in both the John Street and Vansickle Road locations. Operational control will be performed through the John Street Control Centre.
- Horizon Utilities installed new natural gas fired standby generators in both the John Street (2x375kWh) and Vansickle Road locations (1x375kWh). Operational control of these generators can be performed either locally through the local control room or remotely through the John Street Control Centre.

- Horizon Utilities installed standby generators at all major facilities to enhance system reliability, but also to participate in the Provincial Emergency Load Response Plan (ELRP) and provide leadership in demand management.

#### Results to Date

- Developed and issued an RFP to seek related project proposals.
- Assigned Toromont CAT as the main contractor in April 2007.
- Applied for a transfer of CDM funds to finance the John Street and Vansickle Road projects
- Completed the system design and structural review in September 2007.
- Building permit received in October 2007.
- Environmental impact assessment completed in October 2007.
- Site mobilization in October 2007.
- Generators delivered and installed on both sites in November 2007.
- Commissioning at John St completed in December 2007.
- Commissioning at Vansickle Rd completed in Feb 2008 (unexpected vermiculite abatement process and gas supply upgrade)
- Environmental CoA submitted in Dec. 2007
- Generators on both sites are in service.

#### Next Steps

- Receive the CoA from Ministry of the Environment
- Participate in the ELRP

## 4. Lessons Learned

Horizon Utilities has built numerous relationships during the design and delivery of quality conservation and demand management programs to our customers. The members of the Coalition of Large Distributors (Toronto Hydro, Hydro Ottawa, Horizon Utilities, Veridian, Enersource Hydro Mississauga and Powerstream) have been a provincial focal point by working collectively on many of these conservation initiatives. Horizon has also connected with community partners, and has used these resources to achieve impressive results.

Many lessons have been learned along the way, including:

### Program Development

- CDM program development does take time. In particular, procurement, legal and environmental issues must be thoroughly addressed up front in order to ensure long-term sustainable conservation success.
- Conservation opportunities exist with residential and small commercial customers. However, getting this effective message to the target audience can be challenging. Specific examples of conservation measures that are clear and relate directly to that customer's needs help to increase participation.
- Working together with other LDC's to expand a program offering can maximize program effectiveness through cross-jurisdictional advertising and reduce overall costs. An example was the peakSAVER Program that was implemented in partnership with the CLD.
- LDCs have demonstrated that they are the most effective channel to their customers for conservation programs. Customers have grown to depend on their local distributor for conservation support, advice and programs. This is critical to minimizing customer confusion while maximizing brand equity, cost effectiveness and conservation results.
- The powerWISE® brand is one of the most recognized conservation brands in Ontario. Horizon Utilities customers look for this trusted symbol to identify conservation opportunities. During 2007 the Ministry of Energy also promoted the powerWISE® name extensively through the Dr. David Suzuki ads. This enhanced the image of Horizon Utilities' programs and the efforts of other CLD members that were also using the brand.
- Commercial Load Control (Demand Response) and Distributed Energy programs piloted as part of the CDM plan show great promise as a means of reducing electricity system demand but require considerable time and effort to overcome customer implementation barriers. Customer revenues provided by these programs have to address the financial realities that customers face in making this capacity available.
- Each LDC has unique markets, resources and needs requiring a range of diverse and individual strategies and tactics that can be customized for successful local CDM

program implementation. Providing communities with a variety of provincial OPA programs, in conjunction with custom LDC programs, makes good strategic sense.

- Horizon found that simple, low cost incentives like the powerWISE® Power Pack or free CFL bulbs were very well received by residential customers, offered good Total Resource Cost (“TRC”) results and proved that customers did not require significant incentives to participate in programs. In fact, ease of participation accompanied by moderate incentives with a perceived high value to customers appear to be the hallmarks of program success. Demonstrating simple measures at community events is an engaging experience for customers that they are likely to share with others.
- Our powerWISE® for Business Incentive Program revealed that Commercial and Industrial customer timelines for conservation retrofit projects are usually longer than Horizon Utilities expected and have a lower sense of urgency than Horizon Utilities would prefer. Incentives have to be very meaningful, in order to encourage and speed up conservation projects at this level. For example, in 2006, seventeen applications were received and only two of the projects were completed and thus received PBIP incentives.
- Commercial Programs must address the needs of the customers at the corporate, Municipal, Provincial and National levels to allow implementation across jurisdictions and beyond individual stores. Coordination and consistency is required to allow large Corporations to make programs available to all store locations regardless of location by City or Province.

### Education

- Public education and energy audits are important as Horizon Utilities builds a culture of conservation. Yet under the current reporting format, no reportable benefits can be attributed to these activities. This effectively penalizes utilities from participating in these worthwhile and necessary initiatives. Energy audits also provide an opportunity to educate customers on what effective measures can be taken to save energy.
- As Horizon Utilities develops a conservation culture in Ontario, Horizon Utilities must continue to balance the need for short-term results while fostering a long-term conservation attitude among the citizens and businesses in the province. If fostering conservation is to become a sustainable entity in Horizon Utilities’ business portfolio, a stable, risk-averse methodology for funding must exist.
- Residential customers are generally aware of the simple products and initiatives that are available to help them to reduce their energy consumption. However, they have a limited understanding of the dollar impact and quick return provided by these simple solutions such as pipe wrap, SLED’s and CFL bulbs. It is critical to educate our customers and to provide a savings comparison in dollars to highlight these impacts. A variety of case studies would be an effective means to achieve customer awareness. Real time, in home, energy monitors offer customers an effective tool to better understand and manage their consumption, particularly when time of use pricing comes into effect.

- Introduction of more complicated programs such as the residential demand response program peakSAVER requires customer education to gain acceptance and understanding of its importance. Cooperation to ensure that installed resources are used effectively in a manner that is prudent in reducing consumer costs and reinforces the benefit of customer enrolment in demand response. In 2007 peakSAVER devices were not officially called upon to operate as part of the IESO ELRP. Dispatched imported power requirements could be mitigated by calling on demand response capability as a measure.
- Through a customer focus group, Horizon Utilities learned that its larger Commercial and Industrial customers want direct customer contact on matters relating to energy conservation and emerging technologies. It is important to offer Commercial and Industrial customers access to information through convenient forums such as workshops and trade shows. The LDC can play a role by introducing service providers to customers. Relying on current customer contacts in the billing database will not always produce the appropriate contact that manages facility energy use. Using a dedicated Horizon Utilities resource to address energy conservation needs of larger industrial, commercial and MUSH sector customers will lead to increased participation and adoption of energy efficient technologies.
- Horizon Utilities' sponsorship of the Generation Conservation grade 5 curriculum and development of the powerWISE Home - "Power for Tomorrow" conservation model are steps taken to build a new generation of conservation savvy citizens. Introducing this curriculum to four school boards in two municipalities through teacher workshops has been well received.

### Regulatory Issues

- It was clear that CDM programs require and will benefit from continuity and consistency of funding. The funding transition to the OPA that occurred in 2007 created a period of uncertainty, disrupting programs at the beginning of the year followed by a ramping up in mid-year. The result was lost momentum in conservation programs savings and customer confusion.
- The energy industry must coordinate the individual efforts of its many organizations to ensure that program delivery is efficient, readily available and understood by all customers. Most customers don't understand the relationship between the various organizations within the hydro industry, so an attempt to deliver programs to the end customer by these different organizations only confuses the customer and suggests a lack of industry coordination. Clarity regarding the roles of the LDC, OEB, OPA, and the IESO would be beneficial in this regard.
- TRC analysis has become more complicated with the introduction of new TRC Analysis tools and measures lists. There are two sets of standards, one from the OEB and one from the OPA. We recommend the use of a single financial standard set by the OEB.
- OEB's new proposed CDM regulatory structure deals with pilots and it is recommended that it should also consider adding a separate R&D process to

support program development. This would encourage development of new ideas and control any potential risks involving new technologies.

- As a deregulated industry with shareholders, it is worth remembering that LDC shareholders expect some remuneration from CDM. All programs must balance the needs of market transformation and sustainability with a consistent rate of return.
- Finally, we must strive to streamline the LDC's administrative reporting efforts where possible. Reporting requirements must be consistent and applicable to all participants thereby removing regulatory duplication.

## 5. Conclusions

Horizon Utilities has embraced its role of implementing CDM programs to our customers. In doing so many new relationships were formed and a renewed focus on bringing value to our customers. Flexibility in adapting to customer demands and gaining understanding of new regulatory requirements around the business of CDM evolved. Plan and budget adjustments were required by Horizon Utilities to finalize the completion of its CDM plans within the budget allowed.

Energy Savings results delivered by Horizon Utilities programs in 2007 were 6.5 million kWh in energy savings reflective of the activities in winding down the various programs in anticipation of the OPA core program offerings.

Appearing at over 28 community events last year, Horizon Utilities offered a unique opportunity to engage over 50 staff volunteers in learning about conservation measures, then extending this knowledge and leadership to the public. An addition of the smart meter display has proven useful in preparing customers for time-of-use rates and introducing conservation concepts that will allow them to seek cost savings when those rates take effect. Demand for Horizon Utilities to appear at community events is growing as the public demands more information about energy efficiency measures and assistance through CDM programs.

Increasing awareness about key conservation concepts, including consumption (kWh), demand (kWh) and underlying reasons for Ontario's CDM campaign has been challenging both internally and externally. Internally, the Conservation Champions Committee brings the message to each department. Externally, this message is shared with the community at events, programs and media channels.

The activities around Distributed Energy completed by Horizon Utilities in 2007 are aimed at providing leadership in demand response capabilities. Assisting customers to achieve demand and energy reduction is a role that Horizon Utilities can play an integral part going forward.

Horizon Utilities is very proud to be filing our 2007 Annual Conservation and Demand Management report that documents the completion of all projects and budget associated with the 3<sup>rd</sup> Tranche MARR.

Lastly Horizon Utilities is currently playing an active role in assisting the Province to meet the Conservation and Demand Management targets set out in the Integrated Power System Plan. Our customers are the reason we exist and they are pleased with Horizon's role in delivery of programs that meet their needs. Horizon is reviewing second-generation opportunities to carry this message further using established relationships with the CLD, Ontario Power Authority, NEPA, other LDC's and our local community partners.

## Appendix A - Evaluation of the CDM Plan

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

	<sup>5</sup> Cumulative Totals Life-to-date	Total for 2007	Residential	Commercial	Institutional	Industrial	Agricultural	LDC System	Smart Meters	Other #1	Other #2
Net TRC value (\$):	\$ 10,929,364	\$ 82,229	\$ (93,776)	\$ (654,966)	\$ 1,464,988	\$ -	\$ -	\$ -		\$ (422,970)	\$ -
Benefit to cost ratio:	2.31	1.01	0.54	0.82	2.08	0.00	0.00	0.00		0.60	0.00
Number of participants or units delivered:	335,194	19,227	2,250	16,564	413						
Lifecycle (kWh) Savings:	302,662,042	117,843,188	1,887,295	29,929,568	86,026,325	0	0	0		0	0
Report Year Total kWh saved (kWh):	40,780,228	6,499,297	341,700	3,539,404	2,618,193	0	0	0		0	0
Total peak demand saved (kW):	4,652	2,275	26	1,163	299	0	0	0		788	0
Total kWh saved as a percentage of total kWh delivered (%):	0.26%	0.12%	0.01%	0.06%	0.05%						
Peak kW saved as a percentage of LDC peak kW load (%):		1.95%	0.02%	0.99%	0.26%						
<sup>1</sup> Report Year Gross C&DM expenditures (\$):	\$ 7,050,246	\$ 2,420,635	\$ 186,800	\$ 687,813	\$ 63,257	\$ -	\$ -	\$ 5,208	\$ 129,910	\$ 1,136,600	\$ -
<sup>2</sup> Expenditures per kWh saved (\$/kWh):	\$ 0.17	\$ 0.02	\$ 0.10	\$ 0.02	\$ 0.00	\$ -	\$ -	\$ -		\$ -	\$ -
<sup>3</sup> Expenditures per kW saved (\$/kW):	\$ 1,515	\$ 1,063.87	\$ 7,094.57	\$ 591.63	\$ 211.63	\$ -	\$ -	\$ -		\$ 1,443.30	\$ -
Utility discount rate (%):	6.28										

<sup>1</sup> Expenditures are reported on accrual basis.  
<sup>2</sup> Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate energy savings.  
<sup>3</sup> Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate capacity savings.  
<sup>4</sup> Please report spending related to 3rd tranche of MARR funding only. TRC calculations are not required for Smart Meters. Only actual expenditures for the year need to be reported.  
<sup>5</sup> Includes total for the reporting year, plus prior year, if any (for example, 2007 CDM Annual report for third tranche will include 2006, 2005 and 2004 numbers, if any).

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. Name of the Program: Co-Branded Mass Markets

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

This flagship co-branded mass-market program (powerWISE®) is a multifaceted approach to fostering the conservation culture in Ontario. Through development of a significant cooperative effort among six of the largest municipal LDC's, this program has become aligned with specific initiatives such as Compact Fluorescent Lighting (CFL) change out programs, LED Christmas Light Exchanges, Energy Star, Multi Choice, energy audits, hot water heater blanket wraps, school based education and a host of other programs aimed at providing customers with the tools and education needed to reduce their energy usage. Access to online services such as energy consumption calculators, an energy expert and personalized energy audit services are being considered as future components of this program.

**Measure(s):**

	EBilling	OPA EKC	Measure 3 (if applicable)
Base case technology:	Incandescent Bulb and Average Standard Stock Showerhead	Do Nothing, Incandescent Bulbs	
Efficient technology:	13 Watt CFL, Low Flow Showerhead	CFLs, Ceiling Fan, Dimmer Switch, Outdoor Motion Sensor, Outdoor Solar Lights and Furnace Filter	
Number of participants or units delivered for reporting year:	1,048 CFLs, 524 Showerheads	3,282 CFLs, 287 ceiling fans, 309 motion detectors, 204 dimmer switches, 1,626 outdoor solar lights and 561 furnace filters	
Measure life (years):	Showerhead - 7 years	1 to 10 years	
Number of Participants or units delivered life to date	3,732	149,760	

**B. TRC Results:**

	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ 109,753.00	\$ 10,876,219.00
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 176,356.00	\$ 998,188.00
Incremental Measure Costs (Equipment Costs)	\$ 27,173.00	\$ 767,445.00
<b>Total TRC costs:</b>	<b>\$ 203,529.00</b>	<b>\$ 1,765,633.00</b>
<b>Net TRC (in year CDN \$):</b>	<b>-\$ 93,776.00</b>	<b>\$9,110,586.00</b>
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 0.54	6.16

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

**Cumulative Results:**

**Conservation Programs:**

Demand savings (kW):	Summer	Winter	Cumulative Lifecycle	Cumulative Annual Savings
	26.33	n/a	1,595	n/a

	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):	1,887,295	341,700	147,872,423	26,560,398
Other resources saved :				
Natural Gas (m3):				
Other (specify):	88,472	12,639	2,208,673	314,153

**Demand Management Programs:**

Controlled load (kW)		
Energy shifted On-peak to Mid-peak (kWh):		
Energy shifted On-peak to Off-peak (kWh):		
Energy shifted Mid-peak to Off-peak (kWh):		

**Demand Response Programs:**

Dispatchable load (kW):		
Peak hours dispatched in year (hours):		

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

Metric (specify):		
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**D. Actual Program Costs:**

		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
Utility direct costs (\$):	Incremental capital:	\$ 48,919.00	\$ 117,874.00
	Incremental O&M:	\$ 127,437.00	\$ 1,049,245.00
	Incentive:	\$ -	\$ -
	Total:	\$ 176,356.00	\$ 1,167,119.00
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

This promotion encouraged customers to Go Paperless with Horizon by adopting e-billing and pre-authorized automatic billing. The incentives included:

- o For customers that adopt the e-billing services, a donation to support a local tree-planting initiative
- o Customers that select both options will receive a conservation kit.
- o The Ebilling Program is continuing on without the offering of conservation kits.
- o No further action will be taken with respect to the conservation offering in conjunction with this project.

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

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

# Appendix B - Discussion of the Program

**(complete this Appendix for each program)**

A. **Name of the Program:** Leveraging Conservation and/or Load Management

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

**Description:**

Leveraging Energy Conservation is being accomplished through the powerWISE® Business Incentive Program. This program offers financial incentives to large customers for projects that improve electricity consumption and reduce peak demand. Interested customers must submit an application along with the necessary documentation. All details for this program are available on www.horizonutilities.com. All other CLD members are participating in this program.

There are two application paths for customers: prescriptive and custom. The prescriptive path is for common measures and lighting retrofits. The custom path offers flexibility for customers performing retrofits that do not fall under the prescriptive path, and requires that the project reduces peak demand by at least 10 kW.

**Target Users:**

Large customers with peak demand of at least 50 kW. This includes schools, large commercial facilities, institutional facilities, industrial facilities, and municipal facilities like recreation centres, arenas, and libraries.

**Benefits:**

Under the prescriptive path, customers receive pre-set incentives per retrofit performed. Under the custom path, customers receive \$150 per kW reduced. The maximum incentive to any one customer is \$50,000.

**Measure(s):**

	PBIP - Prescriptive	Measure 3 (if applicable)
Base case technology:	Existing Lighting	
Efficient technology:	Energy Efficient Lighting	
Number of participants or units delivered for reporting year:	16,539 Prescriptive Measures and 5 Custom Projects	
Measure life (years):	2 to 25 years	
Number of Participants or units delivered life to date	16,547	

	<u>Reporting Year</u>		<u>Life-to-date TRC Results:</u>	
<sup>1</sup> TRC Benefits (\$):	\$	1,172,465.00	\$	1,222,936.00
<sup>2</sup> TRC Costs (\$):				
Utility program cost (excluding incentives):	\$	128,878.00	\$	130,188.00
Incremental Measure Costs (Equipment Costs)	\$	2,738,027.00	\$	2,824,416.00
Total TRC costs:	\$	2,866,905.00	\$	2,954,604.00
Net TRC (in year CDN \$):	-\$	1,694,440.00	-\$	1,731,668.00
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$	0.41		0.41

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

**Conservation Programs:**

		<u>Cumulative Results:</u>	
		Cumulative Lifecycle	Cumulative Annual Savings
Demand savings (kW):	Summer	463.08	493
	Winter	n/a	n/a
	lifecycle	in year	
Energy saved (kWh):	14,784,287	2,905,651	15,389,999
Other resources saved :			3,107,555
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):		
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**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

Peak load savings (kW):

*lifecycle*

*in year*

Energy savings (kWh):

**Distributed Generation and Load Displacement Programs:**

Amount of DG installed (kW):

Energy generated (kWh):

Peak energy generated (kWh):

Fuel type:

**Other Programs (specify):**

Metric (specify):

**D. Actual Program Costs:**

**Reporting Year**

**Cumulative Life to Date**

Utility direct costs (\$):

*Incremental capital:*

\$ - \$ -

*Incremental O&M:*

\$ 14,503.45 \$ 936,311.45

*Incentive:*

\$ 114,374.55 \$ 114,374.55

*Total:*

\$ 128,878.00 \$ 1,050,686.00

Utility indirect costs (\$):

*Incremental capital:*

*Incremental O&M:*

*Total:*

**E. Assumptions & Comments:**

o Final payment of 9 powerWISE® Business Incentive Program applications in the total amount of \$114,374 was completed in 2007. Of these applications 5 were prescriptive lighting in the amount of \$73,607. The remaining 4 applications were custom \$40,767.

o The custom applications resulted in a demand savings of 345 kW.

o The prescriptive project applications were not specific to demand savings. However the engineering report from the Mohawk Project stated that a peak demand savings of 270 kW and annual energy savings 974,962 kWhrs, was achieved from their lighting retrofit. The other applications could be estimated by dividing the prescriptive amount by \$150 resulting in a demand savings of 157 kilowatts.

o Total 2007 peak kW demand savings from this program is estimated at 772 kW.

<sup>1</sup> Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

<sup>2</sup>

For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

# Appendix B - Discussion of the Program

**(complete this Appendix for each program)**

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

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

**Description:**

The Load Control Initiative materialized as the peaksaver™ Pilot Program. It was officially launched in September of 2006.

This load control initiative involves the free installation of programmable thermostats (for central air conditioning) and load control switches (for electric water heaters and pool pumps). The devices (thermostats and switches) are being supplied by Cannon Technologies, while the service provider is Honeywell Utility Solutions. The target is 2000 points (approximately 2 MW), with 75% in Hamilton and 25% in St. Catharines. The control strategy will involve off/on cycling for air conditioning loads and complete shut-off for electric water heaters and pool pumps during the control period.

**Target Users:**

Residential customers with consumption profiles indicative of the use of central air conditioning in the summer. Small commercial customers with small air conditioning units and electric water heaters.

**Benefits:**

For customers who receive programmable thermostats, the benefits include free professional installation, ability to adjust the thermostat through the Internet, and call centre support. Customers who only receive a load control switch are given a \$25 cheque, as an additional incentive.

For Horizon Utilities, this program provides a mechanism to reduce load during times of peak electricity demand in the Province of Ontario.

**Measure(s):**

	Peaksaver	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Do Nothing		
Efficient technology:	Utility Controlled Relay with Programmable Thermostat		
Number of participants or units delivered for reporting year:	705		
Measure life (years):	18 years		
Number of Participants or units delivered life to date	1,586		

B. **TRC Results:**

	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ 803,245.00	\$ 1,663,343.00
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 453,786.00	\$ 737,069.00
Incremental Measure Costs (Equipment Costs)	\$ -	\$ -
Total TRC costs:	\$ 453,786.00	\$ 737,069.00
<b>Net TRC (in year CDN \$):</b>	<b>\$ 349,459.00</b>	<b>\$ 926,274.00</b>
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 1.77	2.26

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

**Cumulative Results:**

**Conservation Programs:**

	Summer	Winter	Cumulative Lifecycle	Cumulative Annual Savings
Demand savings (kW):	419.5	n/a		n/a
Energy saved (kWh):	1,796,281	99,793.00	4,066,759	225,930
Other resources saved :				
Natural Gas (m3):				
Other (specify):				

**Demand Management Programs:**

Controlled load (kW)		
Energy shifted On-peak to Mid-peak (kWh):		
Energy shifted On-peak to Off-peak (kWh):		
Energy shifted Mid-peak to Off-peak (kWh):		

**Demand Response Programs:**

Dispatchable load (kW):		
Peak hours dispatched in year (hours):		

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

Peak load savings (kW):

*lifecycle*

*in year*

Energy savings (kWh):

**Distributed Generation and Load Displacement Programs:**

Amount of DG installed (kW):

Energy generated (kWh):

Peak energy generated (kWh):

Fuel type:

**Other Programs (specify):**

Metric (specify):

**D. Actual Program Costs:**

**Reporting Year**

**Cumulative Life to Date**

Utility direct costs (\$):

*Incremental capital:*

\$ 363,916.00 \$ 577,320.00

*Incremental O&M:*

\$ 62,195.00 \$ 148,274.00

*Incentive:*

\$ 27,675.00 \$ 27,675.00

*Total:*

\$ 453,786.00 \$ 753,269.00

Utility indirect costs (\$):

*Incremental capital:*

*Incremental O&M:*

*Total:*

**E. Assumptions & Comments:**

o Upon Horizon enrolling for the Ontario Power Authority program all remaining inventory was made available for the OPA program and outstanding appointments.

o Horizon is now active in enrolling customers in the OPA residential and small commercial demand response program.

<sup>1</sup> Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

<sup>2</sup>

For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

# Appendix B - Discussion of the Program

**(complete this Appendix for each program)**

A. **Name of the Program:** LED Traffic Lights

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

**Description:**  
This initiative supports the replacement of existing traffic signals at intersections with new light-emitting diode (LED) technology.

**Target users:**  
Municipalities

**Benefits:**  
This program results in significant energy savings since the LED technology uses approximately 80% less electricity. Other benefits include reduced maintenance (LED's last longer) and improved visibility.

Measure(s):	LED Traffic Lights	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Average Standard Stock		
Efficient technology:	LED		
Number of participants or units delivered for reporting year:	413 locations		
Measure life (years):	23		
Number of Participants or units delivered life to date	434		

B. <b>TRC Results:</b>	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ 2,815,425.79	\$ 2,979,669.79
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 357.00	\$ 357.00
Incremental Measure Costs (Equipment Costs)	\$ 1,350,081.00	\$ 1,350,081.00
Total TRC costs:	\$ 1,350,438.00	\$ 1,350,438.00
<b>Net TRC (in year CDN \$):</b>	<b>\$ 1,464,987.79</b>	<b>\$ 1,629,231.79</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>\$ 2.08</b>	<b>2.21</b>

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

<b>Conservation Programs:</b>			
Demand savings (kW):	Summer	298.9	316
	Winter	n/a	n/a

	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):	86,026,325	2,618,193	89,396,537	2,765,808
Other resources saved:				
Natural Gas (m3):				
Other (specify):				

<b>Demand Management Programs:</b>			
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):			

<b>Demand Response Programs:</b>			
Dispatchable load (kW):			
Peak hours dispatched in year (hours):			

<b>Power Factor Correction Programs:</b>			
Amount of KVar installed (KVar):			
Distribution system power factor at beginning of year (%):			
Distribution system power factor at end of year (%):			

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (kWh):			

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

Metric (specify):		
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<b>D. Actual Program Costs:</b>		<b>Reporting Year</b>	<b>Cumulative Life to Date</b>
Utility direct costs (\$):	<i>Incremental capital:</i>	\$ -	\$ -
	<i>Incremental O&amp;M:</i>	\$ 357.00	\$ 357.00
	<i>Incentive:</i>	\$ 62,900.00	\$ 65,705.00
	<i>Total:</i>	\$ 63,257.00	\$ 66,062.00
Utility indirect costs (\$):	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

- o The City of Hamilton installed LED traffic light technology at 413 intersections in 2007. This conversion of lighting resulted in a reduction of 401 (gross) kilowatts in demand and 3.5 million (gross) kWhrs in savings. An incentive of \$85,000 was paid toward this project (\$62,900 was paid in 2007 and the balance of \$22,100 paid 1st QTR 2008). Total capital costs of this Hamilton project was \$1,809,500.
- o The City of St. Catharines reported LED traffic light technology at 19 intersections in 2007. This conversion of lighting resulted in a reduction of 26.03 kilowatts in demand and 227,760 kWhrs of annual energy savings. An incentive of \$18,000 was paid toward this project in March of 2008.

<sup>1</sup> Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

<sup>2</sup> For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. Name of the Program: Distributed Energy

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

**Description:**

Distributed generation behind the customer's meter provides an excellent opportunity to displace load from the local distribution system's grid in a very effective manner. Load displacement technology, such as combined heat and power systems, provides increased power efficiency and thermal systems. Combined with an existing or new district heating distribution system this technology contributes to the development of sustainable energy networks within Ontario's communities.

Other technologies such as micro-turbines, wind, biomass fuels and solar provide additional options to meet the customer's needs. This initiative will facilitate the development and implementation of these opportunities. Financial incentives will be considered based on the project's viability.

Development of educational and technology programs in conjunction with local colleges and universities may be considered. Small pilots or demonstration projects to promote alternative and renewable energy sources may also be considered.

**Target Users:**

Commercial, industrial, and residential, schools, colleges and universities.

**Benefit:**

Benefits include additional capacity within the grid. Cleaner technologies result in reductions in Green House Gas (GHG) emissions. Other benefits include improved system reliability, reduced harmonics, back-up power possibilities, education and skills development.

**Measure(s):**

	Load Displacement	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Do nothing		
Efficient technology:	Load Displacement Generator		
Number of participants or units delivered for reporting year:	1		
Measure life (years):	25		
Number of Participants or units delivered life to date	1		

B. TRC Results:	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ 1,030,489.00	
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 274.00	
Incremental Measure Costs (Equipment Costs)	\$ 340,200.00	
Total TRC costs:	\$ 340,474.00	
<b>Net TRC (in year CDN \$):</b>	<b>\$ 690,015.00</b>	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 3.03	

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

**Conservation Programs:**

	Summer	Winter	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Demand savings (kW):	280	n/a			280	n/a
Energy saved (kWh):			13,349,000	533,960	13,349,000	533,960
Other resources saved :						
Natural Gas (m3):						
Other (specify):						

**Demand Management Programs:**

Controlled load (kW)		
Energy shifted On-peak to Mid-peak (kWh):		
Energy shifted On-peak to Off-peak (kWh):		
Energy shifted Mid-peak to Off-peak (kWh):		

**Demand Response Programs:**

Dispatchable load (kW):		
Peak hours dispatched in year (hours):		

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**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):		
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**D. Actual Program Costs:**

		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
Utility direct costs (\$):	Incremental capital:	\$ -	\$ -
	Incremental O&M:	\$ 274.00	\$ 274.00
	Incentive:	\$ 50,000.00	\$ 50,000.00
	Total:	\$ 50,274.00	\$ 50,274.00
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

District School Board of Niagara installed a 400 Kilowatt standby generator at their headquarters 191 Carlton Street St. Catharines. This generator was commissioned for operation October 2007.

Preparations for the District School Board of Niagara to become a demand response participant will be finalized upon final receipt of their Conditions of Authorization.

<sup>1</sup> Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

<sup>2</sup> For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** Stand By Generators

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

**Description:**

This program may provide for the use of customers' existing standby generators when required and/or economical. Environmentally friendly generators will be the primary focus of this initiative however all generators may be considered if needed during an emergency.

**Target Users:**

Commercial and industrial customers with sufficiently sized standby generators.

**Benefits:**

Reduction of customer and system peak demand and energy costs. This additional supply may be able to bid into the Ontario energy market in the future.

**Measure(s):**

	Stand By Generator	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Do nothing		
Efficient technology:	Natural Gas Generator		
Number of participants or units delivered for reporting year:	3		
Measure life (years):	25		
Number of Participants or units delivered life to date	3		

B. <b>TRC Results:</b>	<u>Reporting Year</u>		<u>Life-to-date TRC Results:</u>
	<sup>1</sup> TRC Benefits (\$):	\$	642,548.00
<sup>2</sup> TRC Costs (\$):			
Utility program cost (excluding incentives):	\$	-	
Incremental Measure Costs (Equipment Costs)	\$	1,065,518.00	
Total TRC costs:	\$	1,065,518.00	
Net TRC (in year CDN \$):	-\$	422,970.00	
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$	0.60	

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

**Conservation Programs:**

Demand savings (kW):	Summer	787.5	788
	Winter	n/a	n/a

	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):	-	-	-	-
Other resources saved :				
Natural Gas (m3):				
Other (specify):				

**Demand Management Programs:**

Controlled load (kW)		
Energy shifted On-peak to Mid-peak (kWh):		
Energy shifted On-peak to Off-peak (kWh):		
Energy shifted Mid-peak to Off-peak (kWh):		

**Demand Response Programs:**

Dispatchable load (kW):		
Peak hours dispatched in year (hours):		

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

Metric (specify):		
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**D. Actual Program Costs:**

		Reporting Year	Cumulative Life to Date
Utility direct costs (\$):	Incremental capital:	\$ -	\$ -
	Incremental O&M:	\$ -	\$ -
	Incentive:	\$ 1,136,600.00	\$ 1,136,600.00
	Total:	\$ 1,136,600.00	\$ 1,136,600.00
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

- o Developed and issued an RFP to seek related project proposals.
- o Assigned Toromont CAT as the main contractor in April 2007.
- o Applied for a transfer of CDM funds to finance the John Street and Vansickle Road projects
- o Completed the system design and structural review in September 2007.
- o Building permit received in October 2007.
- o Environmental impact assessment completed in October 2007.
- o Site mobilization in October 2007.
- o Generators delivered and installed on both sites in November 2007.
- o Commissioning at John St completed in December 2007.
- o Commissioning at Vansickle Rd completed in Feb 2008 (unexpected vermiculite abatement process and gas supply upgrade)
- o Environmental CoA submitted in Dec. 2007
- o Generators on both sites are in service.

Next Steps

- o Receive the CoA from Ministry of the Environment
- o Participate in the ELRP

<sup>1</sup> Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

<sup>2</sup> For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

# Appendix C - Program and Portfolio Totals

Report Year:

## 1. Residential Programs

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

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

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
Co-Branded Mass Market Program	\$ 109,753	\$ 203,529	\$ -93,776	0.54	341,700	1,887,295	26.33	\$ 176,356
Energy Audit Program	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
Social Housing Program	\$ -	\$ -	\$ -	0.00	0	0	0	\$ 10,444
Name of Program D				0.00				
Name of Program E				0.00				
Name of Program F				0.00				
Name of Program G				0.00				
Name of Program H				0.00				
Name of Program I				0.00				
Name of Program J				0.00				
<b>*Totals App. B - Residential</b>	\$ 109,753	\$ 203,529	\$ -93,776	0.54	341,700	1,887,295	26	\$ 186,800
<i>Residential Indirect Costs not attributable to any specific program</i>		\$ -						
<b>Total Residential TRC Costs</b>		\$ 203,529						
<b>**Totals TRC - Residential</b>	\$ 109,753	\$ 203,529	\$ -93,776	0.54				

## 2. Commercial Programs

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

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

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
Energy Audits & Feasibility Studies	\$ -	\$ -	\$ -	0.00	0	0	0	\$ 54,875
Load Displacement	\$ 1,030,489	\$ 340,474	\$ 690,015	3.03	533,960	13,349,000	280	\$ 50,274
Leveraging Energy Conservation and/or Load Management Programs	\$ 1,172,465	\$ 2,866,905	\$ -1,694,440	0.41	2,905,651	14,784,287	463	\$ 128,878
Load Control Initiative	\$ 803,245	\$ 453,786	\$ 349,459	1.77	99,793	1,796,281	420	\$ 453,786
Name of Program E				0.00				
Name of Program F				0.00				
Name of Program G				0.00				
Name of Program H				0.00				
Name of Program I				0.00				
Name of Program J				0.00				

<b>*Totals App. B - Commercial</b>	\$ 3,006,199	\$ 3,661,165	-\$ 654,966	0.82	3,539,404	29,929,568	1,163	\$ 687,813
<i>Commercial Indirect Costs not attributable to any specific program</i>	↑							
<b>Total TRC Costs</b>	\$ 3,006,199	\$ 3,661,165	-\$ 654,966	0.82				

### 3. Institutional Programs

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

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

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle Savings (kWh)	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
LED Traffic Lights	\$ 2,815,426	\$ 1,350,438	\$ 1,464,988	2.08	2,618,193	86,026,325	299	\$ 63,257
Name of Program B				0.00				
Name of Program C				0.00				
Name of Program D				0.00				
Name of Program E				0.00				
Name of Program C				0.00				
Name of Program G				0.00				
Name of Program H				0.00				
Name of Program I				0.00				
Name of Program J				0.00				
<b>*Totals App. B - Institutional</b>	\$ 2,815,426	\$ 1,350,438	\$ 1,464,988	2.08	2,618,193	86,026,325	299	\$ 63,257

*Institutional Indirect Costs not attributable to any specific program*

<b>Total TRC Costs</b>	\$ 2,815,426	\$ 1,350,438	\$ 1,464,988	2.08				
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### 4. Industrial Programs

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

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

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle Savings (kWh)	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
Name of Program A				0.00				
Name of Program C				0.00				
Name of Program C				0.00				
Name of Program D				0.00				
Name of Program E				0.00				
Name of Program F				0.00				
Name of Program G				0.00				
Name of Program H				0.00				





## 9. Other #2 Programs

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

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

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

Other #2 Indirect Costs not attributable to any specific program

Total TRC Costs

\$ -	\$ -	\$ -	\$ -	0.00
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## LDC's CDM PORTFOLIO TOTALS

TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
\$ 6,573,926	\$ 6,280,650	\$ 293,276	1.05	6,499,297	\$ 117,843,188	\$ 2,275	\$ 2,420,635
	\$ 211,047						
	\$ 6,491,697						
<b>**LDC PORTFOLIO TRC</b>	\$ 6,573,926	\$ 82,229	1.01				

\*TOTALS FOR ALL APPENDIX B

Any other Indirect Costs not attributable to any specific program

TOTAL ALL LDC COSTS

\*\*LDC PORTFOLIO TRC

\* The savings and spending information from this row is to be carried forward to Appendix A.

\*\* The TRC information from this row is to be carried forward to Appendix A.