



PowerStream Inc.

Conservation and Demand Management Plan

2006 Annual Report

Ontario Energy Board File No. RP-2004-0203 / EB-2004-0486

March 31, 2006



Table of Contents

| | |
|--|----|
| Table of Contents | 2 |
| 1. Introduction | 3 |
| 2. Evaluation of Overall Plan | 4 |
| 3. Discussion of the Programs | 5 |
| Residential and Small Commercial (< 50 kW) | 5 |
| Commercial, Industrial and Institutional (> 50 kW) | 15 |
| 4. Lessons Learned | 28 |
| 5. Conclusion | 33 |
| 6. Appendix A | |
| 7. Appendix B | |
| 8. Appendix C | |



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 PowerStream Inc., the Board issued its Final Order on February 3, 2005 under docket number RP-2004-0203 / EB-2004-0486.

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 31st 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 Conservation and Demand Management (CDM) Initiatives that explained more fully the requirements. This report has been prepared in accordance with those guidelines.

On November 1, 2005, PowerStream acquired Aurora Hydro Connections Ltd. (“Aurora Hydro”) with the closing of the purchase and sale. At that time, PowerStream assumed an obligation to execute Aurora Hydro’s approved CDM plan. In March 2006, PowerStream submitted an application to the Board for an amendment to its electricity distribution licence to consolidate this acquired service territory under one licence. Since that time, PowerStream has folded Aurora Hydro’s CDM activities into its own corporate plan, the results of which are described in this report.

PowerStream believes that CDM in the years ahead is vital to its success as a distribution company. As one of the fastest growing utilities in the country in terms of customer and load growth, PowerStream sees CDM as an essential instrument in managing load growth such that every new kilowatt of demand that the distribution system meets is an efficiently used kilowatt. For that important reason, many of the CDM programs discussed in this report are targeted at influencing market attitudes toward CDM and influencing design practices and approaches that bring new loads to the PowerStream system. In the long run, this is the surest way to sustainable load and economic growth.

In 2006, PowerStream’s CDM goal was to reach out to customers, to the environmental community, to municipalities, to consumers and to industry and to ask them what they needed from their utility in order to integrate conservation practices into their core activities. PowerStream talked with its major stakeholders about options and committed to delivering on these promises. As a result, PowerStream achieved kilowatt-hour savings of 23,455,693 – a 725 per cent increase over 2005.



In addition, as an active member of the Coalition of Large Distributors (CLD), PowerStream contributed to the achievement of significant kilowatt-hours savings through programs developed and implemented in tandem with other CLD members. Collectively, the CLD delivered the following impressive results last year:

- 462** community events
- 2,965** energy audits conducted
- 6,841** electric water heater tune-ups
- 12,671** old air conditioners removed from service
- 26,745** *peaksaver* load control customers installed last year
- 65,000** kW peak load reduction from our 2006 CDM programs
- 78,936** seasonal incandescent light strings removed from service
- 85,305** tonnes of CO₂ emissions have been diverted as a result of savings
- 1,483,249** compact fluorescent light bulbs provided to residential customers
- \$42,490,546** invested in conservation and demand management amongst CLD utilities
- 302,501,670** kilowatt-hours of electricity saved – enough to power 33,501 homes for one year

| | 2005 | 2006 | 2006 / 2005 |
|----------------|--------|--------|-------------|
| Investment (M) | \$19.4 | \$42.5 | 219% |
| kWh saved (M) | 110.6 | 302.5 | 274% |

2. Evaluation of Overall Plan

Refer to Appendix A for an evaluation of PowerStream’s CDM activities during 2006.

In reviewing the information provided in Appendices A, B and C, it should be noted that PowerStream’s primary focus in 2006 was program implementation, whereas 2005 was a year of program development.

Furthermore, some components of PowerStream’s CDM plan relate to the piloting of 1,200 Smart Meters in Markham, Vaughan and Richmond Hill, which is being undertaken to support provincial government policy direction. The full impact of Smart Meters on kWh consumption and kW demand cannot be adequately assessed until year-end 2007 when all 80,000 Smart Meters have been deployed.

3. Discussion of the Programs

Residential and Small Commercial (< 50 kW)

Co-branded Mass Market Program

Description

This flagship co-branded mass-market program (e.g. powerWISE®) is a multifaceted approach to fostering the conservation culture in Ontario. Through development of a significant cooperative effort amongst six of the largest municipal LDC's, this program will become synonymous with specific initiatives such as Compact Fluorescent Lighting (CFL) change out programs, LED Christmas Lights, Energy Star, energy audits, 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 contemplated as 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.

Discussion of 2006 Activities

powerWISE® Brand

Action

- Weekly conference call meetings are held with the Communications Sub-committee of the Coalition of Large Distributors (CLD) to coordinate all powerWISE® and branding activities.
- The Ministry of Energy (Director of Communications) participates on weekly conference calls; the Ontario Power Authority also participates.
- Meetings with the Ontario Power Authority (OPA) are conducted as required.
- Monthly joint press releases are issued in conjunction with CLD/powerWISE® founding members to highlight progress and major milestones.



Results to Date

- Twelve joint press releases and one joint CLD/CDM report issued in March 2006, all branded powerWISE®.
- Three powerWISE® ad campaigns developed and implemented by the Ministry of Energy.
- Industry awards from Ontario Energy Association and recognition for the Province of Ontario from the Canadian Energy Efficiency Alliance for conservation programs.

Next Steps

- Negotiations began in 2006 to transfer the powerWISE® brand to the OPA. By year-end, negotiations were ongoing.

powerWISE® Website

Action

- The powerWISE® website -- www.powerwise.ca -- was jointly developed and announced on April 1st, 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.

Results to Date

- From April 1 to December 31, 2006 the powerWISE® website received over 181,700 visitors.

Next Steps

- Once negotiations between HUC and the OPA are finalized, the powerWISE® brand will be transferred to the OPA.
- PowerStream will continue to update its conservation messaging on www.powerstream.ca/powerWISE

powerWISE® Retail Initiative

Action

- PowerStream, Enersource, Horizon, Hydro Ottawa, and Veridian developed a major mass-market retail campaign to advance energy efficient devices into the marketplace through point of purchase redeemable coupons.



Results to Date

- PowerStream executed a coordinated retail promotional program at Home Hardware stores in its service territory. The events were designed to help promote the Conservation Bureau's "Every Kilowatt Counts" program. In total, through four events in spring and fall, 54,564 retail coupons were redeemed.
- PowerStream implemented the Clean Air Foundation's "Keep Cool" program and removed 235 old inefficient room air conditioners.
- Executed several seasonal LED light exchange events across the service territory, resulting in 15,600 seasonal incandescent light strings being removed from service.
- Through coupons and give-aways, helped to provide a total of 111,467 compact fluorescent bulbs through various community and retail events.

Next Steps

- Continue to work with the OPA to facilitate delivery of the "Every Kilowatt Counts" program in PowerStream's service territory.

PowerStream Initiatives

Code Green – TV Show

Action

- PowerStream, in conjunction with CLD members, sponsored a six-part educational mini-series featuring the retrofit of 12 homes from across the country. Contestants were given \$15,000 each and competed against one another to renovate their homes in an effort to create the greatest savings in energy consumption and the greatest reduction in greenhouse gas emissions.

Results to Date

- Code Green aired on CBC and CBC Newsworld in May.
- There are minimal measured kW or kWh reductions associated with this project but it is considered to aid in the creation of a conservation culture.

Next Steps

- No further sponsorship of this initiative is forthcoming.



powerWISE® School Based Education Initiative

Action

- The PowerStream Energy Education Program is a unique pilot project involving PowerStream, York Region District School board, and York Catholic District School Board. It is coordinated by Toronto and Region Conservation Authority (TRCA) and also involves Ontario EcoSchools, the Clean Air Partnership and York Region Health Services.
- Forty-one Grade 5 classes from 19 elementary schools located within PowerStream's service territory have been selected for this pilot, which will include a sponsored trip for each participating class to the Kortright Centre for Conservation between February and June, 2007.

Results to Date

- Program design was completed.

Next Steps

- Program implementation begins in January, 2007.

powerWISE® Watt Reader PowerPack

Action

- Provide "Watt Reader" for members to borrow and monitor the amounts of energy used by various appliances in their homes.
- Provide "PowerPacks" (1 CFL bulb, LED nightlight, powerWISE® Tips brochure and bookmark) to improve energy efficiency in homes, for distribution through local Vaughan libraries.

Results to Date

- Expanded the successful Watt Reader program to include all Vaughan and Markham Library System libraries.
- 568 Watt Reader loans were recorded in 2006.
- This program received significant media attention, including from the Weather Network.

Next Steps

- Expand the program to Aurora and Richmond Hill
- In conjunction with the Library Systems, introduce a new energy workshop based on energy-efficient cooking practices.

Building a Conservation Culture at Home

Action

- Building sustainability into every aspect of civic life is the motivation behind PowerStream's annual investment in programs spearheaded by Toronto and Region Conservation Authority (TRCA). PowerStream's CDM investment in TRCA's energy management programming is spread over three years.
- PowerStream also began a partnership with TRCA for Conservation to develop a series of training workshops and displays on energy efficiency that satisfy the goals under co-branding, smart metering, and residential load control and load displacement.
- TRCA is also conducting "design charettes" with building consultants and designers to encourage efficient building practices. This includes the Leadership in Energy and Environmental Design (LEED) -- a rating system with reduced environmental impacts for highly efficient building practices.
- Curriculum is being developed by TRCA Education specialists for workshops to engage homeowners in residential energy conservation and renewable energy technology.
- Leading by example, PowerStream's Board of Directors has committed to construction of the utility's new corporate office building for which Gold LEED certification will be sought.
- PowerStream is committed to bringing the conservation message home to as many customers within its service territory as possible; and to that end, the utility distributes compact fluorescent light bulbs to local area food banks.

Results to Date

- PowerStream became a Campus Partner with TRCA and provided financial support for the new Energy Trail – Canada's largest renewable energy training centre.
- PowerStream also provided financial support for educational programming on sustainability at The Living City Campus.
- PowerStream broke ground on its new head office which is being targeted as a Gold LEED certified; if obtained, the building will be a showcase of energy efficiency for the community. The new head office building will also be one of the most energy-efficient buildings in Canada and the most energy-efficient head office amongst peer utilities. (The announcement received widespread media coverage)
- Provided 4,000 compact fluorescent light bulbs to local area food banks. PowerStream received a Certificate of Appreciation from the York Region Food Network in acknowledgement of its efforts.

Next Steps

- Groundbreaking on 1,600 Energy Star[®] homes to be built in Vaughan will take place in 2007. This development will be the largest concentration of energy efficient homes in Ontario.

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) will be considered.

This initiative will commence upon the release of a formal definition of a Smart Meters 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 2007. It will provide PowerStream 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.

Discussion of 2006 Activities

Action

- Conduct a Pilot of a small number of Smart Meter technologies and associated communications.

Results to Date

- 1,200 meters installed in homes in Markham, Vaughan and Richmond Hill.

Next Steps

- Target is 80,000 smart meters in place by the end of 2007.
- Educate consumers about use of the meters on an ongoing basis.

Design Advisory Program/Audit Programs (<50 kW)

Description

This initiative helps to create an integrated approach to the design process for new buildings, and involves architects, engineers, building owners and design advisors.

Target users

Developers and designers who deal with residential and small commercial customers.

Benefits

This program results in cost effective improvements to the energy efficiency of a building without adversely affecting other performance requirements stipulated by the owner. More specifically, developers and designers can develop an energy performance model to demonstrate achievable energy savings and provide a breakdown of energy end-uses. Through the installation of energy efficient equipment during construction, the customer benefits by reducing energy bills and avoiding stranded costs incurred with future equipment upgrades.

Discussion of 2006 Activities

Action

- PowerStream to provide financial and staff support to enable programs to be initiated by the TRCA and Markham Energy Conservation Office (MECO).
- PowerStream has entered a partnership with the TRCA to develop a Sustainable Community Competition that will see the winner construct a highly efficient home on TRCA property as a showcase to demonstrate the effectiveness of designing energy efficient homes.
- A pilot project will target the residential home building market including developers, architects, contractors, and owners by constructing the “next generation” interactive demonstration home and highlight all the newest design principles, materials and processes.

Results to Date

- Winner of the Archetype Sustainable House Demonstration Program was announced in June, 2006.

Next Steps

- Construction will begin in 2007.
- The house will be built at the entrance to the Power Trail at Kortright as part of TRCA's initiative to create the Living City Campus. The Power Trail is currently the largest hands-on alternative energy learning centre in Ontario. One of the challenges of the Power Trail is to remain current and illustrate the latest in energy efficiency.
- PowerStream will work with all builders in its service territory to provide incentives that will capture kilowatt-hour savings.

Energy and Environmental Management System (EEMS)

Action

- With the purchase of the Energy and Environmental Management System (EEMS) from the Region of York, the Town of Markham is now able to measure current consumption patterns and load shedding impacts of energy conservation programs within the Town's own operations. EEMS is a versatile, web-based software designed to record and manage energy consumption and expenses of buildings, street lights, and other types of facilities. PowerStream has provided funding towards this program.

Results to Date

- Electricity and water data for 2003 to 2005 have been entered for all of the Town's facilities, including street and traffic lighting.

Next Steps

- Consumption patterns will be analyzed with the aim of targeting and shifting peak loads.
- PowerStream and MECO are working together to enable the electronic upload of electricity and water data. As soon as e-billing is available, data from 2006 to present will be uploaded immediately.
- Discussions with Enbridge are underway to improve the efficiency of uploading the gas data to EEMS.

MECO@Work and MECO@Home Employee Awareness Program

Action

- MECO launched the MECO@Work and MECO@Home Employee Awareness Program on November 2, 2005. This program promotes MECO's purpose and brand across the Town by encouraging staff to engage in energy conservation at work and at home. While at work, Town of Markham staff will be encouraged to change their energy consumption patterns and bring the culture of conservation into their homes



with the help of new and innovative energy saving tips and products. PowerStream has provided funding for this program.

Results to Date

- MECO held five Lunch & Learns between November 2 and December 31, 2006 and brought in an energy consultant to discuss the EnerGuide for Homes Energy Audit Program.
- A MECO webpage was launched on the Markham website (www.markham.ca) in January, 2006, bi-weekly tips on energy conservation were distributed on MECO's intranet, articles and advertisements were published in various sources and other larger education and awareness events were held throughout the year.
- MECO has been circulating a 'Watt Reader' to Town Staff that they can take home with them to monitor the energy consumption of various appliances.
- Aligned the powerWISE® and PowerStream websites to MECO website to ensure consistent and efficient messaging.

Next Steps

- Continue to raise awareness for conservation amongst Town of Markham employees.
- Review the feasibility of expanding program to other municipalities in PowerStream's service area.

Residential Load Control Initiative

Description

Load control uses a real time communications link to enable or disable customer loads at the discretion of the utility. These controls are usually engaged during system peak periods or when required to relieve pressure on the system grid and may include such "dispatchable" loads as electric hot water tanks, pool pumps, lighting, air conditioners, etc.

Target users

Residential and small commercial (< 50 kW) customers.

Benefits

Load control allows customers to respond quickly to external price signals. This also provides a mechanism for utilities to relieve pressure on constrained areas within the distribution grid and also reduces the need to bring on large peaking generators.



Discussion of 2006 Activities

Action

- PowerStream is participating with other CLD members in the implementation of a Load Control program targeting residential and small commercial customers' central air conditioners with outside condensers.
- In addition to central air conditioners, customers with electric water heaters and pool pumps will be encouraged to have controls installed on those devices.

Results to Date

- An RFP to facilitate load control programs with the appropriate technology was issued for response mid-January, 2006.
- In November, 2006, PowerStream launched a voluntary consumer pilot program in conjunction with Honeywell. By year-end, 250 customers had signed up.

Next Steps

- Sign up additional customers, including small commercial customers. PowerStream is projecting 2,000 sign-ups (1,600 residential; 400 small commercial) by the time the pilot ends in late 2007.

Social Housing Program

Description

A province wide centralized energy management service for the social housing sector will be assessed in collaboration with the Provincial Government, utilities (Enbridge) 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 and co-op housing.

Benefits

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



Discussion of 2006 Activities

Social Housing Services Corporation (SHSC)

Action

- Working with SHSC, PowerStream is funding energy efficiency improvements to social housing units that were identified in a SHSC energy audit. PowerStream is currently funding specific improvements in social housing units such as lighting, and/or refrigerators to clearly segregate energy and load reductions.

Results to Date

- Richmond Hill Ecumenical Homes (Observatory Towers) and Prophetic Non-Profit Homes (Genesis Place) in Richmond Hill were selected for appliance upgrades, programmable thermostat installation and lighting retrofits.
- Expected savings are 985,589 kilowatt-hours and \$98,559 in electricity costs per year.
- Appliance removals began in 2006.

Next Steps

- Full installation of 263 Energy Star[®] fridges and lighting retrofits will be completed by March, 2007.
- Expand the program into Markham.
-

Commercial, Industrial and Institutional (> 50 kW)

Smart Meter Program

Description:

PowerStream will make an investment to further the use of Smart or interval meters by commercial, industrial and institutional customers.

This program will commence upon the release of a formal definition of a Smart Meter by the Ministry of Energy.

Target users

Commercial, Industrial and Institutional customers larger than 50 kW's.

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. In conjunction with appropriate rate structures, they will encourage customers to conserve or shift energy use.



Discussion of 2006 Activities

Interval Metering

Action

- Install interval meters at commercial/industrial customer facilities.

Results to Date

- Approximately 100 interval meters have been installed.
- Provided customers with the option of tracking load profiles and consumption to better manage energy usage and demand.

Next Steps

- Continue installation for large customers.
- Integrate into smart meter network.

Energy Audits, Retrofits and Partnerships

Description

A standard energy audit will be used to assist customers in reducing their loads. As well, a training program may be implemented to allow companies with a certified employee or outside consultants to perform the audit. Any cross-linkages with the residential audit project will be accessed where feasible. Strategic partnerships will be analyzed for incentives or other synergies. These audits could lead to retrofits. Existing audit/retrofit programs will be evaluated.

Target users

Large consumers over 50 kW including schools, large commercial facilities, institutional facilities, industrial, and municipal facilities like recreation centres, arenas, and libraries.

Benefits

Include increased awareness, skills development, benchmarking energy data, establishing best practices, fostering the conservation culture within this sector and significant reductions in demand and energy consumption.

Discussion of 2006 Activities

Action

- MECO partnered with the Clean Air Foundation (Cool Shops) to educate small businesses on energy efficiency opportunities.

Results to Date

- Phase II of the *Cool Shops* program was officially launched in February, 2006 whereby MECO began offering businesses a complete change-out of their incandescent light bulbs with free CFLs provided by PowerStream.
- A pilot with 11 local businesses was initiated in February with a media launch at the Queen's Pantry in Unionville; a total of 319 incandescent bulbs were converted to CFLs.
- The total energy saved is 53,000 kWh/year which equates to approximately \$5,300 (at \$0.10/kWh) in costs savings.
- MECO promoted this initiative to small businesses in Markham through the Markham Board of Trade and the Markham Small Business Enterprise Centre.
- In addition to the 11 businesses that participated in the pilot, MECO provided a complete change-out of 425 incandescent bulbs to CFLs for 34 more businesses, resulting in a combined savings of 66,500 kWh, or approximately \$6,650.
- 'Haul Away your Energy Hog' program was launched in November in Markham. Over, 1,000 appliances were removed. Assuming these old appliances are secondary appliances that are not being replaced, well over 1 million kWhs were saved as a result of the program.

Next Steps

- PowerStream anticipates expanding the 'Haul Away your Energy Hog' program to Vaughan in 2007.
- MECO will partner with Green\$aver to identify additional energy efficiency improvement opportunities within a select number of Markham based small commercial businesses (pending investment from the OPA).
- MECO will partner with the Clean Air Foundation to develop a freezer coil cleaning pilot to improve energy efficiency in small commercial businesses.

Leveraging Energy Conservation and Load Management

Description

Existing energy conservation and/or load management programs such as NRCan's Energy Innovators Initiative, Enbridge initiatives etc. will be promoted and incentives may be provided to advance market uptake of these programs and implementation of the recommendations. The LDC's are well positioned to introduce such programs to their customer base. Work will be conducted with the existing program providers to maximize leverage opportunities. Promotion will potentially include face-to-face meetings, conferences and seminars.

Target users

Large consumers over 50 kW including schools, large commercial facilities, institutional facilities, industrial, and municipal facilities.

Benefits

Customer awareness and additional incentives will help advance market uptake of audit services, feasibility studies and retrofit opportunities already established within the government program framework.

Discussion of 2006 Activities

powerWISE[®] Business Incentive Program (PBIP)

Action

- CLD developed a program to provide incentives up to \$50K per customer to advance energy conservation projects.
- Two streams of funding are available:
 - Prescriptive: This program provides dollar incentives for specific activities i.e. retrofitting T12 lighting to T8 lighting on a predetermined cost per unit basis.
 - Custom: Projects will be considered on an individual case basis with incentives starting at \$150 per kW.
- Savings from these projects are expected to reduce up to 1 MW of load reduction and millions of kWh.

Results to Date

- PowerStream received 14 applications and 12 projects were completed in 2006.
- One of the most successful was York Catholic District School Board with 1.4 million kWhs saved and a reduction in peak demand of 500 kW.
- Total savings for this program in 2006 were 4,233,781 kWhs.



Next Steps

- Very successful program and will continue the program into 2007.

The Mayors' Megawatt Challenge

Action

- Programming support for The Mayors' Megawatt Challenge was initiated in 2005 to help mayors in urban regions join forces in expanding municipal building retrofit programs to promote energy efficiency and the subsequent reduction of greenhouse gas emissions, all with the added benefit of reducing municipal operations budgets. PowerStream is partnering with TRCA and helping fund this program.

Results to Date

- All TRCA programs from 2005 were continued in 2006; final results will be ready in 2007.

Next Steps

- Funding for this initiative has all been spent.

The Mayors' Green Building Challenge (MGBC)

Action

- The Mayors' Green Building Challenge is a pilot initiative to increase the design, construction or renovation of green buildings in the municipal sector to an international standard of sustainability, the Leadership in Energy and Environmental Design (LEED).

Results to Date

- PowerStream head office design is striving to achieve LEED Gold designation. PowerStream staff and TRCA have worked together to establish a commitment to achieve LEED certification for the new head office to be built near Major MacKenzie Rd. & Hwy 400.
- PowerStream continues to work with City of Vaughan Civic Centre to help them achieve LEED Silver designation.

Next Steps

- PowerStream staff will continue with its program support. Other programs will be targeted at school boards working with PowerStream's various partners and leveraging the incentive programs offered from the powerWise® Business Incentive Program.
- PowerStream will also assist in outreach programs through its partnership arrangements to help with educational based energy conservation programs in the schools.

Sustainable Schools

Action

- Sustainable Schools enables and supports the construction and operation of schools through identification and adoption of the best in current green building design, technology and practices through LEED. PowerStream is providing funding to this program through its financial commitment to the TRCA.

Results to Date

- TRCA consulted with Schools Boards from across the GTA to obtain feedback on the design of the preliminary Sustainable Schools program.
- TRCA compiled actual energy use for recently built schools (since 2000) from across Canada and presented the results of its preliminary work at the Ministry of Energy's "Schools for the Future" forum in April.
- Sustainable Schools program was revised to reflect the input from school boards, and funding partners including PowerStream.
- TRCA provided comments to YRDSB on design of Markham High School.
- City of Vaughan is working with the York Region District School Board and TRCA will develop two new Green schools in one of its developments.

Next Steps

- Continue PowerStream's support of Sustainable Schools program.

Greening Health Care

Action

- Partner with TRCA and provide financial support for Greening Health Care, a collaborative program among hospitals in greater GTA to achieve energy and cost savings while minimizing air pollution. The program is designed to review new concepts in operations and development, encourage collaborative changes, and reduce costs through economies of scale. Access to government and utility incentive programs will also be facilitated.



Results to Date

- This is an ongoing education program.

Next Steps

- PowerStream will continue to work with this sector and offer existing programs such as the powerWISE® Business Incentive Program.

Demand Response Initiative (Load Control)

Description

Load control uses a real time communications link to enable or disable customer loads at the discretion of the utility. These controls are usually engaged during system peak periods or when required to relieve pressure on the system grid.

Target Users

Larger commercial, industrial and institutional customers.

Benefit

Load control allows customers to respond quickly to external price signals. This also provides a mechanism for utilities to relieve pressure on constrained areas within the distribution grid and also reduces the need to bring on large peaking generators.

Discussion of 2006 Activities

Action

- Target load controls for small commercial unit air conditioners and other equipment that can be controlled, as well as develop a DR program for large users to create a capacity market for payment to those customers.

Results to Date

- Honeywell was selected as supplier of choice for small commercial customers; Rodan Energy and Metering Solutions was selected for large users.
- No small commercial customers signed up in 2006.



Next Steps

- Operationalize both programs in 2007. Four hundred units will be installed by Honeywell; estimated seven megawatts of load reduction using the DR program in 2007.

Design Advisory Program

Description

This initiative helps to create an integrated approach to the design process for new buildings, and involves architects, engineers, building owners and design advisors.

Target users

Commercial, Industrial and Institutional customers.

Benefits

This program results in cost effective improvements to the energy efficiency of a building without adversely affecting other performance requirements stipulated by the owner. An energy performance model can be created to demonstrate achievable energy savings and can provide a breakdown of energy use. Through the installation of energy efficient equipment during construction, the customer benefits by reducing electricity bills and avoiding the stranded costs incurred with equipment upgrades after the fact.

Discussion of 2006 Activities

Better Building Partnership

Action

- MECO initiated a Better Buildings Partnership (BBP) to promote and implement energy efficiency, water conservation and building renewal enhancement across the Town of Markham's municipal facilities including street and traffic lighting, while reducing CO₂ emissions. The program involves identifying energy conservation opportunities that may include energy efficient retrofits and building renewal initiatives that will consist of a mix of short and long-term paybacks but will reduce energy demand on the grid and reduce energy bills to the Town of Markham. PowerStream is providing funding to MECO for this initiative.

Results to Date

- Lighting retrofit began at Civic Centre's underground parking facility. Anticipated savings is 53,874 kWh per year and a savings of 6.14 kW on peak demand.
- Completed energy audit at Milliken Mills Community Centre (Town of Markham) in August. Projected savings at Milliken Mills include: 372,000 kWh of electricity savings, 174,000 m³ of gas savings and cost savings of close to \$100,000 per year.
- Contracted RTG Systems Corporation to undertake a Street Light Evaluation study of various residential and industrial areas in Markham that may be over-lit above the Illumination Engineering Society of North America (IESNA) standard.
- PowerStream installed interval meters at selected Town of Markham facilities where they were not yet in place.

Next Steps

- Continue rolling out the energy audit process at other Town owned facilities.
- Proceed with retrofit and renewal opportunities that will achieve the greatest energy savings.

Advancing High Performance Buildings (AHPB) Program

Action

- The Advancing High Performance Buildings (AHPB) Program represents an opportunity for the Town of Markham to create a sustainable community that will lower the overall environmental load through reduced energy consumption. The program focuses on new designs, construction and operating methods that will reduce the energy consumption of new infrastructure. Existing benchmarks will be documented and outputs will be measured from new buildings that participate in the AHPB program. Pre- and post-program performance capabilities will be identified to project future cost avoidances while reducing overall consumption. PowerStream is providing funding to MECO for this initiative.

Results to Date

- MECO contracted with the Canadian Urban Institute (CUI) to prepare a report outlining a Framework for AHPB development. The Draft Report was received in November, 2005.
- A consultant has been engaged to compare the Markham Centre Performance measures documents against LEED. MECO is participating in a Working Group of the Markham Centre Advisory Committee (MCAC) to discuss the outcome of the consultant's review and to determine how to best incorporate LEED or to build in more stringent energy efficient targets in the Performance Measures document. In October, 2006, MECO gave a presentation to the MCAC, outlining MECO's objectives and highlighting some of MECO's projects.



Next Steps

- Internal discussions for moving forward are underway.
- Assess for potential synergies with LEED designated programs, including the development of 'Markham Centre' based on the principles of new urbanism and smart growth.

Distribution Loss Reduction

Description

The Distribution Loss 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, selected and implemented 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.

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".

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 IESO'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 PowerStream customers.

Benefits

Reduced electricity distribution system delivery losses will reduce system demand, relieve network capacity to accommodate growth, and help 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.



Discussion of 2006 Activities

Action

- Identify opportunities for system enhancements and complete the engineering analysis and feasibility studies for load balancing.
- Prioritize projects, select and implement based on the most attractive investment to results ratio.

Results to Date

- Issued RFP and awarded installation contract for 3 capacitor banks on PowerStream's distribution system.
- Rebalanced system to mitigate line losses using system control software to analyze activity.
- Installed energy efficient power transformer to minimize system losses in Aurora.

Next Steps

- Install new capacitors in early 2007.

Distributed Energy 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.

Benefits

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.

Discussion of 2006 Activities

Action

- PowerStream partnered with Safety Power (a subsidiary of ESA) and Toromont Energy to implement a demonstration of 1 megawatt of peak load displacement on the PowerStream system. The generator uses a low-sulphur bio-diesel fuel mixture to reduce emissions and specialized stack scrubbers to reduce environmental impacts.



Results to Date

- Partnership with Toromont Industries included successful enrolment of the program into the IESO-ELRP to utilize peak load reduction.
- Successful commissioning of first private commercial wind turbine in PowerStream's service territory, in conjunction with Honda Canada and Zanchin Automotive Group. The 110 kilowatt wind turbine is located at Maple Honda in Vaughan.
- Partnered with Ozz Corporation and Enbridge to install a cogen unit at Vaughan's Villa Colombo. The unit can provide 335 kW of demand reduction within the region.

Next Steps

- Sign up additional customers to develop a capacity program.
- Continue to review feasibility of other backup generation in PowerStream's service area.
- Review solar panel installations by customers in conjunction with OPA Standard Offer for Renewables.
- Continue to sponsor distributed energy forums with PowerStream stakeholders.

Program Support and Costs

All administrative support costs associated with developing and implementing PowerStream's CDM plan have been attributed by program.

4. Lessons Learned

Working Together

During the past year, the members of the CLD have worked together on the execution of their individual CDM plans. A Steering Committee was established to oversee and coordinate joint actions, and program-specific working committees were constituted to promote the sharing of ideas, experiences and costs. Our experience in 2006 has provided us with several lessons we have learned. For example:

Purchasing power:

- Together, the CLD group represents about 40% of the Province's electricity load. Accordingly, the group commands the attention of the marketplace when seeking vendors to support its CDM programs. The joint purchasing power of the CLD has provided it with access to the most innovative products and services available, at very competitive costs, including smart meters, compact fluorescent bulbs and seasonal LEDs.

Consistent messaging:

- The adoption and promotion of the powerWISE® brand by the CLD members has provided significant long-term benefits. The development of this single brand that is trusted by consumers and synonymous with energy efficiency has been fully leveraged to maximize the reach and penetration of CDM initiatives, in a way that could not be achieved by each member LDC on its own.

Cost Sharing:

- While local electricity markets and customer contacts often deserve and demand customized treatment, other aspects of CDM programs are common and lend themselves to cost sharing. The CLD members early on agreed to a standard cost sharing formula to ensure that costs were fairly allocated. During 2006, CLD members continued to jointly fund a number of initiatives. Sharing costs has enabled individual CLD members to help minimize program costs.

Exchange of Ideas/Approaches:

- Customers' attitudes towards energy use are not homogeneous. Achieving a conservation culture in Ontario will require experimentation with varied and diverse approaches. Working in partnership with the CLD members has provided members the opportunity to learn from each other's successes and setbacks. For example, Toronto Hydro's launch of its *peaksaver* program in late 2005 offered proof that many customers are willing to participate in an air conditioner load control program for very little financial reward. This success will be translated into a broader scale program rollout across the province, when the program is managed by the OPA in 2007.

Market Conditions

- The launch of CDM initiatives requires a significant awareness effort within customer segments, and there is a steep learning curve for LDCs to become familiar with retail market timing and practices. The response to co-branded mass market initiatives launched by the CLD group has been encouraging. The initiative has helped raise awareness of CDM across the Greater Toronto Area and beyond, and has drawn customer attention to LDC programming.
- The successful arrangement of a Load Displacement pilot with Safety Power and Toromont Energy demonstrated that cooperation between the private sector, regulatory authority and LDCs can produce mutually beneficial outcome. Each party gained something from the pilot, be it a demonstration of on-demand peak load displacement, the ability of a customer to continue operations during load displacement, or a reduction of stress on the distribution system. The pilot should encourage other large customers to give serious consideration to the opportunity for load displacement.



- The significant response to the powerWISE[®] Watt Reader PowerPack program led to the program's expansion in 2006; and continues to show that customers have a genuine interest in learning about the energy consumption patterns and the appliances they buy in their homes. PowerStream will assess the feasibility of encouraging retail sales of the devices through a couponing program.
- The programs that have received the greatest media attention have been those that are community based. While shifting consumers' attitudes is difficult to measure, these programs also appear to have been the most successful. As a result, PowerStream will continue to endeavor to engage the media at an early stage in the development of market transformation programs.
- PowerStream underestimated the amount of time and resources (both internal and external) required to engage PowerStream customers. This lesson learned will help us complete our obligation to the OEB on existing plans, as well as engaging in OPA plans going forward.

Marketing & Communications:

- As word about the availability of CDM programs and products continues to spread in 2007, the need for additional resources in marketing and communications will grow. This will be an integral human resource requirement for all local distribution companies.

Internal CDM Resources:

- In 2006, PowerStream vetted an enormous volume of proposals in order to determine which CDM proposals might be appropriate for its service territory. Decisions were ultimately made based on the unique attributes and needs of PowerStream's customers.
- PowerStream's experience in 2006 was that working with municipalities and with the social housing sector requires a great deal more lead-time than initially anticipated. Going forward, more internal resources will be required to service these sectors and more lead-time between concept and implementation will also be required. Successful implementation of CDM programs hinges on a keen understanding of the budget cycles and timelines for approvals in these sectors.

Customer Care:

- In 2006, PowerStream saw an increase in call volumes and with it, the opportunity to speak directly with customers about energy saving strategies that could result in lower electricity bills. Going forward, the challenge will be to continue to respond to calls quickly and efficiently, and in keeping with regulatory requirements, while passing more customized conservation information on to callers.

Information Technology:

- The introduction of smart meters is only one of the ways that PowerStream is rising to the challenge of new technology. As noted, the pilot smart meter programme tested three new technologies before identifying the type of meter that would be installed throughout PowerStream's entire service area. In addition, **peaksaver** testing, line loss testing, and other work were undertaken behind the scenes, while other normal business continued. Moving forward, the utility foresees the need to create new job descriptions for IT staff, new departments, and new mandates for those working on integrating conservation-related technology into existing systems.

Regulatory Environment

- It should be noted that much of PowerStream's effort in 2005 was targeted at market transformation, to raise critical awareness levels and to motivate behavioural changes in customers to view their energy consumption habits and patterns differently. As such, the results from these important initiatives only started to become apparent in CDM reporting for 2006 and will continue to be visible in future years.
- 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 among the various organizations within the hydro industry, so an attempt to deliver programs to the end customer by different groups only confuses the customer and suggests a lack of industry coordination. Clarity regarding the roles of the LDC, EDA, OEB, OPA and the IESO would be beneficial in this regard. This will assist in the smooth transition from OEB funding to OPA funded programs.
- The evolving regulatory environment for CDM has created some challenges as the rules for both third tranche funding and future programs continue to evolve. A stable framework is essential to the effective involvement of LDCs in CDM.
- Finally, it will be important to explore all opportunities to streamline the LDCs administrative reporting wherever possible.

| Residential and Commercial <50kW | Successful? | Continue? | Notes |
|---|-------------|-------------------|---|
| Co-Branded Mass Market | Yes | Yes | Broad acceptance; good base to build customer relationship on |
| Smart Meter Pilot | Yes | No | Pilot is completed; full implementation in 2007 per regulated guidelines |
| Design Advisory/Audit | Yes | To early to tell | Business plan will be evaluated by OPA; any decisions going forward will be made by OPA. |
| Residential Load Control | Yes | Yes | Deliver peak reductions in 2007 |
| Social Housing Program | Yes | Yes | SHSC facilitated program will be effective. Individual initiative require more local support in being able to reach low income people and get their active engagement |
| Commercial Institutional and Industrial >50kW | | | |
| Smart Meter Program | Yes | Yes | 1200 meters installed in Markham, Vaughan and Richmond Hill. 80,000 to be installed by end of 2007. |
| Energy Audits Retrofits and Partnerships | Yes | Yes | In conjunction with Markham and TRCA |
| Leveraging Energy Conservation | Yes | Yes, some changes | Market transformation with Markham ECO and TRCA. Will continue to work on implementation of Grade 5 education module. |
| Demand Response Initiative | Yes | Yes | Program will deliver peak reductions in 2007 |
| Design Advisory | Yes | Yes some changes | Market transformation with Markham ECO and TRCA |
| Distribution Loss Reduction | | | |
| Distribution Loss Reduction | Yes | Too early to tell | Evaluated system loss opportunities |
| Distributed Generation | | | |
| Standby Generation (Load Displacement) | Yes | Yes | Evaluated peak reduction using backup generation on customer load. |

Recommendations by Program Area



5. Conclusion

In 2006, PowerStream spent \$2.6 million out of a total of \$7.2 million CDM funding to implement its CDM plans across several fronts and customer segments. The collaborative efforts of the CLD allowed us to launch many initiatives in unison across our collective customer base, while other initiatives are helping us empower employees and begin transforming market attitudes toward CDM.

These investments were highly successful, resulting over 23 million kilowatt-hours in savings, enough to power 6,615 homes for one year.

In addition, PowerStream notes the following significant achievements:

- Program exposure in all customer segments;
- CDM funding has spurred the addition of CDM programming capability at the municipal level;
- Co-operative effort among CLD utilities resulted in significant co-ordination minimizing advertising and legal costs.

The powerWISE® brand, as used in advertising, website, newsletters and other vehicles, has helped to increase consumer awareness for conservation and for the various tools, products and programs that are currently available to assist consumers. Similarly, the powerWISE® Business Incentives Program, which offers qualifying commercial, industrial and institutional customers cash incentives for energy efficient lighting, electric motor and unitary air conditioner conversions, will help commercial and industrial customers embrace CDM more fully in the years ahead.

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

| | ⁵ Cumulative Totals Life-to- date | Total for 2006 | Res., Small Comm. <50 kW | CI&I > 50 kW | Dx Loss Reduction | ⁴ Smart Meters | Distr. Energy |
|--|--|-------------------------|-----------------------------|---------------|----------------------|---------------------------|---------------|
| <i>Net TRC value (\$):</i> | \$ 8,502,119 | \$ 7,191,599 | \$ 4,153,693 | \$ 660,380 | \$ (195,249) | | \$ 2,572,775 |
| <i>Benefit to cost ratio:</i> | 2.83 | 2.71 | 5.79 | 1.34 | 0.30 | | 3.24 |
| <i>Number of participants or units delivered:</i> | 153,184 | 138,414 | 137,223 | 1,189 | 1 | | 1 |
| <i>Lifecycle (kWh) Savings:</i> | 240,550,085 | 212,474,033 | 100,748,195 | 36,581,843 | 2,546,672 | | 72,597,324 |
| <i>Report Year Total kWh saved (kWh):</i> | 26,511,896 | 23,381,173 | 14,207,125 | 5,442,315 | 101,867 | | 3,629,866 |
| <i>Total peak demand saved (kW):</i> | 4,159 | 2,496 | 427 | 1,289 | 12 | | 768 |
| <i>Total kWh saved as a percentage of total kWh delivered (%):</i> | 0.39% | 0.34% | 0.21% | 0.08% | 0.00% | | 0.05% |
| <i>Peak kW saved as a percentage of LDC peak kW load (%):</i> | | 0.16% | 0.03% | 0.08% | 0.00% | | 0.05% |
| ¹ <i>Report Year Gross C&DM expenditures (\$):</i> | \$ 3,777,540 | \$ 2,704,973 | \$ 654,276 | \$ 973,041 | \$ 302,085 | \$ 427,113 | \$ 348,458 |
| ² <i>Expenditures per kWh saved (\$/kWh):</i> | 0.142 | \$ 0.12 | \$ 0.05 | \$ 0.18 | \$ 2.97 | | \$ 0.10 |
| ³ <i>Expenditures per kW saved (\$/kW):</i> | \$ 908.27 | \$ 1,083.89 | \$ 1,530.69 | \$ 755.15 | \$ 25,977.67 | | \$ 453.72 |
| | | | 2006 | 2005 | | | |
| <i>Utility discount rate (%):</i> | 7.3 | Total kWh delivered: | 6,801,000,000 | 6,599,939,661 | | | |
| | | Peak kW load: | 1,577,000 | 1,392,359 | | | |

¹ Expenditures are reported on accrual basis.

² Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate energy savings

³ Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate capacity savings.

⁴ 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

⁵ Includes total for the reporting year, plus prior year, if any (for example, 2006 CDM Annual report for third tranche will include 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 Market

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

This flagship co-branded mass-market program (e.g. powerWISE®) is a multifaceted approach to fostering the conservation culture in Ontario. Through development of a significant cooperative effort amongst six of the largest municipal LDC's, this program will become synonymous with specific initiatives such as Compact Fluorescent Lighting (CFL) change out programs, LED Christmas Lights, Energy Star, Multi-Choice, energy audits, hot water heater blanket raps, 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 contemplated as 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.

Measure(s):

| | | | |
|--|------------------------------|---|---|
| | CFL Distribution | Keep Cool | Keep Cool RAC Retirement |
| <i>Base case technology:</i> | 60W Incandescent | Current standard for room air conditioner | Current standard for room air conditioner |
| <i>Efficient technology:</i> | CFL Screw-In 15W | Energy Star Room Air Conditioner | Air Conditioner Retirement |
| <i>Number of participants or units delivered for reporting year:</i> | 17845 | 68 | 120 |
| <i>Measure life (years):</i> | 4 | 12 | 12 |
| <i>Number of Participants or unites delievered lfe to date</i> | 28097 | 68 | 120 |
| | EKC-CFL's | EKC-Timers | EKC-P Stats |
| <i>Base case technology:</i> | Incandescent | Indoor/Outdoor Composite | Static thermostat |
| <i>Efficient technology:</i> | CFL | Timers | Programmable Thermostats |
| <i>Number of participants or units delivered for reporting year:</i> | 93622 | 2149 | 2235 |
| <i>Measure life (years):</i> | 4 | 20 | 18 |
| <i>Number of Participants or unites delievered lfe to date</i> | 93622 | 2467 | 2863 |
| | EKC-Fans | EKC-SLED | EKC-SLED |
| <i>Base case technology:</i> | Non Energy Star/Incandescent | 5W Christmas lights C-7 (25) | Incandescent Mini Lights |
| <i>Efficient technology:</i> | Energy Star Ceiling Fan | LED Christmas Lights (Indoor and Outdoor) | Christmas Lights (Indoor and Out |
| <i>Number of participants or units delivered for reporting year:</i> | 821 | 6413 | 6413 |
| <i>Measure life (years):</i> | 20 | 30 | 30 |
| <i>Number of Participants or unites delievered lfe to date</i> | 923 | 7538 | 7537 |
| | EKC-pStat Baseboard | EKC-Dimmer | EKC-Motion Sensor |
| <i>Base case technology:</i> | pStat Baseboard | Base Load | Base Load |
| <i>Efficient technology:</i> | pStat Baseboard | Dimmer | Motion Sensor |

| | | | |
|---|--|------|-----|
| Number of participants or units delivered for reporting year: | 86 | 1398 | 604 |
| Measure life (years): | 18 | 10 | 20 |
| Number of Participants or unites delievered lfe to date | 86 | 1398 | 604 |
| Base case technology: | SLED Exchange | | |
| Efficient technology: | 5 WATT Christmas lights C-7(64 lights) | | |
| number of participants or units delivered for reporting year: | LED Christmas Lights (indoor or outdoor) | | |
| Measure life (years): | 5200 | | |
| Number of Partipants or unites delievered lfe to date | 30 | | |
| Number of Partipants or unites delievered lfe to date | 5200 | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|---|----------------|---------------------------|
| ¹ TRC Benefits (\$): | \$ 4,781,577 | \$ 5,392,190 |
| ² TRC Costs (\$): | | |
| Utility program cost (excluding incentives): | -\$ 292,919 | -\$ 367,374 |
| Incremental Measure Costs (Equipment Costs) | -\$ 339,718 | -\$ 405,919 |
| Total TRC costs: | -\$ 632,637 | -\$ 773,293 |
| Net TRC (in year CDN \$): | \$ 4,148,940 | \$ 4,618,897 |
| Benefit to Cost Ratio (TRC Benefits/TRC Costs): | 7.56 | 6.97 |

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

| | | | | |
|-------------------------|-----------|-------------|---------------------------|-------------|
| Demand savings (kW): | Summer | 233 | | |
| | Winter | 2,162 | | |
| Energy saved (kWh): | lifecycle | 100,745,359 | in year | 14,206,889 |
| Other resources saved : | | | Cumulative Lifecycle | 113,698,389 |
| Natural Gas (m3): | | | Cumulative Annual Savings | 15,654,705 |
| Other (specify): | | | | |

Demand Management Programs:

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

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

| | |
|-------------------|--|
| Metric (specify): | |
|-------------------|--|

| | | | |
|--|-----------------------------|------------------------------|---------------------------------------|
| D. <u>Actual Program Costs:</u> | | <u>Reporting Year</u> | <u>Cumulative Life to Date</u> |
| Utility direct costs (\$): | <i>Incremental capital:</i> | \$ 30,397 | \$ 37,838 |
| | <i>Incremental O&M:</i> | \$ 262,522 | \$ 362,293 |
| | <i>Incentive:</i> | \$ 75,813 | \$ 75,813 |
| | <i>Total:</i> | \$ 368,732 | \$ 475,943 |
| | | | |
| Utility indirect costs (\$): | <i>Incremental capital:</i> | | |
| | <i>Incremental O&M:</i> | | |
| | <i>Total:</i> | | |

E. Assumptions & Comments:

Unless otherwise indicated, OEB published assumptions and measures lists were applied in all TRC calculations.
 Keep Cool - retired operational units assumed to result in energy savings from the elimination of their energy consumption, estimated from table elements from the OEB assumptions and measures list.
 15 W CFL's replacing 60W incandescent assumed for all CFL distributions with the exception of EKC (assumptions per OPA specified TRC calculations)
 All EKC results assumed attributable to PowerStream through program support
 SLED - assumed 3 x energy savings identified in OEB assumptions and measures based on actual 3x 5W incandescent string return rate

¹ 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 numebr of units times the net present value per unit benefit specified in the TRC Guide.
² 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:** Smart Meter Residential

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

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 2007. It will provide PowerStream with the experience and knowledge needed to efficiently expand the use of SMART meters over the next several years.

Measure(s):

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|--|-----------|---------------------------|---------------------------|
| <i>Base case technology:</i> | | | |
| <i>Efficient technology:</i> | | | |
| <i>Number of participants or units delivered for reporting year:</i> | | | |
| <i>Measure life (years):</i> | | | |
| | | | |
| <i>Number of Participants or unites delivered lfe to date</i> | | | |

| B. TRC Results: | Reporting Year | Life-to-date TRC Results: |
|--|-----------------------|----------------------------------|
| ¹ TRC Benefits (\$): | | |
| ² TRC Costs (\$): | | |
| <i>Utility program cost (excluding incentives):</i> | | |
| <i>Incremental Measure Costs (Equipment Costs)</i> | | |
| <i>Total TRC costs:</i> | | |
| <hr/> | | |
| <i>Net TRC (in year CDN \$):</i> | | |
| <hr/> | | |
| <i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i> | | |

| C. Results: (one or more category may apply) | Cumulative Results: | |
|---|----------------------------|----------------------------------|
| Conservation Programs: | | |
| <i>Demand savings (kW):</i> | <i>Summer</i> | |
| | <i>Winter</i> | |
| | | |
| | <i>lifecycle</i> | <i>in year</i> |
| <i>Energy saved (kWh):</i> | | <i>Cumulative Lifecycle</i> |
| <i>Other resources saved :</i> | | <i>Cumulative Annual Savings</i> |
| <i>Natural Gas (m3):</i> | | |
| <i>Other (specify):</i> | | |
| Demand Management Programs: | | |
| <i>Controlled load (kW)</i> | | |

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 savngs (kWh):

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):

Energy generated (kWh):

Peak energy generated (kWh):

Fuel type:

Other Programs (specify):

Metric (specify):

D. Actual Program Costs:

Utility direct costs (\$):

Incremental capital:

Incremental O&M:

Incentive:

Total:

Reporting Year

Cumulative Life to Date

| | | | |
|----|---------|----|---------|
| \$ | 351,075 | \$ | 409,337 |
| \$ | 75,113 | \$ | 92,540 |
| | | | |
| \$ | 426,188 | \$ | 501,878 |

Utility indirect costs (\$):

Incremental capital:

Incremental O&M:

Total:

E. Assumptions & Comments:

¹ 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 numebr of units times the net present value per unit b

² 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:** Design Advisory < 50 kW

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

This initiative helps to create an integrated approach to the design process for new buildings, and involves architects, engineers, building owners and design advisors.

Target users

Developers and designers who deal with residential and small commercial customers.

Benefits

This program results in cost effective improvements to the energy efficiency of a building without adversely affecting other performance requirements stipulated by the owner. More specifically, the Advisor can develop an energy performance model to demonstrate achievable energy savings and provide a breakdown of energy end uses. Through the installation of energy efficient equipment during construction, the customer benefits by avoiding stranded costs incurred with equipment upgrades.

Measure(s):

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|-----------|---------------------------|---------------------------|
| Base case technology: | | | |
| Efficient technology: | | | |
| Number of participants or units delivered for reporting year: | | | |
| Measure life (years): | | | |
| Number of Participants or unites delievered lfe to date | | | |

| TRC Results: | Reporting Year | Life-to-date TRC Results: |
|--|-----------------------|----------------------------------|
| ¹ TRC Benefits (\$): | | |
| ² TRC Costs (\$): | | |
| Utility program cost (excluding incentives): | | |
| Incremental Measure Costs (Equipment Costs) | | |
| Total TRC costs: | | |
| <hr/> | | |
| Net TRC (in year CDN \$): | | |
| <hr/> | | |
| Benefit to Cost Ratio (TRC Benefits/TRC Costs): | | |

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

Conservation Programs:

| Demand savings (kW): | Summer | | | | |
|-------------------------|-----------|---------|----------------------|---------------------------|--|
| | Winter | | | | |
| | 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:

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

Distributed Generation and Load Displacement Programs:

| | |
|-------------------------------------|--|
| <i>Amount of DG installed (kW):</i> | |
| <i>Energy generated (kWh):</i> | |
| <i>Peak energy generated (kWh):</i> | |
| <i>Fuel type:</i> | |

Other Programs (specify):

| | |
|--------------------------|--|
| <i>Metric (specify):</i> | |
|--------------------------|--|

| | | | |
|---|---------------------------------|------------------------------|---------------------------------------|
| D. <u>Actual Program Costs:</u> | | <u>Reporting Year</u> | <u>Cumulative Life to Date</u> |
| <i>Utility direct costs (\$):</i> | <i>Incremental capital:</i> | \$ - | \$ - |
| | <i>Incremental O&M:</i> | \$ 40,905 | \$ 208,374 |
| | <i>Incentive:</i> | | |
| | <i>Total:</i> | \$ 40,905 | \$ 208,374 |
| <i>Utility indirect costs (\$):</i> | <i>Incremental capital:</i> | | |
| | <i>Incremental O&M:</i> | | |
| | <i>Total:</i> | | |

E. Assumptions & Comments:

¹ 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 numebr of units times the net present value per unit b

² 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 < 50 kW

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

Description

Load control uses a real time communications link to enable or disable customer loads at the discretion of the utility. These controls are usually engaged during system peak periods or when required to relieve pressure on the system grid and may include such “dispatchable” loads as electric hot water tanks, pool pumps, lighting, air conditioners, etc.

Target users

Direct load control applies to all market segments. Though the control systems and technologies may vary by market segment, the methodology remains the same.

Benefits

Load control allows customers to respond quickly to external price signals. This also provides a mechanism for utilities to relieve pressure on constrained areas within the distribution grid and also reduces the need to bring on large peaking generators

Measure(s):

| | Load Control Thermostats | Measure 2 (if applicable) | Measure 3 (if applicable) |
|--|--------------------------|---------------------------|---------------------------|
| <i>Base case technology:</i> | Average existing stock | | |
| <i>Efficient technology:</i> | Utility Controlled Relay | | |
| <i>Number of participants or units delivered for reporting year:</i> | 250 | | |
| <i>Measure life (years):</i> | 12 | | |
| <i>Number of Participants or unites delivered lfe to date</i> | 250 | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|--|----------------|---------------------------|
| ¹ TRC Benefits (\$): | \$ 239,888 | \$ 239,888 |
| ² TRC Costs (\$): | | |
| <i>Utility program cost (excluding incentives):</i> | -\$ 159,726 | -\$ 177,196 |
| <i>Incremental Measure Costs (Equipment Costs)</i> | -\$ 12,500 | -\$ 12,500 |
| <i>Total TRC costs:</i> | -\$ 172,226 | -\$ 189,696 |
| <i>Net TRC (in year CDN \$):</i> | \$ 67,662 | \$ 50,192 |
| <i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i> | \$ 1.39 | \$ 1.26 |

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

Cumulative Results:

Conservation Programs:

| | Summer | Winter | lifecycle | in year | Cumulative Lifecycle | Cumulative Annual Savings |
|--------------------------------|--------|--------|-----------|---------|----------------------|---------------------------|
| <i>Demand savings (kW):</i> | | | | | | |
| <i>Energy saved (kWh):</i> | | | | | | |
| <i>Other resources saved :</i> | | | | | | |
| <i>Natural Gas (m3):</i> | | | | | | |
| <i>Other (specify):</i> | | | | | | |

Demand Management Programs:

| | |
|--|---------|
| <i>Controlled load (kW)</i> | 194 |
| <i>Energy shifted On-peak to Mid-peak (kWh):</i> | 106,755 |

| | |
|---|--------|
| <i>Energy shifted On-peak to Off-peak (kWh):</i> | 54,995 |
| <i>Energy shifted Mid-peak to Off-peak (kWh):</i> | |
| <u>Demand Response Programs:</u> | |
| <i>Dispatchable load (kW):</i> | |
| <i>Peak hours dispatched in year (hours):</i> | |
| <u>Power Factor Correction Programs:</u> | |
| <i>Amount of KVar installed (KVar):</i> | |
| <i>Distribution system power factor at beginning of year (%):</i> | |
| <i>Distribution system power factor at end of year (%):</i> | |

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

| | |
|-------------------------------------|--|
| <i>Amount of DG installed (kW):</i> | |
| <i>Energy generated (kWh):</i> | |
| <i>Peak energy generated (kWh):</i> | |
| <i>Fuel type:</i> | |

Other Programs (specify):

| | |
|--------------------------|--|
| <i>Metric (specify):</i> | |
|--------------------------|--|

| <u>D. Actual Program Costs:</u> | | <u>Reporting Year</u> | <u>Cumulative Life to Date</u> |
|--|-----------------------------|------------------------------|---------------------------------------|
| <i>Utility direct costs (\$):</i> | <i>Incremental capital:</i> | \$ 137,721 | \$ 137,721 |
| | <i>Incremental O&M:</i> | \$ 22,005 | \$ 39,474 |
| | <i>Incentive:</i> | | |
| | <i>Total:</i> | \$ 159,726 | \$ 177,196 |
| <i>Utility indirect costs (\$):</i> | <i>Incremental capital:</i> | | |
| | <i>Incremental O&M:</i> | | |
| | <i>Total:</i> | | |

E. Assumptions & Comments:

¹ 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 numebr of units times the net present value per unit b

² 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:** Social Housing

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

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 and co-op housing.

Benefits

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

Measure(s):

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|--|-----------|---------------------------|---------------------------|
| <i>Base case technology:</i> | | | |
| <i>Efficient technology:</i> | | | |
| <i>Number of participants or units delivered for reporting year:</i> | | | |
| <i>Measure life (years):</i> | | | |
| | | | |
| <i>Number of Partipants or unites delievered lfe to date</i> | | | |

B. **TRC Results:**

| | <u>Reporting Year</u> | <u>Life-to-date TRC Results:</u> |
|--|-----------------------|----------------------------------|
| ¹ TRC Benefits (\$): | | |
| ² TRC Costs (\$): | | |
| <i>Utility program cost (excluding incentives):</i> | | |
| <i>Incremental Measure Costs (Equipment Costs)</i> | | |
| <i>Total TRC costs:</i> | | |
| <hr/> | | |
| <i>Net TRC (in year CDN \$):</i> | | |
| <hr/> | | |
| <i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i> | | |

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

Conservation Programs:

| | | | | |
|--------------------------------|------------------|----------------|-----------------------------|----------------------------------|
| <i>Demand savings (kW):</i> | <i>Summer</i> | | | |
| | <i>Winter</i> | | | |
| | <i>lifecycle</i> | <i>in year</i> | <i>Cumulative Lifecycle</i> | <i>Cumulative Annual Savings</i> |
| <i>Energy saved (kWh):</i> | | | | |
| <i>Other resources saved :</i> | | | | |
| <i>Natural Gas (m3):</i> | | | | |
| <i>Other (specify):</i> | | | | |

Demand Management Programs:

| | |
|--|--|
| <i>Controlled load (kW)</i> | |
| <i>Energy shifted On-peak to Mid-peak (kWh):</i> | |
| <i>Energy shifted On-peak to Off-peak (kWh):</i> | |

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): | | |
| | <i>lifecycle</i> | <i>in year</i> |
| Energy savngs (kWh): | | |

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

| | |
|-------------------|--|
| Metric (specify): | |
|-------------------|--|

| <u>D. Actual Program Costs:</u> | | <u>Reporting Year</u> | <u>Cumulative Life to Date</u> |
|--|----------------------|------------------------------|---------------------------------------|
| Utility direct costs (\$): | Incremental capital: | \$ - | \$ - |
| | Incremental O&M: | \$ 22,004.51 | \$ 56,974.40 |
| | Incentive: | | |
| | Total: | \$ 22,004.51 | \$ 56,974.40 |
| | | | |
| Utility indirect costs (\$): | Incremental capital: | | |
| | Incremental O&M: | | |
| | Total: | | |

E. Assumptions & Comments:

CFL's from York Region Food Network Distribution are included in CFL Distribution numbers.

¹ 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 numebr of units times the net present value per unit b

² 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:** Smart Meter (CI&I)

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

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 and co-op housing.

Benefits

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

Measure(s):

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|-----------|---------------------------|---------------------------|
| Base case technology: | | | |
| Efficient technology: | | | |
| Number of participants or units delivered for reporting year: | | | |
| Measure life (years): | | | |
| Number of Partipants or unites delievered lfe to date | | | |

| B. TRC Results: | <u>Reporting Year</u> | <u>Life-to-date TRC Results:</u> |
|---|-----------------------|----------------------------------|
| ¹ TRC Benefits (\$): | | |
| ² TRC Costs (\$): | | |
| Utility program cost (excluding incentives): | | |
| Incremental Measure Costs (Equipment Costs) | | |
| Total TRC costs: | | |
| <hr/> | | |
| Net TRC (in year CDN \$): | | |
| <hr/> | | |
| Benefit to Cost Ratio (TRC Benefits/TRC Costs): | | |

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

Conservation Programs:

| | | | | |
|-------------------------|------------------|----------------|-----------------------------|----------------------------------|
| Demand savings (kW): | Summer | | | |
| | Winter | | | |
| | <i>lifecycle</i> | <i>in year</i> | <i>Cumulative Lifecycle</i> | <i>Cumulative Annual Savings</i> |
| 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 savngs (kWh):

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):

Energy generated (kWh):

Peak energy generated (kWh):

Fuel type:

Other Programs (specify):

Metric (specify):

D. Actual Program Costs:

Utility direct costs (\$):

Incremental capital:

Incremental O&M:

Incentive:

Total:

Reporting Year

Cumulative Life to Date

| | | | |
|----|--------|----|----------|
| \$ | 925.00 | \$ | 925.00 |
| \$ | - | \$ | 2,576.37 |
| \$ | 925.00 | \$ | 3,501.37 |

Utility indirect costs (\$):

Incremental capital:

Incremental O&M:

Total:

E. Assumptions & Comments:

¹ 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 numebr of units times the net present value per unit b

² 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:** Energy Audits, Retrofits and Partnerships

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

Description

A standard energy audit will be used to assist customers in reducing their loads. As well, a training program may be implemented to allow companies with a certified employee or outside consultants to perform the audit. Any crosslinkages with the residential audit project will be accessed where feasible. Strategic partnerships will be analyzed for incentives or other synergies. These audits could led to retrofits. Existing audit/retrofit programs will be evaluated.

Target users

Large consumers over 50 kW including schools, large commercial facilities, institutional facilities, industrial, and municipal facilities like recreation centres, arenas, and libraries.

Benefits

Include increased awareness, skills development, benchmarking energy data, establishing best practices, fostering the conservation culture within this sector and significant reductions in demand and energy consumption.

Measure(s):

| | Measure 1 (if applicable) | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---------------------------|---------------------------|---------------------------|
| Base case technology: | | | |
| Efficient technology: | | | |
| Number of participants or units delivered for reporting year: | | | |
| Measure life (years): | | | |
| Number of Participants or unites delievered lfe to date | | | |

| B. TRC Results: | <u>Reporting Year</u> | <u>Life-to-date TRC Results:</u> |
|--|-----------------------|----------------------------------|
| ¹ TRC Benefits (\$): | \$ - | \$ 796,807 |
| ² TRC Costs (\$): | | |
| Utility program cost (excluding incentives): | -\$ 283,447 | -\$ 356,758 |
| Incremental Measure Costs (Equipment Costs) | | |
| Total TRC costs: | -\$ 283,447 | -\$ 356,758 |
| Net TRC (in year CDN \$): | -\$ 283,447 | \$ 440,050 |
| Benefit to Cost Ratio (TRC Benefits/TRC Costs): | - | 2.23 |

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

Conservation Programs:

| | | | | |
|--------------------------------|------------------|----------------|-----------------------------|----------------------------------|
| <i>Demand savings (kW):</i> | <i>Summer</i> | | | |
| | <i>Winter</i> | | | |
| | <i>lifecycle</i> | <i>in year</i> | <i>Cumulative Lifecycle</i> | <i>Cumulative Annual Savings</i> |
| <i>Energy saved (kWh):</i> | | | | |
| <i>Other resources saved :</i> | | | | |
| <i>Natural Gas (m3):</i> | | | | |

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): | | |
| | <i>lifecycle</i> | <i>in year</i> |
| Energy savngs (kWh): | | |

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

| | |
|-------------------|--|
| Metric (specify): | |
|-------------------|--|

| | | | |
|--|----------------------|------------------------------|---------------------------------------|
| D. <u>Actual Program Costs:</u> | | <u>Reporting Year</u> | <u>Cumulative Life to Date</u> |
| Utility direct costs (\$): | Incremental capital: | \$ - | \$ - |
| | Incremental O&M: | \$ 283,447 | \$ 722,734 |
| | Incentive: | | |
| | Total: | \$ 283,447 | \$ 722,734 |
| Utility indirect costs (\$): | Incremental capital: | | |
| | Incremental O&M: | | |
| | Total: | | |

E. Assumptions & Comments:

TRCA programming for 2006 has been moved from Leveraging En. Cons. & Load Mgmt program to Energy AR&P. Year end 2006 results for TRCA programs were not available in sufficient detail to perform TRC analysis. 2005 TRCA TRC and program costs were included above.

¹ 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 numebr of units times the net present value per unit b

² 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:** Leveraging Energy Conservation & Load Management

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

Description

Existing energy conservation and/or load management programs such as NRCAN's Energy Innovators Initiative, Enbridge initiatives etc. will be promoted and incentives may be provided to advance market uptake of these programs and implementation of the recommendations. The LDC's are well positioned to introduce such programs to their customer base. Work will be conducted with the existing program providers to maximize leverage opportunities. Promotion will potentially include face-to-face meetings, conferences and seminars.

Target users

Large consumers over 50 kW including schools, large commercial facilities, institutional facilities, industrial, and municipal facilities.

Benefits

Customer awareness and additional incentives will help advance market uptake of audit services, feasibility studies and retrofit opportunities already established within the government program framework.

Measure(s):

| | MECO-Fridge Bounty Fridges | MECO-Fridge Bounty Freezers | MECO-Fridge Bounty RAC's |
|--|---|-----------------------------|-----------------------------|
| <i>Base case technology:</i> | Average existing stock | Average existing stock | Average existing stock |
| <i>Efficient technology:</i> | Recycling Program | Recycling Program | Recycling Program |
| <i>Number of participants or units delivered for reporting year:</i> | 699 | 331 | 47 |
| <i>Measure life (years):</i> | 6 | 6 | 6 |
| <i>Number of Participants or unites delievered lfe to date</i> | 699 | 331 | 47 |
| <i>Base case technology:</i> | MECO-MMCC Energy Audit | MECO-Load Shedding | MECO-Conveyor Toaster Repl. |
| <i>Efficient technology:</i> | Average existing stock | Average existing stock | Conveyor Toaster |
| <i>Number of participants or units delivered for reporting year:</i> | Retrofits | Avoided/Limited Energy Use | Pop Up Toaster |
| <i>Measure life (years):</i> | 1 | 1 | 1 |
| <i>Number of Participants or unites delievered lfe to date</i> | 10 | 15 | 6 |
| <i>Number of Participants or unites delievered lfe to date</i> | 1 | 1 | 1 |
| <i>Base case technology:</i> | MECO-Garage Lighting Retrofit | | |
| <i>Efficient technology:</i> | 4 - T12 34W (156W) 4' Lamps w/2 magnetic ballasts | | |
| <i>Number of participants or units delivered for reporting year:</i> | 2 - T8 32W (58 W) reflectorized w/EL ballast | | |
| <i>Measure life (years):</i> | 96 | | |
| <i>Number of Participants or unites delievered lfe to date</i> | 5 | | |
| <i>Number of Participants or unites delievered lfe to date</i> | 96 | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|--|----------------|---------------------------|
| ¹ TRC Benefits (\$): | \$ 459,012 | \$ 459,012 |
| ² TRC Costs (\$): | | |
| Utility program cost (excluding incentives): | -\$ 522,005 | -\$ 522,005 |
| Incremental Measure Costs (Equipment Costs) | -\$ 101,961 | -\$ 101,961 |

| | | | |
|--|-------------------------|-------------|-------------|
| | <i>Total TRC costs:</i> | -\$ 623,966 | -\$ 623,966 |
| <i>Net TRC (in year CDN \$):</i> | | -\$ 164,953 | -\$ 164,953 |
| <i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i> | | 0.74 | 0.74 |

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

Cumulative Results:

Conservation Programs:

| | | |
|-----------------------------|---------------|-----|
| <i>Demand savings (kW):</i> | <i>Summer</i> | 327 |
| | <i>Winter</i> | 282 |

| | <i>lifecycle</i> | <i>in year</i> | <i>Cumulative Lifecycle</i> | <i>Cumulative Annual Savings</i> |
|--------------------------------|------------------|----------------|-----------------------------|----------------------------------|
| <i>Energy saved (kWh):</i> | 7,229,313 | 1,208,534 | 7,229,313 | 1,208,534 |
| <i>Other resources saved :</i> | | | | |
| <i>Natural Gas (m3):</i> | | | | |
| <i>Other (specify):</i> | | | | |

Demand Management Programs:

| | |
|---|--|
| <i>Controlled load (kW)</i> | |
| <i>Energy shifted On-peak to Mid-peak (kWh):</i> | |
| <i>Energy shifted On-peak to Off-peak (kWh):</i> | |
| <i>Energy shifted Mid-peak to Off-peak (kWh):</i> | |

Demand Response Programs:

| | |
|---|--|
| <i>Dispatchable load (kW):</i> | |
| <i>Peak hours dispatched in year (hours):</i> | |

Power Factor Correction Programs:

| | |
|---|--|
| <i>Amount of KVar installed (KVar):</i> | |
| <i>Distribution system power factor at beginning of year (%):</i> | |
| <i>Distribution system power factor at end of year (%):</i> | |

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

| | |
|-------------------------------------|--|
| <i>Amount of DG installed (kW):</i> | |
| <i>Energy generated (kWh):</i> | |
| <i>Peak energy generated (kWh):</i> | |
| <i>Fuel type:</i> | |

Other Programs (specify):

| | |
|--------------------------|--|
| <i>Metric (specify):</i> | |
|--------------------------|--|

| | | | |
|---|---------------------------------|------------------------------|---------------------------------------|
| D. <u>Actual Program Costs:</u> | | <u>Reporting Year</u> | <u>Cumulative Life to Date</u> |
| <i>Utility direct costs (\$):</i> | <i>Incremental capital:</i> | \$ - | \$ - |
| | <i>Incremental O&M:</i> | \$ 522,004.51 | \$ 522,004.51 |
| | <i>Incentive:</i> | | |
| | <i>Total:</i> | \$ 522,004.51 | \$ 522,004.51 |
| <i>Utility indirect costs (\$):</i> | <i>Incremental capital:</i> | | |
| | <i>Incremental O&M:</i> | | |
| | <i>Total:</i> | | |

E. Assumptions & Comments:

Fridge Bounty Program: OEB tables used to determine annual energy savings and resulting TRC. For RAC's recycling, OEB published assumptions and measures were used to prorate energy savings.
 For MECO Load Shedding, average peak reduction as measured over a 12 hour period was assumed.
 For MECO Toaster Replacement, operating time was assumed to be 7 am to 11 am every day.

¹ 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 numebr of units times the net present value per unit b

² 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 (DR) > 50 kW

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

Description

Load control uses a real time communications link to enable or disable customer loads at the discretion of the utility. These controls are usually engaged during system peak periods or when required to relieve pressure on the system grid.

Target Users

Larger commercial, industrial and institutional customers.

Benefit

Demand control provides lower costs and increased stability for customers and utilities.

Measure(s):

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|-----------|---------------------------|---------------------------|
| Base case technology: | | | |
| Efficient technology: | | | |
| Number of participants or units delivered for reporting year: | | | |
| Measure life (years): | | | |
| Number of Participants or unites delievered lfe to date | | | |

| B. TRC Results: | Reporting Year | Life-to-date TRC Results: |
|---|-----------------------|----------------------------------|
| ¹ TRC Benefits (\$): | | |
| ² TRC Costs (\$): | | |
| Utility program cost (excluding incentives): | | |
| Incremental Measure Costs (Equipment Costs) | | |
| Total TRC costs: | | |
| Net TRC (in year CDN \$): | | |
| Benefit to Cost Ratio (TRC Benefits/TRC Costs): | | |

| C. Results: (one or more category may apply) | Cumulative Results: | |
|---|----------------------------|---------|
| Conservation Programs: | | |
| Demand savings (kW): | Summer | |
| | Winter | |
| | lifecycle | in year |
| Energy saved (kWh): | | |
| Other resources saved : | | |
| Natural Gas (m3): | | |
| Other (specify): | | |
| Demand Management Programs: | | |
| Controlled load (kW) | | |
| Energy shifted On-peak to Mid-peak (kWh): | | |
| Energy shifted On-peak to Off-peak (kWh): | | |

Energy shifted Mid-peak to Off-peak (kWh):

Demand Response Programs:

Dispatchable load (kW):

Peak hours dispatched in year (hours):

Power Factor Correction Programs:

Amount of KVar installed (KVar):

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

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

Line Loss Reduction Programs:

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

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

| | |
|-------------------|--|
| Metric (specify): | |
|-------------------|--|

| <u>D. Actual Program Costs:</u> | | <u>Reporting Year</u> | <u>Cumulative Life to Date</u> |
|--|----------------------|------------------------------|---------------------------------------|
| Utility direct costs (\$): | Incremental capital: | \$ - | \$ 200 |
| | Incremental O&M: | \$ 24,653 | \$ 42,123 |
| | Incentive: | | |
| | Total: | \$ 24,653 | \$ 42,323 |
| | | | |
| Utility indirect costs (\$): | Incremental capital: | | |
| | Incremental O&M: | | |
| | Total: | | |

E. Assumptions & Comments:

¹ 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 numebr of units times the net present value per unit b

² 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:** Design Advisory > 50 kV

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

Description

This initiative helps to create an integrated approach to the design process for new buildings, and involves architects, engineers, building owners and design advisors.

Target users

Commercial, Industrial and Institutional customers.

Benefits

This program results in cost effective improvements to the energy efficiency of a building without adversely affecting other performance requirements stipulated by the owner. An energy performance model can be created to demonstrate achievable energy savings and can provide a breakdown of energy use. Through the installation of energy efficient equipment during construction, the customer benefits by avoiding the stranded costs incurred with equipment upgrades after the fact.

Measure(s):

| | PBIP-Lighting Retrofits | PBIP-Chiller Replacement | |
|--|-------------------------|--------------------------|--|
| <i>Base case technology:</i> | Average Existing Stock | Average Existing Stock | |
| <i>Efficient technology:</i> | Retrofits | Chiller Replacement | |
| <i>Number of participants or units delivered for reporting year:</i> | 12 | 1 | |
| <i>Measure life (years):</i> | 5 | 20 | |
| <i>Number of Participants or unites delievered lfe to date</i> | 12 | 1 | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|--|----------------|---------------------------|
| ¹ TRC Benefits (\$): | \$ 2,117,630 | \$ 2,117,630 |
| ² TRC Costs (\$): | | |
| <i>Utility program cost (excluding incentives):</i> | \$ 0 | \$ 0 |
| <i>Incremental Measure Costs (Equipment Costs)</i> | -\$ 984,197 | -\$ 984,197 |
| <i>Total TRC costs:</i> | -\$ 984,197 | -\$ 984,197 |
| <i>Net TRC (in year CDN \$):</i> | \$ 1,133,433 | \$ 1,133,433 |
| <i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i> | 2.15 | 2.15 |

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

Cumulative Results:

Conservation Programs:

| | | | | |
|--------------------------------|------------------|------------|----------------------------------|------------|
| <i>Demand savings (kW):</i> | <i>Summer</i> | 962 | | |
| | <i>Winter</i> | 962 | | |
| <i>Energy saved (kWh):</i> | <i>lifecycle</i> | 29,352,530 | <i>in year</i> | 4,233,781 |
| <i>Other resources saved :</i> | | | <i>Cumulative Lifecycle</i> | 29,352,530 |
| | | | <i>Cumulative Annual Savings</i> | 4,233,781 |
| <i>Natural Gas (m3):</i> | | | | |
| <i>Other (specify):</i> | | | | |

Demand Management Programs:

| | |
|--|--|
| <i>Controlled load (kW)</i> | |
| <i>Energy shifted On-peak to Mid-peak (kWh):</i> | |

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): | | |
| | <i>lifecycle</i> | <i>in year</i> |
| Energy savngs (kWh): | | |

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

| | |
|-------------------|--|
| Metric (specify): | |
|-------------------|--|

| | | | |
|--|----------------------|------------------------------|---------------------------------------|
| D. <u>Actual Program Costs:</u> | | <u>Reporting Year</u> | <u>Cumulative Life to Date</u> |
| Utility direct costs (\$): | Incremental capital: | \$ 416.99 | \$ 416.99 |
| | Incremental O&M: | -\$ 8,734.29 | \$ 8,735.60 |
| | Incentive: | \$ 126,601.30 | \$ 126,601.30 |
| | Total: | \$ 118,284.00 | \$ 135,753.89 |
| | | | |
| Utility indirect costs (\$): | Incremental capital: | | |
| | Incremental O&M: | | |
| | Total: | | |

E. Assumptions & Comments:

Lighting retrofit annual energy savings prorated per TRC time periods based on similar lighting technologies.
 Chiller replacement energy savings assumed similar to OEB Assumption and Measure for Free Cooling prorated for chiller capacity.
 Chilled water central cooling energy savings assumed operating hours consistent with OEB Assumption and Measure for Free Cooling.

¹ 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 numebr of units times the net present value per unit b

² 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:** Distribution Loss Reduction

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

Description

The Distribution Loss 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, selected and implemented 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.

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".

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 PowerStream 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.

Measure(s):

| | Loss Reduction | Measure 2 (if applicable) | Measure 3 (if applicable) |
|--|----------------------|---------------------------|---------------------------|
| <i>Base case technology:</i> | Existing Dx System | | |
| <i>Efficient technology:</i> | EE Power Transformer | | |
| <i>Number of participants or units delivered for reporting year:</i> | 1 | | |
| <i>Measure life (years):</i> | 25 | | |
| <i>Number of Partipants or unites delivered lfe to date</i> | 1 | | |

| B. TRC Results: | Reporting Year | Life-to-date TRC Results: |
|--|-----------------------|----------------------------------|
| ¹ TRC Benefits (\$): | \$ 84,831 | \$ 84,831.21 |
| ² TRC Costs (\$): | | |
| <i>Utility program cost (excluding incentives):</i> | | \$ - |
| <i>Incremental Measure Costs (Equipment Costs)</i> | -\$ 280,080 | -\$ 280,080 |
| <i>Total TRC costs:</i> | -\$ 280,080 | -\$ 280,080.39 |
| Net TRC (in year CDN \$): | -\$ 195,249 | -\$ 195,249 |
| Benefit to Cost Ratio (TRC Benefits/TRC Costs): | 0.30 | 0.30 |

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

Conservation Programs:

Demand savings (kW): Summer

Winter

| | <i>lifecycle</i> | <i>in year</i> | <i>Cumulative Lifecycle</i> | <i>Cumulative Annual Savings</i> |
|-------------------------|----------------------|----------------------|-----------------------------|----------------------------------|
| Energy saved (kWh): | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Other resources saved : | | | | |
| Natural Gas (m3): | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Other (specify): | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |

Demand Management Programs:

| | |
|--|----------------------|
| Controlled load (kW) | <input type="text"/> |
| Energy shifted On-peak to Mid-peak (kWh): | <input type="text"/> |
| Energy shifted On-peak to Off-peak (kWh): | <input type="text"/> |
| Energy shifted Mid-peak to Off-peak (kWh): | <input type="text"/> |

Demand Response Programs:

| | |
|--|----------------------|
| Dispatchable load (kW): | <input type="text"/> |
| Peak hours dispatched in year (hours): | <input type="text"/> |

Power Factor Correction Programs:

| | |
|--|----------------------|
| Amount of KVar installed (KVar): | <input type="text"/> |
| Distribution system power factor at beginning of year (%): | <input type="text"/> |
| Distribution system power factor at end of year (%): | <input type="text"/> |

Line Loss Reduction Programs:

| | | | |
|-------------------------|-----------|------------------|----------------|
| Peak load savings (kW): | | | 12 |
| | | <i>lifecycle</i> | <i>in year</i> |
| Energy savngs (kWh): | 2,546,672 | | 101,867 |

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:

| | | <u>Reporting Year</u> | <u>Cumulative Life to Date</u> |
|------------------------------|----------------------|-----------------------|--------------------------------|
| Utility direct costs (\$): | Incremental capital: | \$ 280,080 | \$ 280,080 |
| | Incremental O&M: | \$ 22,005 | \$ 39,474 |
| | Incentive: | | |
| | Total: | \$ 302,085 | \$ 319,555 |
| Utility indirect costs (\$): | Incremental capital: | | |
| | Incremental O&M: | | |
| | Total: | | |

E. Assumptions & Comments:

¹ 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 numebr of units times the net present value per unit b

² 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.

Benefits

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):

| | Central Cooling | Measure 2 (if applicable) | Measure 3 (if applicable) |
|--|---------------------------------|---------------------------|---------------------------|
| <i>Base case technology:</i> | Average Existing Stock | | |
| <i>Efficient technology:</i> | Central (chilled water) cooling | | |
| <i>Number of participants or units delivered for reporting year:</i> | 1 | | |
| <i>Measure life (years):</i> | 20 | | |
| <i>Number of Participants or unites delievered lfe to date</i> | 1 | | |

| B. TRC Results: | Reporting Year | | Life-to-date TRC Results: | |
|--|-----------------------|------------------|----------------------------------|------------------|
| ¹ TRC Benefits (\$): | \$ | 3,721,233 | \$ | 3,934,326 |
| ² TRC Costs (\$): | | | | |
| Utility program cost (excluding incentives): | -\$ | 348,458 | -\$ | 523,742 |
| Incremental Measure Costs (Equipment Costs) | -\$ | 800,000 | -\$ | 800,000 |
| Total TRC costs: | -\$ | 1,148,458 | -\$ | 1,323,742 |
| Net TRC (in year CDN \$): | \$ | 2,572,775 | \$ | 2,610,585 |
| Benefit to Cost Ratio (TRC Benefits/TRC Costs): | -\$ | 3.24 | - | 2.97 |

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

Cumulative Results:

Conservation Programs:

| Demand savings (kW): | Summer | | | |
|-------------------------|-----------|---------|----------------------|---------------------------|
| | Winter | | | |
| | 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): | | |
| | <i>lifecycle</i> | <i>in year</i> |
| Energy savngs (kWh): | | |

Distributed Generation and Load Displacement Programs:

| | | | |
|------------------------------|--|-----------|-----------|
| Amount of DG installed (kW): | | 768 | 1.746 |
| Energy generated (kWh): | | 3,629,866 | 7,541.866 |
| Peak energy generated (kWh): | | 345,987 | 541.587 |
| Fuel type: | | | |

Other Programs (specify):

| | |
|-------------------|--|
| Metric (specify): | |
|-------------------|--|

D. Actual Program Costs:

| | | <u>Reporting Year</u> | <u>Cumulative Life to Date</u> |
|------------------------------|----------------------|-----------------------|--------------------------------|
| Utility direct costs (\$): | Incremental capital: | \$ 77,800 | \$ 84,480 |
| | Incremental O&M: | \$ 270,658 | \$ 439,261 |
| | Incentive: | | |
| | Total: | \$ 348,458 | \$ 523,742 |
| Utility indirect costs (\$): | Incremental capital: | | |
| | Incremental O&M: | | |
| | Total: | | |

E. Assumptions & Comments:

¹ 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 numebr of units times the net present value per unit b

² 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: **2006**

1. Res., Small Comm. <50 kW 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 | | \$ 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 (\$) |
|--|---------------------|-------------------|---------------------|--------------------|-----------------------------|-------------------------|------------------------------|--|
| | (PV) | TRC Costs (PV) | | | | | | |
| Co-Branded Mass Market | \$ 4,781,577 | \$ 632,637 | \$ 4,148,940 | 7.56 | 14,206,889 | 100,745,359 | 233 | \$ 368,732 |
| Design Advisory < 50 kW | \$ - | \$ - | \$ - | 0.00 | | | | \$ 40,905 |
| Load Control < 50 kW | \$ 239,888 | \$ 172,226 | \$ 67,662 | 1.39 | 236 | 2,836 | 194 | \$ 159,726 |
| Social Housing | \$ - | \$ - | \$ - | 0.00 | | | | \$ 22,005 |
| 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 | | | | |
| *Totals App. B - Res., Small Comm | \$ 5,021,465 | \$ 804,863 | \$ 4,216,602 | 6.24 | 14,207,125 | 100,748,195 | 427 | \$ 654,276 |
| Res., Small Comm. <50 kW Indirect Costs not attributable to any specific program | | \$ 62,909 | | | | | | |
| Total Res., Small Comm. <50 kW TRC Costs | | \$ 867,772 | | | | | | |
| **Totals TRC - Res., Small Comm. | \$ 5,021,465 | \$ 867,772 | \$ 4,153,693 | 5.79 | | | | |

2. CI&I > 50 kW 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 | | \$ 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 (\$) |
|--|---------------------|---------------------|---------------------|--------------------|-----------------------------|-------------------------|------------------------------|--|
| | (PV) | TRC Costs (PV) | | | | | | |
| Energy AR&P | \$ - | \$ 283,447 | -\$ 283,447 | 0.00 | | | | \$ 283,447 |
| Lev. En. Cons. & Load Mgmt | \$ 459,012 | \$ 623,966 | -\$ 164,953 | 0.74 | 1,208,534 | 7,229,313 | 327 | \$ 522,005 |
| Load Control (DR) | \$ - | \$ - | \$ - | 0.00 | | | | \$ 24,653 |
| Design Advisory | \$ 2,117,630 | \$ 984,197 | \$ 1,133,433 | 2.15 | 4,233,781 | 29,352,530 | 962 | \$ 118,284 |
| 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 | | | | |
| *Totals App. B - CI&I > 50 kW | \$ 2,576,642 | \$ 1,891,610 | \$ 685,033 | 1.36 | 5,442,315 | 36,581,843 | 1,289 | \$ 973,041 |
| CI&I > 50 kW Indirect Costs not attributable to any specific program | | \$ 24,653 | | | | | | |
| Total TRC Costs | | \$ 1,916,262 | | | | | | |
| **Totals TRC - CI&I > 50 kW | \$ 2,576,642 | \$ 1,916,262 | \$ 660,380 | 1.34 | | | | |

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 | | \$ 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 (\$) |
|---|--------------|----------------|---------------------|--------------------|-----------------------------|-------------------------|------------------------------|--|
| | (PV) | TRC Costs (PV) | | | | | | |
| 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 | | | | |
| *Totals App. B - Institutional | \$ - | \$ - | \$ - | 0.00 | 0 | 0 | 0 | \$ - |
| Institutional Indirect Costs not attributable to any specific program | | | | | | | | |
| Total TRC Costs | | \$ - | | | | | | |
| **Totals TRC - Institutional | \$ - | \$ - | \$ - | 0.00 | | | | |

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 (kWh) Savings | 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 | | | | |
| Name of Program I | | | \$ - | 0.00 | | | | |
| Name of Program J | | | \$ - | 0.00 | | | | |
| *Totals App. B - Industrial | \$ - | \$ - | \$ - | 0.00 | 0 | 0 | 0 | \$ - |
| Industrial Indirect Costs not attributable to any specific program | | | | | | | | |
| Total TRC Costs | | \$ - | | | | | | |
| **Totals TRC - Industrial | \$ - | \$ - | \$ - | 0.00 | | | | |

5. Agricultural 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 (\$) |
|--|-------------------|----------------|---------------------|--------------------|-----------------------------|-------------------------|------------------------------|--|
| 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 | | | | |
| Name of Program I | | | \$ - | 0.00 | | | | |
| Name of Program J | | | \$ - | 0.00 | | | | |
| *Totals App. B - Agricultural | \$ - | \$ - | \$ - | 0.00 | 0 | 0 | 0 | \$ - |
| Agricultural Indirect Costs not attributable to any specific program | | | | | | | | |
| Total TRC Costs | | \$ - | | | | | | |
| **Totals TRC - Agricultural | \$ - | \$ - | \$ - | 0.00 | | | | |

6. Dx Loss Reduction 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 (\$) |
|---|-------------------|----------------|---------------------|--------------------|-----------------------------|-------------------------|------------------------------|--|
| Distribution Loss Reduction | \$ 84,831 | \$ 280,080 | -\$ 195,249 | 0.30 | 101,867 | 2,546,672 | 12 | \$ 302,085 |
| 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 F | | | \$ - | 0.00 | | | | |
| Name of Program G | | | \$ - | 0.00 | | | | |
| Name of Program H | | | \$ - | 0.00 | | | | |
| Name of Program I | | | \$ - | 0.00 | | | | |
| Name of Program C | | | \$ - | 0.00 | | | | |
| *Totals App. B - Dx Loss Reduction | \$ 84,831 | \$ 280,080 | -\$ 195,249 | 0.30 | 101,867 | 2,546,672 | 12 | \$ 302,085 |
| Dx Loss Reduction Indirect Costs not attributable to any specific program | | | | | | | | |
| Total TRC Costs | | \$ 280,080 | | | | | | |
| **Totals TRC - Dx Loss Reduction | \$ 84,831 | \$ 280,080 | -\$ 195,249 | 0.30 | | | | |

7. Smart Meters Program

Only spending information that was authorized under the 3rd tranche of MARR is required to be reported for Smart Meters.

Report Year Gross C&DM Expenditures (\$) 427,113

8. Distr. Energy 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 (\$) |
|--|---------------------|---------------------|---------------------|--------------------|-----------------------------|-------------------------|------------------------------|--|
| <i>Distributed Energy</i> | \$ 3,721,233 | \$ 1,148,458 | \$ 2,572,775 | 3.24 | 3,629,866 | 72,597,324 | 768 | \$ 348,458 |
| <i>Name of Program B</i> | | | \$ - | 0.00 | | | | |
| <i>Name of Program C</i> | | | \$ - | 0.00 | | | | |
| <i>Name of Program D</i> | | | \$ - | 0.00 | | | | |
| <i>Name of Program E</i> | | | \$ - | 0.00 | | | | |
| <i>Name of Program F</i> | | | \$ - | 0.00 | | | | |
| <i>Name of Program G</i> | | | \$ - | 0.00 | | | | |
| <i>Name of Program H</i> | | | \$ - | 0.00 | | | | |
| <i>Name of Program I</i> | | | \$ - | 0.00 | | | | |
| <i>Name of Program J</i> | | | \$ - | 0.00 | | | | |
| *Totals App. B - Distr. Energy | \$ 3,721,233 | \$ 1,148,458 | \$ 2,572,775 | 3.24 | 3,629,866 | 72,597,324 | 768 | \$ 348,458 |
| <i>Distr. Energy Indirect Costs not attributable to any specific program</i> | | | | | | | | |
| Total TRC Costs | | \$ 1,148,458 | | | | | | |
| **Totals TRC - Distr. Energy | \$ 3,721,233 | \$ 1,148,458 | \$ 2,572,775 | 3.24 | | | | |

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 (\$) |
|--|----------------------|---------------------|---------------------|--------------------|-----------------------------|-------------------------|------------------------------|--|
| *TOTALS FOR ALL APPENDIX B | \$ 11,404,172 | \$ 4,212,573 | \$ 7,191,599 | 2.71 | \$ 23,381,173 | \$ 212,474,033 | \$ 2,496 | \$ 2,704,973 |
| <i>Any other Indirect Costs not attributable to any specific program</i> | | | | | | | | |
| TOTAL ALL LDC COSTS | | \$ 4,212,573 | | | | | | |
| **LDC' PORTFOLIO TRC | \$ 11,404,172 | \$ 4,212,573 | \$ 7,191,599 | 2.71 | | | | |

* 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.