# Horizon Utilities Corporation

## *St. Catharines Hydro Utility Services Inc. Conservation and Demand Management 2005 Annual Report*

**Ontario Energy Board File No. RP-2004-0203**

March 31, 2006

## TABLE OF CONTENTS

# 1. Introduction

On December 9, 2004 the Ontario Energy Board ("Board") issued its Notice of Application and Written Hearing in the RP-2004-0203 proceeding, with respect to Niagara Erie Public Power Alliance (NEPPA) Coalition nine (9) applications filed by NEPPA comprising Canadian Niagara Power Inc. Grimsby Power Inc., Haldimand County Hydro Inc. Niagara Falls Hydro Inc., Niagara On The Lake Hydro Inc. , Norfolk Power Distribution Inc., Peninsula West Utilities Limited Inc., St. Catharines Hydro Utility Services Inc., and Welland Hydro-Electric System Corp. This report is a requirement of that decision. In respect of the application filed by the former St. Catharines Hydro Utility Services Inc. the Board issued its Final Order on February 18, 2005 under docket number RP-2004-0203 / EB 2004-0523.

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 CDM Initiatives that explained more full the requirements. This report has been prepared in accordance with those guidelines.

Currently, Horizon Utilities has two separate Conservation and Demand Management Plans filed with the OEB for the former Hamilton Hydro Inc. (HHI) RP-2004-0203 / EB-2004-0488 and St. Catharines Hydro Utility Services Inc. (SCHUSI) RP-2004-0203 / EB-2004-0523. Horizon will be filing a separate 2005 Annual Report for HHI CDM activities, under separate cover with the Coalition of Large Distributors to the OEB.

Horizon Utilities has been active in implementing many programs in the first year of its CDM program that delivered results in several customer segments. Highlights from 2005 include:

- Established the powerWISE® brand and web site www.powerwise.ca along with the Coalition of Large Distributors.
- Launched the "Lighten Your Electricity Bill" program, an initiative in which all of Horizon's 208,000 residential customers received money-saving coupons through bill inserts, redeemable at Canadian Tire for in-store discounts on several energy-efficient projects including compact fluorescent lights (CFL's), ceiling fans, outdoor and indoor timers, programmable thermostats and LED seasonal lights. The CLD was successful in leveraging this program with a total of 31 utilities, which collectively distributed 2.3 million retail coupons in Q4, 2005. The energy saving results from this program are now being collated by Canadian Tire and associated agencies for our annual report due to the OEB on March 31st, however early results from the entire 31 utility program indicate a demand reduction of 6 MW and savings of 16 million kWh's.
- Launched the powerWISE Business Incentive Program in which Horizon is providing financial incentives to qualifying commercial, industrial and institutional customers with an electricity demand of 50kW or more. The incentive level starts at $150 per kW saved. To date, several applications have been processed for implementation in 2006.

- Branded 100 Horizon vehicles with powerWISE energy conservation tips.
- Engaged a pilot CFL retrofit project with Hamilton Community housing by installing over 23,000 bulbs into homes where people need to cut energy use and costs most.
- Provided funding for 475 social housing units in the Social Housing Services Corporation provincial energy audit study.
- Participated in 14 community events promoting energy conservation including a pilot of two Social Housing energy conservation workshops.
- Installed 1000 Smart Meters and pilot tested two technologies.
- Delivered an Energy Audit and Self Evaluation program with partners Green Venture at Community events. Provided energy tips, free electricity saving products and reduced cost energy audits through Green Venture (a local non-profit organization that promotes energy efficiency).
- Participated in several public events that allowed us to spread the conservation message throughout the community. These events included the St. Catharines Rotary Rib Fest, Santa Claus Parade, Hamilton Locke Street Festival, Dundas Cactus Festival, McMaster Institute of Energy Studies Workshop, Port Authority Days and energy events sponsored by MPP's such as Judy Marsales, and Ted McMeekin.
- Provided conservation messaging through varied energy conservation channels, including media interviews, regular billing inserts, online newspapers and public information sessions.

With 2005 being the first year of Horizon's three-year plan, our CDM programs are currently in the preliminary stage and initial results will be reported to the OEB at the end of Q1 2006. Horizon plans to utilize these results to help assess the most appropriate action regarding future potential rate applications to fund "second generation" CDM programs. Horizon Utilities is committed to helping the government build a sustainable long-term conservation culture in Ontario.

***Ongoing Opportunities***

As we develop a conservation culture in Ontario we must continue to balance the need for short-term results while fostering a long-term conservation attitude among the citizens and businesses in the province. The industry must continue to coordinate its efforts to ensure that program delivery is efficient and available to all customers. Our goal should be rapid program deployment and using the LDC's clear channel to market. Clarity regarding the roles of the LDC's, OPA, IESO, etc. would be beneficial in this regard.

Further, clarity on the topics of LDC cost recovery, lost revenues, and criteria for assessing prudence of CDM spending would also be helpful. This will lead to more aggressive applications for second generation funding. At all times, we must strive to minimize bureaucracy wherever possible. For example, the opportunity to determine and agree on effective conservation programs up front should minimize the measurement and verification efforts required to substantiate these same programs at their conclusion.

# 2. Evaluation of Overall Plan

Refer to Appendix A for an evaluation of Horizon's CDM activities during 2005.

In reviewing the information provided in both Appendix A and Appendix B, it should be noted that much of the work undertaken by Horizon during 2005 related to program development. A number of the programs initiated in 2005 will not yield measurable kWh or kW demand savings until 2006 and beyond. Therefore, the cost benefit analysis presented does not accurately reflect the effectiveness of Horizon's CDM expenditures.

Furthermore, some components of Horizon's CDM plans relate to the deployment of Smart meters, which is being undertaken to support provincial government policy direction. The impact of Smart meters on kWh consumption and kW demand has not been assessed. This further skews the overall cost benefit analysis provided in Appendix A.

# 3. Discussion of Overall 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, 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.

**Discussion of 2005 Activities**

***powerWISE® Brand***

Action

- Hamilton Utilities Corp. (HUC) registered the powerWISE mark prior to CDM activities.
- During CLD CDM plan preparation, it was agreed that the CLD would collectively develop a co-brand. HUC offered powerWISE for joint ownership and the CLD agreed that we would use this mark.
- As HUC owns the mark, the CLD needed to come up with a vehicle to transition the mark that would allow joint ownership. Legal counsel recommended the formation of a Joint Venture (JV) among other options. For expediency, and under the spirit of co-operation, the team recommended that we start with an MOU and a sub-license agreement and then based on the direction that the CLD CEO's determined over time, we would either continue the way we are, move to a more formal JV, transition the mark into some other entity that the CLD may create in the future, or pursue

other options. Bottom line, the MOU and License were seen as a way to get things moving quickly.
- Weekly conference call meetings are held with the communications sub-committee to coordinate all powerWISE and branding activities.
- The ministry of energy (Director of Communications) participates on weekly conference calls
- Two-way monthly update meetings are conducted with the Ontario Power Authority (OPA)

Results to Date
- powerWISE trade mark MOU and powerWISE trade mark licenses were executed between each of Enersource, Horizon, Hydro Ottawa, PowerStream, Toronto Hydro and Veridian with HUC.
- PowerWISE brand launched April 1st, 2005
- powerWISE is being used extensively by the CLD to brand CLD conservation programs.
- The powerWISE brand has also been translated to Eco-Consummer for French language purposes.
- Interest in the powerWISE/Eco-Consummer brand has been expressed by the Ministry of Energy, the OPA, Hydro One and other utilities.

Next Steps
- Extend the powerWISE brand to the Ministry of Energy, the OPA and Hydro One and other LDC's.

***powerWISE Website***

Action
- The website www.powerwise.ca was jointly developed and announced on April 1st, 2005. This website is designed to provide one common location to direct customers to for general electricity conservation information and links. Links have also been provided to each of the CLD member home websites where LDC specific program information can be accessed.

Results to Date
- Since its launch, powerwise.ca has received 37,000 visitors from April 1, 2005 – December 31, 2005.

Next Steps
- Working with the Ministry of Energy continue to develop and promote powerwise.ca

***powerWISE Retail Initiative***

Action
- To test an alternate approach to Toronto Hydro's business arrangements with the Home Depot retail chain, the other CLD members (Enersource, Horizon, Hydro Ottawa, PowerStream and Veridian) developed a major mass-market retail coupon campaign. The campaign was designed to advance energy efficient devices into the

marketplace through point of purchase redeemable coupons ($33 value per coupon) under the banner of "Lighten Your Electricity Load" which were distributed with the electrical utilities bills between October 1st and December 31st, 2005. Six products were selected for promotion including:
    - Compact Fluorescent Lights ($3 off per pack)
    - Seasonal LED lights (SLED's $5 off)
    - Ceiling Fans ($5 off)
    - Programmable Thermostats ($15 off)
    - Light and Appliances Timers ($1 off)
    - Pool and Hot Tub Timers ($4 off)
- As the program developed, other LDC's expressed an interest in participating.

Results to Date
- Unprecedented cooperative effort between 31 participating utilities
- 2.3 million coupons distributed
- At Horizon over 227,000 coupons were distributed
- Up to an estimated $3.8M collective investment in moving the market through this initiative (at 5% coupon take up).
- Over 8680 coupons redeemed were redeemed locally
- Results and costs of this program were split 75% Hamilton and 25% St.Catharines based on coupon redemptions reported.

Next Steps
- Conclude program, examine lessons learned to improve future programs
- Finalize participation in campaign for 2006

***Switch to Cold Water Wash Coupon Campaign***

Action
- Coupons were inserted into customer bills that promoted switching to cold water wash. These coupons contained information on energy and cost savings associated with washing approximately 6.2 loads of laundry a week in cold water. These coupons offered $1.00 off the price of Tide cold water detergent. The delivery partner for this program was the Canadian Energy Efficiency Alliance.

Results to Date
- At Horizon over 227,000 coupons were distributed through billing inserts.
- Coupon redemption rates are approximately 3%.
- Results and costs of this program were split 75% Hamilton and 25% St.Catharines based on coupon redemptions reported.

Next Steps
- Conclude program and measure success
- Determine next campaign

***Kill A Watt Meter Library Loaner Project***

Action

- In conjunction with the Kill A Watt Meter Library Loaner Project established by Hydro Ottawa and Enersource, Horizon Utilities engaged in a similar program for Hamilton Public Library and St. Catharines Public Library System. Ninety one Kill A Watt Meters were ordered for this project in 2005. Meters were distributed as follows:
  - 24 – St. Catharines Public Library
  - 50 – Hamilton Public Library
  - 17 – Horizon Loaner Program
- Horizon also set up a loaner program for staff internally so that they could gain some first hand experience with measuring energy consumption of their 120 Volt appliances.
- The Kill A Watt meter library loaner program is demonstrated and promoted at local community events by Horizon and Green Venture.
- In support of the library loaner program custom instruction cards bearing Horizon's logo and library contact information. These cards are used with the meter for instructions and given out as promotion materials.
- Conservation handbooks are given out to the borrowers of the Kill A Watt meter so that they can compare their appliance energy use to the energy star appliance use listed in the handbook.

Results to Date

- St. Catharines Public Library Loaned out meters 29 times in 2005.
- This project was launched at the Hamilton Public Library on January 23rd and 24th, 2006 with 2500 - 13 Watt compact fluorescent bulbs given out to library patrons.
- Hamilton Public Library reported the kill A Watt Meter has been loaned out 129 times with 65 persons on the waiting list since Jan 23, 2006.
- Horizon's staff are able to borrow a Kill A Watt Meter as of March 6, 2006

Next Steps

- Extend loaner program to other Horizon affiliates, including City of St. Catharines, City of Hamilton, and Social Housing providers etc.
- Conclude program and measure success
- Determine next promotion campaign

***powerWISE fleet branding***

Action

- In an effort to increase conservation messaging to the mass market, the CLD embarked on a campaign announced November 3rd, 2005 to brand vehicles with energy conservation tips under the powerWISE brand.

Results to Date

- There were 1113 vehicles branded with powerWISE in the Province.
- To date, 100 Horizon vehicles have been branded with powerWISE and energy conservation messages.

Next Steps
- Additional vehicle branding

***powerWISE School Based Education Initiative***

Action
- Horizon has ordered a powerWISE Home multimedia Theatre for the Children's Discovery Centre in St. Catharines to promote energy conservation to primary school students. A second portable powerWISE Home model is to be used as a conservation prop at the community events and home shows.
- Horizon ordered 1900 powerWISE smart paks to be distributed to grade 5 and 6 students in Hamilton. Students participating in the programs will receive these smart paks in February of 2006. Contents of the pack include 2 compact fluorescent lights, faucet aerators and information related to energy conservation.

Results to Date
- One multimedia theatre edition of the powerWISE home conservation model ordered.
- One powerWISE home conservation portable model ordered.
- Over 1900 powerWISE smart paks ordered.

Next Steps
- Prepare multimedia content for powerWISE Home model theatre edition.
- Conduct staff training for use of the powerWISE Home portable model.
- Assess results from the school powerWISE smart pak project.

***Horizon Utilities Website (UPDATE)***

Action
- The website www.horizonutilities.com was revised to provide a stronger emphasis on conservation.
- The website now offers two main conservation options; powerWISE for Homes, and powerWISE for Business information.
- This conservation component of the website is designed to provide Horizon customers with immediate access to local conservation initiatives

Results to Date
- Since its launch www.horizonutilities.com has received more than 315,372 visitors.

Next Steps
- Continue to enhance the website with new materials, links and applications.

***Horizon Conservation Champions "Call To Action" Contest***

Action
- A Conservation Champions committee made up of volunteers from Horizon Utilities staff designed an internal energy conservation awareness campaign for staff. Goals of the committee were as follows:

1. Recommend ways to reduce Horizon's demand by 5% and overall consumption by 10%.
2. Create an energy and water use checklist to be used with our health and safety workplace inspections.
3. Assist in creating an action plan around the IESO calls for reduced energy use, as part of preparation for 2006 summer peak.
4. Design and implement an energy and water conservation awareness campaign at Horizon.

- Each staff member was given a conservation starter kit consisting of the following:
  - Two 14 watt compact fluorescent bulbs
  - One powerWISE LED night light 1.3 watt
  - One low flow shower head
  - Refrigerator thermometer
  - Hot Water test card
  - powerWISE energy conservation handbook
  - Self Evaluation Survey
  - Adult pledge form
  - Kids pledge form
- Two grand prizes of a personal computer system were offered; one drawing made from the staff pledges, the other from the kids pledge forms. Contest closed January 31, 2006.

Results to Date
- Four hundred conservation kits were given out to staff in December 2005.
- 207adult pledge forms received
- 97 kids pledge forms were received.
- 159 self evaluation surveys were returned.

Next Steps
- All self evaluation surveys and pledge forms will be entered into a database to produce a report of the results
- Offer of this program to others is to be explored.

***Code Green***

Action
- The television show, entitled "Code Green Canada" is a six-part television series being sponsored in part by the CLD members.
- It will be broadcast by CBC in the spring of 2006 and will provide homeowners across Canada with invaluable information on how to reduce energy consumption and save money.
- Twelve contestants from across the country will compete to retrofit their homes in an effort to reduce their energy and water consumption, as well as their greenhouse gas emissions.
- The homeowner who achieves the greatest reduction in consumption and emissions will win a gas-electric 2006 hybrid Prius, courtesy of Toyota Canada

Results to Date

- Series production for the CLD is now completed and the program will be aired in 2006

Next Steps

- Promote the broadcast to our local audiences when the network program schedule is finalized

## Smart Meter Pilot

**Description**

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

**Target users**

Residential and small commercial customers.

**Benefits**

This program supports the Minister of Energy's commitment to the installation of 800,000 SMART meters across Ontario by 2007. It will provide Horizon with the experience and knowledge needed to efficiently expand the use of SMART meters over the next several years.

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

**Discussion of 2005 Activities**

Horizon's approach to introducing smart metering pilots was to conservatively implement a few communications strategies to test. Clarification of smart meter technology requirements and further direction from the Ontario Energy Board was a barrier in the investment in technologies in 2005. Horizon is fully committed to spending its smart metering budget in 2006.

Action
- Horizon Utilities has undertaken pilot testing two different communication systems and meter technologies.
- System implementation and end to end testing of these technologies has been the priority for Horizon in 2005.
- A Tantalus TUNET mesh network communications system is being tested in St. Catharines.

Results to Date
- There have been 500 meter points installed in St. Catharines that are currently functioning.

Next Steps

- Horizon is planning more testing and study of deployment of smart metering in 2006.
- The work management software will be purchased to support the deployment process of smart metering.
- Study of customer electricity usage as it relates to load shifting will be the focus of communications with customers receiving a smart meter.
- Pilot testing of remote disconnect capabilities will be completed in 2006.

## Energy Audit Program

**Description**

Through visits to customers' homes or by working through existing service providers, Horizon Utilities will provide conservation information and make specific recommendations for energy savings in such areas as major appliances, lighting, air leakage, hot water, heating and cooling. Incentives may also be provided. Services could be further tailored for specific subsidized housing applications.

**Target users**

Residential and small commercial customers

**Benefits**

The consumer receives a clear, concise and prioritized report identifying opportunities for energy savings as well as the associated costs and payback period (as applicable).

**Discussion of 2005 Activities**

***powerWISE for Homes – Energy Audit & Self Evaluation Pilot***

Action

- Horizon Utilities in partnership with Green Venture have designed a residential energy audit incentive program.
- Customers fill out an energy use self evaluation survey and pledge form in exchange for a powerWISE power pack, consisting of two CFL's, an LED night light, powerWISE conservation handbook, $50 off coupon on NRGuide for homes energy audit, and other water and electricity conservation information.
- In addition to the NRGuide for homes energy audit, Green Venture added an electricity use component. Recommendations for reducing electricity use includes lighting and appliance review.
- All self-evaluations and pledge forms are entered into a database to assist us in designing future energy conservation programs.

Results to Date

- There were 1560 self-evaluation surveys completed by Horizon customers in exchange for the powerWISE power packs, as of Dec. 31, 2005.
- Horizon has given out incentives for over 150 customers to receive the powerWISE for homes and NRGuide home energy audits.

Next Steps

- Promotion of this project will continue in 2006 at our community events and home shows.

**powerWISE Energy Conservation Handbook**

Action
- Horizon Utilities participated with the NEPPA utilities to develop an energy conservation handbook. This handbook contains hundreds of tips and features a seasonal checklist of energy saving activities.
- This handbook was printed and distributed at: community events with our Energy Audit and Self Evaluation project, and public libraries with the Kill A Watt Meter loaner program.

Results to Date
- Over 10,000 handbooks have been distributed to date.

Next Steps
- Continue to distribute the powerWISE Energy Conservation Handbook at community events in 2006.
- Update the handbook with new energy savings tips as required.

***powerWISE PowerPack***

Action
- Horizon Utilities uses the powerWISE PowerPack for promotional purposes. The PowerPack consists of:
  - 2 Compact Fluorescent (CFL) bulbs
  - an LED nightlight
  - powerWISE Tips brochure
  - a series of other energy conservation pamphlets
  - $50 coupon off a home energy audit
- The powerWISE PowerPack is available for free pick-up at Green Venture
- To qualify to receive a free powerWISE PowerPack (retail value $20), Horizon Utilities customers must; participate in a Horizon conservation program like residential energy audit self-evaluation survey.
- This offer was implemented in July 2005

Results to Date
- Over 1500 powerWISE PowerPacks have been distributed
- The powerWISE PowerPack concept is also used by other members of the CLD in a variety of promotional opportunities

Next Steps
- Continue to promote the powerWISE PowerPacks
- Use of a version of the power pack for a paperless ebilling campaign 2nd Qtr 2006
- Use of a version of the power pack for a 2006 fridge bounty project 2nd Qtr 2006

## Social Housing Program

**Description**

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

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

**Target users**

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

**Benefits**

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

**Discussion of 2005 Activities**

Horizon recognized that social housing is a sector that can least afford increases in energy costs and devoted efforts to accelerate spending and activity in this program. Discussions with the Niagara Regional Housing Authority on 2006 retrofit projects for St. Catharines were held in 2005.

Action
- Planning activities with Niagara Regional Housing Authority were carried out in 2005.
- A study and conservation program design was ordered by Horizon and performed by SeeLine Group. This study and prescriptive program design is the basis for social housing retrofit project incentives.

Results to Date
- Plans for retrofits in 2006 with Niagara Regional Housing Authority were completed.
- Incentive levels for the prescriptive program were established.
- Horizon incented Hamilton Community Housing installation of 36,340 CFL's, 625 water dams, and 450 showerhead flow restrictors.
- Conducted two pilot energy conservation workshops and shared the format and results with Social Housing Services Corporation.
- Completed design of social housing program complete with incentives to be used as a guideline for 2006 social housing retrofit projects.

Next Steps
- Work with Social Housing Service Corporation to ensure program incentives are made available to service providers in Horizon's service area.

- Create funding for low income housing conservation program.
- Look for opportunities to assist with energy conservation education in low income housing and social housing.

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

### *Energy Audits and Feasibility Studies*

**Description**

A standard energy audit will be developed to assist in completion of audits. As well, a training program tailored to this specific sector will 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. The audit model will be developed, tested and refined in co—operation with partners that will be involved with training, certifications, and management of the process. This standard checklist or procedure will be duplicated where possible.

**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 2005 Activities**

Horizon created the powerWISE for Business, Energy Audit Incentive Program to assist customers with their efforts to explore opportunities for achieving energy efficiency. Promotion of this program has been mainly accomplished through advising energy auditors of this offering. Customers wishing to participate in this program must complete an application available on the Horizon Utilities website.

Action

- Energy audit incentives and criteria were established by Horizon under the powerWISE Energy Audit Incentive Program that was launched on October 5, 2005. See www.horizonutilities.com under the powerWISE for Business for more details.
- Energy Audit companies that presented proposals to Horizon Utilities were advised of the incentives being offered.
- Horizon Utilities created a request for proposal to audit their four main work centres as part of an objective to attempt a reduction in demand by 5% and energy use by 10%.

Results to Date

- Horizon participated in a request for proposal for Energy Audit Services with the NEPPA utilities. Presentations from Energy Audit Companies were received at a meeting held with the NEPPA members in August of 2005
- The powerWISE for Business, Energy Audit Incentive Program application forms were posted on the Horizon website in October of 2005.
- Energy audit applications were approved for TRW Automotive in St. Catharines, and Mohawk College in Hamilton.
- Another 11 application enquiries have been received to date.

Next Steps

- Work with customers enquiring about energy audit incentives to complete their applications.
- Work with energy auditors to ensure that applications for any eligible energy audit projects in Horizon's service territory are being submitted.
- Results and recommendations from the energy audits conducted at Horizon's four main work centres, which includes the St. Catharines work centre at 340 Vansickle Road, are to be completed by March 31, 2006.

## Smart Meter Program

**Description**

Horizon Utilities 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 Board.

**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 2005 Activities**

Action
- Horizon Utilities 2005 expenditures in this program involved investigating cost effective communication technologies to be used for interval metering for customers >50 kW
- Ordering of interval meters for a pilot project in 2006 was performed.

Results to Date
- Installation of interval metering was performed at all Horizon's, four work centres.

Next Steps
- Horizon is in the process of revising the conditions of service document to reflect the requirement of interval metering >50kw.
- Seek standardization on the charging of communication costs for interval metering with the CLD group and OEB.
- Continue to investigate cost effective communication systems for interval metered customers.

**LED Retrofits for Traffic Lights**

**Description**

This initiative involves replacing traffic signals at intersections to light-emitting diode (LED) technology, which is now fairly common in many U.S. municipalities.

**Target users**

Municipalities

**Benefits**

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

**Discussion of 2005 Activities**

Action

- Horizon Utilities met with the City of St. Catharines and Regional Niagara Traffic Control Department in June 2006 to discuss incentives for LED replacement of incandescent lighting.
- A letter of proposal for cost sharing and incentives was sent to the City of St. Catharines and Regional Niagara Traffic Control Department.

Results to Date

- Regional Niagara Traffic Control have not reported the 2005 LED retrofit or replacement of fixtures performed as a requirement to become eligible for the incentives offered by Horizon.
- Target of $150/kW in reduced demand was established as an incentive or 25% of the capital cost of an LED fixture.

Next Steps

- The Regional Niagara is to report fixtures replaced along with supporting reduced electrical demand and consumption calculations for each location.
- Horizon will verify the installations upon completion and process the request for incentives.
- Regional Niagara Traffic Control will be submitting results of the 2006 installations.

## Leveraging Energy Conservation and Load Management

***powerWISE Business Incentive Program***

**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 2005 Activities**

Currently there is not funding specified in the SCHUSI CDM plan for a Leveraging Energy Conservation and Load Management Program. Horizon in conjunction with the CLD developed the powerWISE for Business Incentive Program. This program provides incentives of up to $50K per customer to advance energy conservation projects.
Two streams of funding are available:

Prescriptive: This program provides incentives for specific technologies on a predetermined cost per unit basis, i.e. retrofitting T12 lighting to T8 lighting.

Custom Projects will be considered on an individual case basis with incentives starting at $150 per kW

Action

- Horizon is evaluating St. Catharines customer needs for the powerWISE for Business Incentive Program.

Results to Date

- This program was launched in October 2005
- Two St. Catharines customers have expressed an interest in this program to date.

Next Steps

- Horizon to continue to promote this program to customers and leverage Energy Audit Companies to bring forward projects applications.

## 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**

Larger commercial, industrial, institutional, and residential customers.
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.

**Discussion of 2005 Activities**

There was no load control initiatives carried out in St. Catharines in 2005. Preparation for the peakSAVER residential load control program was the focus in 2005. Horizon anticipates spending the majority of the CDM budget on this program in 2006.

Action

- Horizon modified its Conservation and Demand Management plan descriptions to include residential customers as a target for this program.
- A Gateway load control pilot project was undertaken by Horizon that deployed thermostat control technology.
- A feasibility study of commissioning the mothballed Stoney Creek water heater load control system was undertaken.
- Horizon Utilities is participating with other CLD members in the design and implementation of "peakSAVER", 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/or pool pumps will be encouraged to have controls installed on those devices.
- A request for proposal has been issued for response mid January 2006.
- Horizon anticipates spending the remaining portion of the 2005 budget in 2006, once the peakSAVER load control project is initiated.

Results to Date

- Selection of load control program marketing and implementation services has been completed.

Next Steps

- A peakSAVER service provider will be contracted in Q2 2006
- An RFP for control equipment will be issued and awarded in Q2 2006
- Customers will be canvassed to sign up for the program in Q2 2006

### *Distribution Loss Reduction*

**Description**

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

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

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

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

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

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

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

**Target users**

The results of this program will positively impact all of Horizon's 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.

## Discussion of 2005 Activities

Horizon did not spend its budget on this program in 2005, because the funding model of distribution system loss reduction was being developed. CDM incentives for projects like voltage conversion were still in development. Expenditures in this program were mainly due to creating plans for 2006. We anticipate spending the 2005 budget in 2006 or else we will move funding from this program to another.

Action

- Horizon did not spend its budget on this program in 2005.
- Horizon completed voltage conversion capital work (not funded by CDM) as follows:
    - $3,229,968 and demand reduction of 521 kW for Hamilton
    - $136,230 with demand reduction of 19 kW for St. Catharines,

Results to Date

- Assessment of the TRC results for voltage conversion projects indicate that better results can be achieved by other programs.
- Horizon did not use CDM funds for voltage conversion projects that were already part of our capital plan but used them as study cases for TRC.
- Horizon retained a Consultant to assist with planning CDM expenditures on distribution loss reduction.

Next Steps

- Horizon will assess operating and capital funding to the Load Control or other programs that prove to provide a better TRC and offer more demand and energy reduction.
- Distribution system optimization will be performed in 2006.

## *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.

**Benefit**

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

**Discussion of 2005 Activities**

Action

- Horizon Utilities is investigating a solar implementation pilot at a substation to charge the batteries and run station service heating.
- A customer survey of behind the meter standby generation was conducted by Horizon. The focus was to look at the potential of creating load displacement through dispatching customer standby generation.
- Solar panel technologies are being studied for Horizon work centre facilities.
- Replacement of the St. Catharines work centre standby generation is required. The intention would be to make this standby unit available to our control room to operate in times of peak demand and pricing.

Results to Date

- No projects or installation activities have been undertaken to date.

Next Steps

- An RFP for Horizon Standby generation will be issued in 2nd Quarter 2006.
- Horizon will develop an incentive for residential, commercial, industrial, and institutional customer load displacement projects.

# 4. Lessons Learned

**Evolution of Horizon**

At the same time that our CDM plan was being carried out the merger of Hamilton Hydro Inc. and St. Catharines Hydro Utility Services Inc. evolved to become Horizon Utilities. The merger plans involved hiring a dedicated resource in March 2005 to manage Horizon's CDM plan going forward.

**Working Together**

From the outset in the fall of 2004, St. Catharines Utility Services Inc. worked with the NEPPA member LDC's to plan CDM activities including the joint plan filing by nine members. On March 1, 2005 the merger took place and Horizon Utilities focused on looking for opportunities to implement activities that fit both the HHI and SCHUSI CDM plans. The SCHUSI plan activities were also influenced by the work of the Coalition of Large Distributors (Toronto Hydro, Hydro Ottawa, Horizon Utilities, Veridian, Enersource Hydro Mississauga and Powerstream). This group, representing 40% of the Province's load has shared experiences, jointly prepared and delivered programs and launched the powerWISE brand. We are learning as we go and have accomplished much to date by working with and leveraging various partnerships and relationships, by leveraging healthy individual LDC thought and innovation, and by developing programs at the "grassroots" level. We believe that these initiatives are now starting to pay significant dividends as the programs start to roll out in earnest. The benefits of this joint action are numerous. For example:

o 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.

o Consistent messaging:
The adoption and promotion of the powerWISE brand by the CLD members will provide significant long-term benefits. The development of this single brand that is trusted by consumers and synonymous with energy efficiency can be leveraged to maximize the reach and penetration of future CDM initiatives, in a way that could not be achieved by each member LDC on its own.

o 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 benefits were fairly allocated. During 2005, CLD members jointly funded a number of initiatives such as the establishment of the powerwise.ca website, the development of the powerWISE Business Incentives Program and more.

Sharing costs have enabled individual CLD members to help minimize program costs.

o 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 all CLD service areas in 2006.

**Market Conditions**

Horizon's interaction with customers, community partners and other LDC's we learned the following:

CDM program development does take time. In particular, procurement and legal issues must be thoroughly addressed up front in order to ensure long-term sustainable conservation success.

We found that simple, low cost incentives like the powerWISE Power Pack or free CFL's were very well received by residential customers, offered good TRC results and proved that customers did not require a lot of incentive to participate. In fact ease of participation accompanied by incentives with a perceived higher value to customers are the hallmarks of program success.

We learned that residential customers have varying degrees of knowledge with regard to energy conservation measures for their homes. Data from our Self-Evaluation Survey can be used for designing future conservation programs that address market needs.

Under the Social Housing Program, inclusion of the needs of low income housing customers must also be addressed. Social and low income housing customers are typically spending a greater percentage of their income on utilities or rent (that includes utilities) and can least afford to purchase retrofits or appliance upgrades. An education program for social and low income housing customers is critically important to ensure that conservation behaviour changes occur that are conducive to reducing energy use and embracing technologies that are designed to achieve this.

Public information and education is an important element of changing the consumers in Ontario to a culture of conservation yet there are no savings results recognized for these activities. This effectively penalizes Utilities for participating in this type of worthwhile initiative.

Conservation opportunities exist with residential and small commercial customers but the channel to this market has many challenges. These customers are overwhelmed by messages from all quarters and have no real opportunity to accurately assess their options or time and money to implement good solutions. Communication technology

could be better used to access these customers and offer them ways to streamline the implementation of sound choices.

Attending community events to promote our conservation programs was very well received by our customers and was very rewarding for our staff volunteers.

Assisting customers with Energy Audit and Feasibility Study Incentives allowed an opportunity for customers to recognize the potential energy savings available to them and advance plans for implementing solutions or measures with confidence.

Our PowerWISE Business Incentive Program showed us that Commercial and Industrial customer timelines for conservation projects are often longer then we expected and with a lower sense of urgency then we would prefer.

Commercial Programs must address the needs of the customers at the National, Provincial or Corporate level to allow implementation across jurisdictions and beyond individual stores. Coordination is required to allow large Corporations to make programs available to all store locations regardless of location by City or Province.

It is important to offer Commercial and Industrial customers access to information through convenient forums such as trade shows or the Ministry of Economic Development Energy workshops. There are many emerging technologies and a proliferation of service providers in the marketplace. We need to concentrate our efforts on helping these customers to understand not only the technologies but the impact and value these technologies can have on their specific organizations. This will lead to increased participation and adoption of these new energy efficient technologies.

We completed voltage conversion projects on our distribution system as part of our capital budget and found that the TRC test results were very poor due to the high capital costs and limited energy and demand reductions achieved.

**Regulatory Environment**

It has been a challenge to adapt to new regulations as they have emerged relative to CDM. For example, it was not anticipated in late 2004 that TRC analysis would be a requirement for this annual report. It was necessary to build the capability to conduct this type of reporting.

The energy conservation “choices” are increasing with both the Ministry of Energy and the OPA entering the market, following the LDCs. A cooperative effort among various agencies will be required or customer confusion will result.

## *Recommendations By Program Area*

| Residential and Commercial <50kW | Successful / H/M/L | Continue | Notes |
|---|---|---|---|
| Co-Branded Mass Market | Yes – H | Yes | Identify credits for softer measures such as education programs that will encourage CLD to implement further |
| Smart Meter Pilot | Too early to tell | Too early to tell | Testing of the Tantalus TUNET communications system and data exchange with our billing and settlement systems is ongoing. |
| Energy Audit Program | Yes – H | Yes | Expand with specific incentives for TRC positive initiatives |
| Social & Low Income Housing Program | Yes – M | 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 |
| Residential Load Control | Early indications are Positive | Yes | This program will deliver key summer peak reductions |
| Refrigerator Buy-Back | Too Early to Tell | Too Early to tell | This program can be expanded province wide and could include freezers. |
| **Commercial Institutional and Industrial >5kW** | | | |
| Smart Meter Program | Too early to tell | Too early to tell | |
| Energy Audits and Feasibility Studies | Yes – H | Yes | Customers serious about saving energy and developing a business case use this program as an important first step in developing their business cases. |
| LED Retrofits for Traffic Lights | Too early to tell | Too early to tell | Program relies on the budget and work completed by the Niagara Regional Traffic Control. More work is anticipated in 2006. |
| Leveraging Energy Conservation or Load Mgmt | Too early to tell | Yes | Horizon to evaluate demands for this program in St. Catharines to assess funding requirements in 2006. |
| CI&I Load Control | Too early to tell | Yes | This program will deliver key summer peak reductions. |
| **Distribution Loss** | | | |

| | | | |
|---|---|---|---|
| **Reduction** | | | |
| Distribution Loss Reduction | N – L | No | As a CDM activity voltage conversion fails the TRC test. |
| **Distributed Generation** | | | |
| Load Displacement | Too early to tell | Yes | These programs have considerable potential to encourage new distributed generation as well as to utilize existing generators |
| Standby Generators | Too early to tell | Yes | |
| **Overall Program Support** | | | |
| Program Support Initiatives | Yes | Yes | These activities support all the program areas and assist with marketing and promotion |

# 5. Conclusions

Horizon's efforts were focused on activities that produced results in the first year:

- Customer recognition of the powerWISE brand as it relates to energy.
- Spending on Horizon St. Catharines programs was 14% of the overall budget ($253,000 out of $1.83 million)
- Excellent exposure in the area of smart meter pilot technology testing, residential, social and low income housing, commercial and industrial customer segments
- Horizon anticipates spending the majority of its overall CDM budget in 2006.
- CDM Program development is complex and time consuming but we were able to maximize our results by working with the CLD, which provided a huge advantage in knowledge and resource sharing, efficiency and cost effectiveness.
- A number programs had actual kW and kW results in 2005
- Many projects poised for results in 2006

# Appendix A - Evaluation of the CDM Plan

| | Total | Conservation and Demand Management Residential and Commercial (<50kW) | Conservation and Demand Management Commercial, Industrial and Institutional | Distributed Energy | Distribution Loss Reduction | Program Support |
|---|---|---|---|---|---|---|
| *Net TRC value ($):* | *$197,959* | $197,959 | $0 | $0 | $0 | $0 |
| *Benefit to cost ratio:* | | 5.85 | n/a | n/a | n/a | n/a |
| *Number of participants or units delivered:* | *5,264* | 5,264 | 0 | 0 | 0 | 0 |
| *Total KWh to be saved over the lifecycle of the plan (kWh):* | *4,509,547* | 4,509,547 | 0 | 0 | 0 | 0 |
| *Total in year kWh saved (kWh):* | *586,136* | 586,136 | 0 | 0 | 0 | 0 |
| *Total peak demand saved (Summer kW):* | *25* | 25 | 0 | 0 | 0 | 0 |
| *Total kWh saved as a percentage of total kWh delivered (%):* | *0.13%* | 0.13% | | | | |
| *Peak kW saved as a percentage of LDC peak kW load (%):* | *10%* | 10% | | | | |
| *Gross in year C&DM expenditures ($):* | *$ 252,945* | $225,243 | $3,163 | $283 | $0 | $24,256 |
| *Expenditures per KWh saved ($/kWh)*:* | $ 0.43 | $ 0.38 | n/a | n/a | n/a | n/a |
| *Expenditures per KW saved ($/kW)**:* | $ 10,163.54 | $ 9,050.45 | n/a | n/a | n/a | n/a |

| | |
|---|---|
| *Utility discount rate (%):* | 7.9 |

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

# Appendix B - Discussion of the Program

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

A. **Name of the Program:** Co-branded Mass Market Program

**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.

**Measure(s):**

| | Retailer Program | Cold Water Wash | 'Call to Action Contest' |
|---|---|---|---|
| *Base case technology:* | Incandescent Bulb, Do Nothing | Regular Detergent | Incandescent bulb, standard |
| *Efficient technology:* | Compact fluorescent bulb, LED Christmas Lights, Programmable Thermostat, Indoor Timer, Outdoor Timer, Ceiling Fan and Energuide for Existing Homes | Cold Water Wash Detergent | Compact fluorescent bulb, LED night light and efficient showerhead |
| *Number of participants or units deli* | 3,618 | 141 | 334 |
| *Measure life (years):* | 4,30,18,20,20,20 and 25 | 1 | 4,30 and 12 |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | $ | 205,198 |
| *TRC Costs ($):* | | |
| *Utility program cost (less incentives):* | $ | 5,089 |
| *Participant cost:* | $ | 19,697 |
| *Total TRC costs:* | $ | 24,786 |
| *Net TRC (in year CDN $):* | $ | 180,412 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | $ | 8.28 |

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

**Conservation Programs:**

| | | | |
|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | 24.89 |
| | *Winter* | | 0.00 |
| | | *lifecycle* | *in year* |
| *Energy saved (kWh):* | | 3,872,019 | 463,258 |
| *Other resources saved :* | | | |
| *Natural Gas (m3):* | | | |
| *Other (Water m3):* | | 9812.04 | 817.67 |

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

| | | | |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ | 234 |
| | *Incremental O&M:* | $ | 38,851 |
| | *Incentive:* | $ | - |
| | *Total:* | $ | 39,085 |
| *Utility indirect costs ($):* | *Incremental capital:* | $ | - |
| | *Incremental O&M:* | $ | - |
| | *Total:* | $ | - |
| *Participant costs ($):* | *Incremental equipment:* | $ | - |
| | *Incremental O&M:* | $ | - |
| | *Total:* | $ | - |

E. **Comments:**

**1. powerWISE Brand**
- powerWISE trade mark MOU and powerWISE trade mark licenses were executed between each of Enersource, Horizon, Hydro Ottawa, PowerStream, Toronto Hydro and Veridian with HUC.
- powerWISE is being used extensively by the CLD to brand CLD conservation programs.
- The powerWISE brand has also been translated to Eco-Consummer for French language purposes.
- Interest in the powerWISE/Eco-Consummer brand has been expressed by the Ministry of Energy, the OPA, Hydro One and other utilities.

Next Steps
- Extend the powerWISE brand to the Ministry of Energy, the OPA and Hydro One and other LDC's.

**2. powerWISE Website**
- Since it's launch, powerwise.ca has received 37,000 hits from April 1, 2005 - Dec. 31, 2005.

Next Steps
- Working with the Ministry of Energy continue to develop and promote powerwise.ca

**3. powerWISE Retail Initiative**
- 2.3 million coupons distributed
- At Horizon over 227,000 coupons were distributed
- Up to an estimated $3.8M collective investment in moving the market through this initiative (at 5% coupon take up). Horizon ranked 3rd overall in coupon redemptions, with over 8680 coupons redeemed on purchases that result in over $411k in net TRC value.
- Results and costs of this program were split 75% Hamilton and 25% St.Catharines based on coupon redemptions reported.

Next Steps
- Conclude program and measure success
- Determine next campaign

**4. Switch to Cold Water Wash Coupon Campaign**
- At Horizon over 227,000 coupons were distributed through billing inserts.
- Results and costs of this program were split 75% Hamilton and 25% St.Catharines based on coupon redemptions reported.

Next Steps
- Conclude program and measure success
- Determine next campaign

**5. Kill A Watt Meter Library Loaner Project**
- St. Catharines Public Library Loaned out meters 29 times in 2005.
- This project was launched at the Hamilton Public Library on January 23rd and 24th, 2006 with 2500 - 13 Watt compact fluorescent bulbs given out to library patrons.
- Horizon's staff are able to borrow a Kill A Watt Meter as of March 6, 2006

**Next Steps**
- Extend loaner program to other Horizon affiliates, including City of St. Catharines, City of Hamilton, and Social Housing providers etc.
- Determine next promotion campaign

**6. powerWISE fleet branding**
- 1,113 vehicles to be branded across the province. To date, 100 Horizon vehicles have been branded with energy conservation messages.

Next Steps
- Additional vehicle branding

**7. powerWISE School Based Education Initiative**
- One multimedia theatre edition of the powerWISE home conservation model ordered.
- One powerWISE home conservation portable model ordered.

**Next Steps**
- Prepare multimedia content for powerWISE Home model theatre edition.
- Conduct staff training for use of the powerWISE Home portable model.

**8. Horizon Utilities Website (UPDATE)**
- Since it's launch www.horizonutilities.com has received more than 315,372 visitors.

**Next Steps**
- **Continue to enhance the website with new materials, links and applications.**

**9. Horizon Conservation Champions "Call To Action" Contest**
- Four hundred conservation kits were given out to staff in December 2005.
- 207adult pledge forms received
- 97 kids pledge forms were received.
- 159 self evaluation surveys were returned.

**Next Steps**
- All self evaluation surveys and pledge forms will be entered into a database to produce a report of the results
- Offer of this program to others is to be explored.

**10. Code Green**
- Series production for the CLD is now completed and the program will be aired in 2006

**Next Steps**

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

# Appendix B - Discussion of the Program

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

A. **Name of the Program:** Smart Meter Pilot

**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.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | | | |
| *Efficient technology:* | | | |
| *Number of participants or units deli* | 0 | 0 | 0 |
| *Measure life (years):* | | | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | $ - |
| *TRC Costs ($):* | | |
| | *Utility program cost (less incentives):* | $ - |
| | *Participant cost:* | $ - |
| | *Total TRC costs:* | $ - |
| *Net TRC (in year CDN $):* | | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | #DIV/0! |

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

**Conservation Programs:**

| | | | |
|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | 0.00 |
| | *Winter* | | 0.00 |
| | | *lifecycle* | *in year* |
| *Energy saved (kWh):* | | *0.00* | 0.00 |
| *Other resources saved :* | | | |
| | *Natural Gas (m3):* | | |
| | *Other (specify):* | | |

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

| | | | |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ | 162,932 |
| | *Incremental O&M:* | $ | 7,205 |
| | *Incentive:* | $ | - |
| | *Total:* | $ | 170,137 |
| *Utility indirect costs ($):* | *Incremental capital:* | | |
| | *Incremental O&M:* | | |
| | *Total:* | | |
| *Participant costs ($):* | *Incremental equipment:* | | |
| | *Incremental O&M:* | | |
| | *Total:* | | |

E. **Comments:**

- A Tantalus TUNET system was implemented in St. Catharines with 500 meter points installed in 2005.

**Next Steps**

- Horizon is planning more testing and study of deployment of smart metering in 2006.
- The work management software will be purchased to support the deployment process of smart metering.
- Study of customer electricity usage as it relates to load shifting will be the focus of communications with customers receiving a smart meter.
- Development of our billing software, and web data presentment applications will be undertaken to accommodate smart meter data.

# Appendix B - Discussion of the Program

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

A. **Name of the Program:** Energy Audit and Support

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

Through visits to customers homes or by working through existing service providers, Horizon Utilities will provide conservation information and make specific recommendations for energy savings in such areas as major appliances, lighting, air leakage, hot water, heating and cooling. Incentives may also be provided. Services could be further tailored for specific subsidized housing applications.

**Measure(s):**

| | Powerwise Powerpack | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | Incandescent bulb | | |
| *Efficient technology:* | Compact fluorescent bulb, LED night light | | |
| *Number of participants or units deli* | 1,171 | 0 | 0 |
| *Measure life (years):* | 4 and 30 years | | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | $ | 33,568 |
| *TRC Costs ($):* | | |
| *Utility program cost (less incentives):* | $ | 16,021 |
| *Participant cost:* | $ | - |
| *Total TRC costs:* | $ | 16,021 |
| *Net TRC (in year CDN $):* | $ | 17,547 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | $ | 2.10 |

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

**Conservation Programs:**

| | | | |
|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | 0.00 |
| | *Winter* | | 0.00 |
| | *lifecycle* | | *in year* |
| *Energy saved (kWh):* | 637,528 | | 122,878 |
| *Other resources saved :* | | | |
| *Natural Gas (m3):* | | | |
| *Other (specify):* | | | |

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

| | | | |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ | - |
| | *Incremental O&M:* | $ | 16,021 |
| | *Incentive:* | $ | - |
| | *Total:* | $ | 16,021 |
| *Utility indirect costs ($):* | *Incremental capital:* | $ | - |
| | *Incremental O&M:* | $ | - |
| | *Total:* | $ | - |
| *Participant costs ($):* | *Incremental equipment:* | $ | - |
| | *Incremental O&M:* | $ | - |
| | *Total:* | $ | - |

E. **Comments:**

**powerWISE for Homes – Energy Audit & Self Evaluation Pilot**

- There were 1560 self-evaluation surveys completed by Horizon customers in exchange for the powerWISE power packs, as of Dec. 31, 2005.
- Horizon has given out incentives for over 150 customers to receive the powerWISE for homes and NRGuide home energy audits.

**Next Steps**

- Promotion of this project will continue in 2006 at our community events and home shows.

**powerWISE Energy Conservation Handbook**

- Over 10,000 handbooks have been distributed to date.

**Next Steps**

- Continue to distribute the powerWISE Energy Conservation Handbook at community events in 2006.
- Update the handbook with new energy savings tips as required.

**powerWISE PowerPack**

- Over 1500 powerWISE PowerPacks have been distributed
- The powerWISE PowerPack concept is also used by other members of the CLD in a variety of promotional opportunities

**Next Steps**

- Continue to promote the powerWISE PowerPacks
- Use of a version of the power pack for a paperless ebilling campaign 2nd Qtr 2006
- Use of a version of the power pack for a 2006 fridge bounty project 2nd Qtr 2006

# Appendix B - Discussion of the Program

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

A. **Name of the Program:** Social Housing Program

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

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.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | | | |
| *Efficient technology:* | | | |
| *Number of participants or units deli* | 0 | 0 | 0 |
| *Measure life (years):* | | | |

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | $ - |
| *TRC Costs ($):* | | |
| *Utility program cost (less incentives):* | | $ - |
| *Participant cost:* | | $ - |
| *Total TRC costs:* | | $ - |
| *Net TRC (in year CDN $):* | | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | #DIV/0! |

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

**Conservation Programs:**

| | | | |
|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | 0.00 |
| | *Winter* | | 0.00 |
| | *lifecycle* | | *in year* |
| *Energy saved (kWh):* | *0.00* | | 0.00 |
| *Other resources saved :* | | | |
| *Natural Gas (m3):* | | | |
| *Other (specify):* | | | |

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

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

E. **Comments:**

- Plans for retrofits in 2006 with Niagara Regional Housing Authority were completed.
- Incentive levels for the prescriptive program were established.
- Horizon incented Hamilton Community Housing installation of 36,340 CFL's, 625 water dams, and 450 shower flow restrictors.
- Conducted two pilot energy conservation workshops and shared the format and results with Social Housing Services Corporation. 1XX residents attended the energy conservation workshop.
- Completed design of social housing program complete with incentives to be used as a guideline for 2006 social housing retrofit projects.

**Next Steps**

- Work with Social Housing Service Corporation to ensure program incentives are made available to service providers in Horizon's service area.
- Create funding for a low income housing conservation program.
- Look for opportunities to assist with energy conservation education in the low income housing and social housing.

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

# Appendix B - Discussion of the Program

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

A. **Name of the Program:** Energy Audit and Feasibility Studies

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

A standard energy audit will be developed to assist in completion of audits. As well, a training program tailored to this specific sector will 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. The audit model will be developed, tested and refined in co—operation with partners that will be involved with training, certifications, and management of the process. This standard checklist or procedure will be duplicated where possible.

**Measure(s):**

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

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | $ - |
| *TRC Costs ($):* | | |
| | *Utility program cost (less incentives):* | $ - |
| | *Participant cost:* | $ - |
| | *Total TRC costs:* | $ - |
| *Net TRC (in year CDN $):* | | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | #DIV/0! |

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

**Conservation Programs:**

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

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

| | | | |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ | - |
| | *Incremental O&M:* | $ | 3,163 |
| | *Incentive:* | $ | - |
| | *Total:* | $ | 3,163 |
| *Utility indirect costs ($):* | *Incremental capital:* | $ | - |
| | *Incremental O&M:* | $ | - |
| | *Total:* | $ | - |
| *Participant costs ($):* | *Incremental equipment:* | $ | - |
| | *Incremental O&M:* | $ | - |
| | *Total:* | $ | - |

E. **Comments:**

- The powerWISE Energy Audit Incentive program forms hit the Horizon website in October or 2005.
- Horizon participated in a request for proposal for Energy Audit Services with the NEPPA utilities. Presentations from Energy Audit Companies were received at a meeting held with the NEPPA members in August of 2005
- Energy Audit applications were approved for TRW Automotive in St. Catharines, and Mohawk College in Hamilton.
- Another 11 application enquiries have been received to date.

**Next Steps**

- Work with customers enquiring about energy audit incentives to complete their applications.
- Work with energy auditors to ensure that applications for any eligible energy audit projects in Horizon's service territory are being submitted.
- Receive results and recommendations from the energy audits conducted at Horizon's four main work centres.

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

# Appendix B - Discussion of the Program

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

A. **Name of the Program:** Commercial, Industrial and Institutional Smart Meter Program

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

Horizon Utilities 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 Board.

**Measure(s):**

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

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | $ - |
| *TRC Costs ($):* | | |
| | *Utility program cost (less incentives):* | $ - |
| | *Participant cost:* | $ - |
| | *Total TRC costs:* | $ - |
| *Net TRC (in year CDN $):* | | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | #DIV/0! |

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

**Conservation Programs:**

| | | | |
|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | 0.00 |
| | *Winter* | | 0.00 |
| | | *lifecycle* | *in year* |
| *Energy saved (kWh):* | | *0.00* | 0.00 |
| *Other resources saved :* | | | |
| | *Natural Gas (m3):* | | |
| | *Other (specify):* | | |

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

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

E. **Comments:**

- Installation of interval metering was performed at all Horizon's, four work centres.

**Next Steps**

- Horizon is in the process of revising the conditions of service document to reflect the requirement of interval metering >50kw.
- Seek standardization on the charging of communication costs for interval metering with the CLD group and OEB.
- Continue to investigate cost effective communication systems for interval metered customers.

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

# Appendix B - Discussion of the Program

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

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

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

This initiative involves replacing traffic signals at intersections to light-emitting diode (LED) technology, which is now fairly common in many U.S. municipalities.

**Measure(s):**

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

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | $ - |
| *TRC Costs ($):* | | |
| | *Utility program cost (less incentives):* | $ - |
| | *Participant cost:* | $ - |
| | *Total TRC costs:* | $ - |
| *Net TRC (in year CDN $):* | | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | #DIV/0! |

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

**Conservation Programs:**

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

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

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

# Appendix B - Discussion of the Program

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

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

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

This initiative involves replacing traffic signals at intersections to light-emitting diode (LED) technology, which is now fairly common in many U.S. municipalities.

**Measure(s):**

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

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | $ - |
| *TRC Costs ($):* | | |
| | *Utility program cost (less incentives):* | $ - |
| | *Participant cost:* | $ - |
| | *Total TRC costs:* | $ - |
| *Net TRC (in year CDN $):* | | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | #DIV/0! |

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

**Conservation Programs:**

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

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

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

**E. Comments:**

- Regional Niagara Traffic Control have not reported the 2005 LED retrofit or replacement of fixtures performed as a requirement to become eligible for the incentives offered by Horizon.
- Target of $150/kW in reduced demand was established as an incentive or 25% of the capital cost of an LED fixture.

**Next Steps**

- The Regional Niagara is to report fixtures replaced along with supporting reduced electrical demand and consumption calculations for each location.
- Horizon will verify the installations upon completion and process the request for incentives.
- Regional Niagara Traffic Control will be submitting results of the 2006 installations.

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

# Appendix B - Discussion of the Program

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

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

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

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 recom

**Measure(s):**

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

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | $ - |
| *TRC Costs ($):* | | |
| | *Utility program cost (less incentives):* | $ - |
| | *Participant cost:* | $ - |
| | *Total TRC costs:* | $ - |
| *Net TRC (in year CDN $):* | | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | #DIV/0! |

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

**Conservation Programs:**

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

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

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

**E. Comments:**

- This program was launched in October 2005
- There have been no incentives paid to St. Catharines customers through this program to date.
- 5 project applications have been received to date and 2 enquiries.
- Savings from these projects are expected to reach 92 kW of demand and 224,338 kWh's of consumption.

**Next Steps**

- Horizon to evaluate the potential of this program for its St. Catharines customers and make CDM plan changes accordingly.
- Horizon to continue to promote this program to customers and leverage Energy Audit Companies to bring forward St. Catharines project applications.

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

# Appendix B - Discussion of the Program

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

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

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

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.

**Measure(s):**

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

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | $ - |
| *TRC Costs ($):* | | |
| | *Utility program cost (less incentives):* | $ - |
| | *Participant cost:* | $ - |
| | *Total TRC costs:* | $ - |
| *Net TRC (in year CDN $):* | | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | #DIV/0! |

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

**Conservation Programs:**

| | | | |
|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | 0.00 |
| | *Winter* | | 0.00 |
| | | *lifecycle* | *in year* |
| *Energy saved (kWh):* | | *0.00* | 0.00 |
| *Other resources saved :* | | | |
| | *Natural Gas (m3):* | | |
| | *Other (specify):* | | |

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

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

E. **Comments:**

- Selection of load control program marketing and implementation services has been completed.

**Next Steps**

- An integrator will be contracted in Q2 2006
- An RFP for control equipment will be issued and awarded in Q2 2006
- Customers will be canvassed to sign up for the program in Q2 2006

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

# Appendix B - Discussion of the Program

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

A. **Name of the Program:** Load Displacement Program

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

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.

**Measure(s):**

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

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | $ - |
| *TRC Costs ($):* | | |
| | *Utility program cost (less incentives):* | $ - |
| | *Participant cost:* | $ - |
| | *Total TRC costs:* | $ - |
| *Net TRC (in year CDN $):* | | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | #DIV/0! |

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

**Conservation Programs:**

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

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

| | | |
|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ - |
| | *Incremental O&M:* | $ 283 |
| | *Incentive:* | $ - |
| | *Total:* | $ 283 |
| *Utility indirect costs ($):* | *Incremental capital:* | $ - |
| | *Incremental O&M:* | $ - |
| | *Total:* | $ - |
| *Participant costs ($):* | *Incremental equipment:* | $ - |
| | *Incremental O&M:* | $ - |
| | *Total:* | $ - |

E. **Comments:**

- No projects or installation activities have been undertaken to date.

**Next Steps**

- An RFP for Horizon Standby generation will be issued in 2nd Quarter 2006.
- Horizon will develop an incentive for residential, commercial, industrial, and institutional customer load displacement projects.

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

# Appendix B - Discussion of the Program

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

A. **Name of the Program:** Load Displacement Program

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

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.

**Measure(s):**

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

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | $ - |
| *TRC Costs ($):* | | |
| | *Utility program cost (less incentives):* | $ - |
| | *Participant cost:* | $ - |
| | *Total TRC costs:* | $ - |
| *Net TRC (in year CDN $):* | | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | #DIV/0! |

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

**Conservation Programs:**

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

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

| | | | |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ | - |
| | *Incremental O&M:* | $ | 283 |
| | *Incentive:* | $ | - |
| | *Total:* | $ | 283 |
| *Utility indirect costs ($):* | *Incremental capital:* | $ | - |
| | *Incremental O&M:* | $ | - |
| | *Total:* | $ | - |
| *Participant costs ($):* | *Incremental equipment:* | $ | - |
| | *Incremental O&M:* | $ | - |
| | *Total:* | $ | - |

E. **Comments:**

- No projects or installation activities have been undertaken to date.

**Next Steps**

- An RFP for Horizon Standby generation will be issued in 2nd Quarter 2006.
- Horizon will develop an incentive for residential, commercial, industrial, and institutional customer load displacement projects.

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

# Appendix B - Discussion of the Program

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

A. **Name of the Program:** Portfolio Administration

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

**Measure(s):**

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

B. **TRC Results:**

| | | |
|---|---|---|
| *TRC Benefits ($):* | | $ - |
| *TRC Costs ($):* | | |
| | *Utility program cost (less incentives):* | $ - |
| | *Participant cost:* | $ - |
| | *Total TRC costs:* | $ - |
| *Net TRC (in year CDN $):* | | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | #DIV/0! |

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

**Conservation Programs:**

| | | | |
|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | 0.00 |
| | *Winter* | | 0.00 |
| | | *lifecycle* | *in year* |
| *Energy saved (kWh):* | | *0.00* | 0.00 |
| *Other resources saved :* | | | |
| | *Natural Gas (m3):* | | |
| | *Other (specify):* | | |

**Demand Management Programs:**

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

**Demand Response Programs:**

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

**Power Factor Correction Programs:**

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

**Line Loss Reduction Programs:**

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

**Distributed Generation and Load Displacement Programs:**

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

**Other Programs (specify):**

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

D. **Program Costs*:**

| | | |
|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | $ - |
| | *Incremental O&M:* | $ - |
| | *Incentive:* | $ - |
| | *Total:* | $ - |
| *Utility indirect costs ($):* | *Incremental capital:* | $ - |
| | *Incremental O&M:* | $ 24,256 |
| | *Total:* | $ 24,256 |
| *Participant costs ($):* | *Incremental equipment:* | $ - |
| | *Incremental O&M:* | $ - |
| | *Total:* | $ - |

**E. Comments:**

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

| | | TRC Net Benefits, $ | TRC Benefits, $ | TRC Costs, $ | Benefit / Cost Ratio | kWh saved in 2005 | kWh saved over life of measure | Peak demand saved (kW) | Utility Costs | SSM |
|---|---|---|---|---|---|---|---|---|---|---|
| **Residential and Small Commercial (<50kW)** | | | | | | | | | | |
| | Mass Market | $ 180,412 | $ 205,198 | $ 24,786 | 8.28 | $ 463,258 | $ 3,872,019 | $ 25 | $ 39,085 | $ 9,021 |
| | SMART Meter | $ - | $ - | $ - | #DIV/0! | $ - | $ - | $ - | $ 170,137 | $ - |
| | Energy Audit | $ 17,547 | $ 33,568 | $ 16,021 | 2.10 | $ 122,878 | $ 637,528 | $ - | $ 16,021 | $ 877 |
| | | **$ 197,959** | **$ 238,766** | **$ 40,807** | **5.85** | **586,136** | **4,509,547** | **25** | **$ 225,243** | **$ 9,898** |
| **Commercial, Industrial and Institutional** | | | | | | | | | | |
| | SMART Meter | $ - | $ - | $ - | #DIV/0! | $ - | $ - | $ - | $ - | $ - |
| | Energy Audit & Feasibility Studie | $ - | $ - | $ - | #DIV/0! | $ - | $ - | $ - | $ 3,163 | $ - |
| | LED Traffic Lights | $ - | $ - | $ - | #DIV/0! | $ - | $ - | $ - | $ - | $ - |
| | Leveraging Energy Conservation | $ - | $ - | $ - | #DIV/0! | $ - | $ - | $ - | $ - | |
| | Load Control | $ - | $ - | $ - | #DIV/0! | $ - | $ - | $ - | $ - | $ - |
| | | $ - | $ - | $ - | **#DIV/0!** | - | - | - | **$ 3,163** | $ - |
| **Distributed Energy** | | | | | | | | | | |
| | Distibuted Energy | $ - | $ - | $ - | #DIV/0! | $ - | $ - | $ - | $ 283 | $ - |
| | | $ - | $ - | $ - | **#DIV/0!** | - | - | - | **$ 283** | $ - |
| **Distribution Loss Reduction** | | | | | | | | | | |
| | Distribution Loss Reduction | $ - | $ - | $ - | #DIV/0! | $ - | $ - | $ - | $ - | $ - |
| | | $ - | $ - | $ - | **#DIV/0!** | - | - | - | $ - | $ - |
| **Overall Program Support** | | | | | | | | | | |
| | Portfolio Administration | $ - | $ - | $ - | #DIV/0! | $ - | $ - | $ - | $ 24,256 | $ - |
| | | $ - | $ - | $ - | **#DIV/0!** | - | - | - | **$ 24,256** | $ - |
| | | | | | | | | | | |
| **Total** | | **$ 197,959** | **$ 238,766** | **$ 40,807** | **5.85** | **586,136** | **4,509,547** | **25** | **$ 252,945** | **$ 9,898** |