toronto hydro
electric system

Toronto Hydro-Electric System Limited

Conservation and Demand Management

2005 Annual Report

Ontario Energy Board File No. RP-2004-0203/EB-2004-0485

March 31, 2006

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1. Introduction

On December 10, 2004 the Ontario Energy Board ("Board") issued its oral decision in the RP-2004-0203 proceeding, with respect to six (6) applications filed by the Coalition of Large Distributors ("CLD") comprising Enersource Hydro Mississauga, Horizon Utilities Corporation, Hydro Ottawa Limited, PowerStream Inc., Toronto Hydro-Electric System Limited and Veridian Connections. This report is a requirement of that decision. In respect of the application filed by Toronto Hydro-Electric System Limited ("Toronto Hydro"), the Board issued its Final Order on February 3, 2005 under docket number RP-2004-0203 / EB-2004-0485.

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 fully the requirements. This report has been prepared in accordance with those guidelines.

The first full year of Conservation and Demand Management was successful for Toronto Hydro. Collaborative efforts with the Coalition of Large Distributors allowed us to launch many initiatives in a similar manner. Programs and initiatives were developed to engage employees, stakeholders, and all customer classes of electricity users within Toronto Hydro's boundaries. The key thrusts of our program were to reduce the summer peak demand and help promote a conservation culture in Ontario. Highlights from 2005 include:

- Worked with Coalition partners to launch the powerWISE brand and a number of related initiatives.
- Development of a "matrix" organization within Toronto Hydro whereby existing staff were tasked to develop programs and projects through partnerships with customers
- Developed a governance structure to manage project evaluations, approvals, status tracking and results monitoring and verification.
- Developed an internal demand reduction target of 250MW which is 5% of Toronto Hydro's 2007 peak summer demand and determined a maximum CDM incentive rate of $160 per kW.
- By the end of 2005, had committed through contracts with partners, 137MW of peak demand reductions.
- Through the very successful Home Depot project, distributed approximately 500,000 CFL light bulbs and removed over 5,000 old room air conditioners from service.
- Through the "Fridge Unplugged" program, removed more than 2,000 old, second refrigerators from service.
- Developed the peakSAVER system to manage air conditioning load during summer peak demand periods.
- Provided incentives to extend the Enwave deep lake water cooling technology to additional buildings in the downtown core.
- Working with large customers, installed equipment to allow standby generators to be available for dispatch during summer peak load periods.

These programs, and many others are explained further in this report.

Please note that as a result of the first year of experience in CDM, we are proposing to do the following program budget adjustments:

	As Approved by OEB in Final Order			Proposed Adjustments			
Program	**Opex Budget**	**Capex Budget**	**Total Budget**	**Opex Spend**	**Capex Spend**	**Total Spend**	
Co - branded Mass Market	2,700,000	0	2,700,000	3,000,000	0	3,000,000	(1)
SMART Meter Pilot - Resl	900,000	3,100,000	4,000,000	-595,000	-707,000	-1,302,000	(1)
Design Advisory Program - Resl	450,000	0	450,000	-450,000	0	-450,000	(2)
Residential Load Control	600,000	12,670,000	13,270,000	249,000	-3,849,000	-3,600,000	(3)
TAPS Program	1,311,000	0	1,311,000	0	0	0	
Refrigerator Buy-back	1,100,000	0	1,100,000	-756,000	0	-756,000	(4)
Social Housing Program	1,215,000	0	1,215,000	0	0	0	
SMART Meter Pilot - CI	0	800,000	800,000	37,000	-590,000	-553,000	(1)
LED Retrofits for Traffic Lights	450,000	0	450,000	0	0	0	
Leveraging CI Programs	990,000	0	990,000	1,773,000	282,000	2,055,000	(1)
CI Load Control	0	130,000	130,000	1,444,000	0	1,444,000	(1)
Energy Audits & Feasibility Studies	270,000	0	270,000	-252,000	0	-252,000	(5)
Design Advisory Program - CI	1,311,000	0	1,311,000	0	0	0	
Distribution Loss Reduction	960,000	309,000	1,269,000	-811,000	116,000	-695,000	(6)
Load Displacement	960,000	2,400,000	3,360,000	0	0	0	
Standby Generators	1,540,000	5,100,000	6,640,000	0	0	0	
Overall Program Support	288,000	200,000	488,000	1,109,000	0	1,109,000	(1)
Total	**15,045,000**	**24,709,000**	**39,754,000**	**4,748,000**	**-4,748,000**	**0**	
					Total Transfers: $7,608,000		

Notes:

(1) Spending capped at 2005 actual results plus 2006 projection
(2) To be combined with Design Advisory Program -CI
(3) To be reviewed in 2006 CDM Annual Report
(4) Program completed
(5) Program discontinued
(6) Redirected to power diversion projects for 2006 and 2007

2. Evaluation of the CDM Plan

Refer to Appendix A for an evaluation of Toronto Hydro'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 Toronto Hydro during 2005 related to program development. A number of the programs initiated in 2005 will not yield measurable kWh consumption and kW demand savings until 2006 and beyond. Therefore, the cost benefit analysis presented does not accurately reflect the effectiveness of Toronto Hydro's CDM expenditures.

Furthermore, some components of Toronto Hydro's CDM plan relate to the deployment of SMART meters, which was undertaken to support Provincial government policy direction. The impact of SMART meters on kWh consumption or kW demand has not yet been assessed. This further impacts the cost benefit analysis in Appendix A.

3. Discussion of the Programs

Residential and Small Commercial (< 50 kW)

Co-branded Mass Market Program

Description

This flagship co-branded mass-market program (powerWISE) is a multifaceted approach to fostering the conservation culture in Ontario. Through development of a significant cooperative effort among six of the largest municipal LDCs, this program is becoming synonymous with initiatives such as Compact Fluorescent Lighting (CFL) change-out programs, LED Holiday Light exchanges, energy audits, hot water heater blanket wraps, school based education and a host of other programs aimed at providing customers with the tools and education needed to reduce their energy usage. Access to online services such as energy consumption calculators, an energy expert, and personalized energy audit services are components of this program.

Target users

Mass-market including residential, commercial and industrial.

Benefits

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

Discussion of 2005 Activities

The Home Depot Inc.

Action

- In April 2005, Toronto Hydro launched the Spring CFL Coupon campaign at twelve of the Home Depot stores in Toronto, where Toronto Hydro customers could get two CFL bulbs for the price of one.
- Together with Home Depot, the Clean Air Foundation, the City of Toronto, the Ministry of Environment and Total Home Comfort, Toronto Hydro kicked off the Room Air Conditioner (RAC) Recycling Program in June 2005. In this very first program of its type in Toronto, Toronto Hydro customers could bring in an old, working RAC for re-cycling and get a $25 Home Depot gift card.
- In the Fall of 2005, Toronto Hydro, Home Depot and Philips started the Bright Ideas CFL Program. Under the program, Toronto Hydro customers could get two free CFL bulbs.
- Along with Home Depot and Holiday Creations, Toronto Hydro launched the SLED Holiday Lights Program, where one old string of traditional holiday lights could be exchanged for a $7 voucher toward the purchase of energy efficient LED lights.

Results

- 495,106 CFL bulbs were distributed along with instructions on their best use.
- 5,195 old, energy-inefficient room air conditioners were removed from service and recycled.
- 18,233 traditional strings of holiday lights were removed from service and 84,821 energy efficient SLEDs were purchased.
- Peak demand reductions for the Home Depot program in 2005 were: 21,547 kW (as contracted) and 3,231 kW (per TRC Guide).
- Annual energy savings in 2005 were: 29,363,757 kWh (as contracted) and 50,318,813 kWh (per TRC Guide).

Next Steps

- Continue to work with Home Depot on a contracted conservation projects.
- A multi-retailer conservation campaign with the CLD partners.

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 in the spirit of co-operation, the team recommended that we start with an Memorandum of Understanding (MOU) and a sub-license agreement and then based on the direction that the CLD CEOs determined over time, we would either continue the way we were, 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 HUC each of Enersource, Horizon, Hydro Ottawa, PowerStream, Toronto Hydro and Veridian.
- powerWISE brand launched April 1, 2005
- powerWISE is being used extensively by the CLD to brand CLD conservation programs.
- The powerWISE brand has also been translated to Eco-Consumer for French language purposes

- Interest in the powerWISE/Eco-Consumer 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 LDCs.

powerWISE Website

Action

- The powerWISE website www.powerwise.ca was jointly developed and announced on April 1, 2005.
- This website provides one common location for general electricity conservation information and useful industry links.
- Links have also been provided for customers to reach their CLD member's home website for specific local program information.

Results to Date

- From April 1 to December 31, 2005 the powerWISE website has received over 37,000 visitors.

Next Steps

- Continue to develop and promote www.powerwise.ca in conjunction with the Ministry of Energy.
- Continue to improve and enhance the website with new materials and applications.

powerWISE Fleet Branding

Action

- On Nov 3, 2005 the CLD announced the Fleet Branding Program
- Conservation messages under the powerWISE brand were applied to LDC vehicles to increase conservation messaging to the mass market

Results to Date

- 501 Toronto Hydro vehicles have been branded

Next Steps

- Additional vehicle branding planned for 2006

CFL Exchange – Community Events

Action

- The initiative consisted of hosting or participating in CFL light exchanges at community events. Our participation was typically at the request of key energy stakeholders or City Councilors.
- For every 60W incandescent bulb brought to the event, the Toronto Hydro customer would receive 1-13W CFL.
- 2,000 CFLs were purchased and distributed by Toronto Hydro.

Results to Date

- 2,000 60W incandescent bulbs exchanged for 13W CFLs.

- Peak demand reductions for 2005 were: 94kW (as contracted) and 0kW (per TRC Guide).
- Annual energy savings in 2005 were: 196,272kWh (as contracted and per TRC Guide).

Next Steps

- Similar community events will be scheduled and held at various locations in Toronto in 2006 and 2007.

SLED Light Exchange - TABIA

Action

- Toronto Hydro contracted the Toronto Association of Business Improvement Areas (TABIA) as a CDM Partner to deliver eleven events in November and December, 2005, throughout the City of Toronto during the Neighborhood Lighting Ceremony, in conjunction with the Toronto Cavalcade of Lights.
- Toronto Hydro Customers were invited to attend an event and exchange two old sets of incandescent holiday lights for one new set of SLEDs.
- Customers were also given energy efficiency educational information from Toronto Hydro and a coupon from **Home Hardware** for a discount on additional SLEDs.

Results to Date

- 7,718 sets of incandescent holiday lights were turned in.
- 3,859 sets of SLEDs were distributed over the events.
- Close to 4,000 Toronto Hydro customers participated.
- Over 4,000 Home Hardware Coupons were distributed to Toronto Hydro customers.
- Peak demand reductions for 2005 were: 754kW (as contracted) and 0kW (per TRC Guide).
- Annual energy savings in 2005 were: 45,818 kWh (as contracted and per TRC Guide).

Next Steps

- A similar exchange event is planned for 2006.

SLED Light Exchange – Non TABIA

Action

- SLED light exchanges were held at employee events and various community events outside of the major TABIA SLED exchange initiative.
- For every string of traditional holiday lights, the customer would receive one string of SLEDs.
- A total 2,000 strings of SLEDs were purchased.

Results to Date

- 2,000 strings of traditional holiday lights were brought in and exchanged for 2,000 strings of SLEDs.
- Peak demand reductions for 2005 were: 168kW (as contracted) and 0kW (per TRC Guide).

- Annual energy savings in 2005 were: 23,753 kWh (as contracted and per TRC Guide).

Next Steps

- A similar SLED exchange event is planned for 2006.

Smart Home Energy Program Pilot

Action

- The pilot program that we entered into with Greensaver, consisted of:
  - A pre-booked in home audit;
  - A report that includes energy-saving lifestyle tips as well as recommendations for appliance or other upgrades;
  - A book of available discounts;
  - Four CFLs;
  - A blower door test, where possible;
  - Referral list of preferred contractors.

Results to Date

- The pilot was launched in November 2004.
- The program was suspended in 2005 after about 400 homes were audited due to the issues related to the upfront cost of advertising/marketing, and foreseen difficulty in determining the exact kW and kWh results that would be achieved.

Next Steps

- The program will be re-evaluated to determine if other players (e.g. OPA, Province, NRCan, etc.) would participate to help absorb some of the program costs.

powerWise Brochures

Action

- The project was intended to educate and provide actionable information to encourage behavioural changes through educational materials to be made available at various public events.
- Two kinds of brochures were created, one for Summer energy saving tips and the other for the Fall and Winter season.

Results to Date

- In total 180,000 brochures were produced and delivered in 2005.
- There were no specific kW or kWh reductions associated with this project, but it was considered to aid in the creation of a conservation culture.

Next Steps

- Similar brochure distributions are planned for 2006 and 2007.

Code Green – TV Show

Action

- This initiative consists of sponsoring a six-part educational mini-series featuring the retrofit of twelve homes from across the country. Contestants would be given

$15,000 each and compete against one another to renovate their homes in an effort to create the greatest savings in energy consumption and the greatest reduction in greenhouse gas emissions.

Results to Date

- Production is underway and the program will be aired in 2006.
- There are minimal kW or kWh reductions associated with this project for Toronto, but it is considered to aid in the creation of a conservation culture.

Next Steps

- Ensure that program is delivered.

Window Posters

Action

- The project was intended to educate and provide actionable information to encourage behavioural changes through placement of energy efficient tips on posters in the Toronto Hydro Head Office windows at 14 Carlton Street, a high foot/vehicle traffic area.

Results to Date

- Ten posters, with four on a seasonal rotation, were placed in the windows of the building. The posters feature THESL logos along with the conservation tips.

Next Steps

- Continue to refresh posters during 2006 and 2007.

'Switch to Cold' Coupon Campaign

Action

- Participated in the fall 2005 'Switch to Cold' coupon campaign, through which discount coupons redeemable on the purchase of cold-water wash detergent were distributed to customers as bill inserts. Switch to Cold is a national consumer awareness campaign, created by the Canadian Energy Efficiency Alliance to educate Canadians about how much energy and money they can save by switching to cold water washing.

Results to Date

- Discount coupons were distributed to Toronto Hydro customers during the fall of 2005. The coupons were valid until the end of February 2006, therefore, data regarding redemption rates and attributed kWh and kW demand savings will not be available until spring 2006.

Next Steps

- Further opportunities to promote cold-water washing are being contemplated in the context of a pending 2006 water heater tune-up program.

Coolshops

Action

- Contracted the Clean Air Foundation to conduct lighting audits and deliver energy savings advice to small commercial businesses.
- Cool Shops flyers were distributed to the targeted businesses.
- Television and print media coverage included CTV, CBC Canada Now, CBC Le Telejournal and Globe and Mail.

Results to Date

- Audits conducted.
- CFLs installed
- Detailed Database created to be mined for programs in 2006
- Some companies purchased additional products through the program

Next Steps

- Use the 2005 results database to target customers for the 2006 campaigns
- Include 2005 customer follow up in the 2006 campaign
- Modify customer contact process to allow Toronto Hydro to pre-qualify customers and schedule appointments for the 2006 campaign
- Enhance product offering for 2006
- Improve the recruiting and training of Coolshops agents

SMART Meter Pilot Programs

Description:

Pilot programs for residential SMART meters were completed to assess the metering, communications, settlement, load control and other technologies that could be used to accommodate the wider 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.

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 Toronto Hydro 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 reduce or shift energy use.

Description of 2005 Activities

SMART Meters – Itron Pilot

Action

- The purpose of this pilot program was to test the Itron Fixed Network SMART metering technology, with respect to meter functionality and communications performance, to determine if it would be a viable option for deployment at Toronto Hydro.
- The technology uses collectors to retrieve metering data from the meters over a fixed network and sends data to computers for analysis.
- The project was completed successfully in 2005.

Results to Date

- 500 SMART meters were installed by the end of 2005.
- No kW or kWh savings were identified.

Next Steps

- Further SMART meter installations will be part of large scale program.

SMART Meters – Elster Pilot

Action

- The purpose of the pilot was to test the Elster MeshNetwork SMART metering technology, with respect to meter functionality and communications performance, to determine if it would be a viable option for deployment at Toronto Hydro.
- In contrast to the Itron Fixed Network technology, the Elster MeshNetwork system collects data over a network that employs the meters themselves as part of a so-called “mesh network”. The data collectors retrieve meter data from the meters over the mesh network.
- The project was completed successfully in 2005.

Results to Date

- 8,500 SMART meters were installed by the end of 2005.

Next Steps

- Further SMART meter installations will be part of large scale program.

Design Advisory Program

Description

This initiative helps to create an integrated approach to the design process for new buildings, and involves architects, engineers, building owners and THESL design advisors, with the goal of creating more energy efficient buildings.

Target users

Residential and small commercial customers.

Benefits

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

Action

- The emphasis in 2005 was to establish a Design Advisory Program in the Commercial, Industrial and Institutional Sector.

Results to Date

- No results for below 50kW sector.

Next Steps

- Determine if a Design Advisory Program is viable for the residential and small commercial sector.

Residential Load Control Initiative

Description

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

Target users

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 reduces the need to bring on large peaking generators.

Description of 2005 Activities

Elenchus Avoided Cost Study

Action
- Toronto Hydro hired Elenchus Research Associates to conduct a study to determine avoided distribution costs.

Results to Date
- Elenchus submitted the report in 2005.
- The distribution rates are somewhat higher than those specified in the Navigant Study.

Next Steps
- TRC analysis uses the Navigant Study values to be consistent with OEB guidelines.

Residential Load Control (Hydro One)

Action
- This residential load control pilot project was carried out in conjunction with Hydro One to determine the effectiveness of directly controlling customers' interruptible loads such as water heaters, air-conditioning, pool pumps, etc.
- Hydro One was the project prime. Toronto Hydro participation included about 150 customers.

Results to Date
- Customers had equipment installed by the Fall of 2004.
- A full set of performance data was collected in January 2005.

Next Steps

- Information from the pilot was considered in the design of peakSAVER.

Demand Response Consultant Study

Action

- A consultant, Goodcents Inc. was hired to review Toronto Hydro customer demographics in order to:
  1. Verify/analyze kW per customer
  2. Verify cost per kW
  3. Verify customer enrolment and total MW targets
  4. Determine the target customer groups that will yield the most kW in marketing efforts.

Results to Date

- Identified 186,000 air conditioner locations and the expected peak reductions.

Next Steps

- This study established the foundation for the peakSAVER project.

Direct Load Control – peakSAVER Pilot Project

Action

- The project involved Direct Load Management Program deployment in terms of marketing, system implementation, air conditioner control device installation, work management, and system operation, for about 4,000 customers.
- The limited deployment would serve three purposes:
  - To enable us to mitigate the full program deployment risk by allowing the various issues to be worked out in a project small enough to be fully controlled;
  - To allow us to better determine the full program costs and the feasibility of the program targets;
  - To establish a fairly significant level of DR capacity.
- The program, branded as “peakSAVER” progressed with response from the customers exceeding the original expectations.
- In order to continue to meet the need of the customers, it is necessary to triple the original target number of signups. The incremental cost would be two thirds of the estimated cost of the original project.

Results to Date

- More than 2,500 customers enrolled by the end of 2005.
- Approximately 3,400 customers were enrolled by early 2006.
- The installation of load control devices is in good progress in early 2006.

Next Steps

- Greater deployment in 2006 and 2007.
- Program expanding to CLD and beyond.

Residential Load Control – System Modifications For TOU Rates

Action

- Time-of-Use (TOU) rates structures have been mandated by the OEB as part of the roll-out of SMART Meters.
- Toronto Hydro's billing/settlement systems needed to be modified to support the TOU rates structure.
- TOU rates were also needed to assess the impact of load control initiatives.

Results to Date

- Modifications complete.

Next Steps

- Technology will be utilized in wider installation of SMART meters.

CLD Residential Load Control Initiative

Action

- Toronto Hydro is participating with other CLD members in the design and implementation of a Load Control program targeting residential and small commercial customers' central air conditioners with outside condensers.
- In addition to central air conditioners, customers with electric water heaters and/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.

Results to Date

- Results are expected in Q3 of 2006

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
- Installations will take place thereafter

TAPS Program

Description

This initiative is a partnership with Enbridge on their highly successful TAPS program. Enbridge is distributing CFLs and installing energy savings measures in homes that they would not normally consider (i.e. homes with electric water heaters and electric heating).

Target users

Residential customers

Benefits

This program is simple in concept and highly effective, since CFLs use 75% less energy than incandescent bulbs and fit into standard sockets. Although a single change-out makes a very small difference, wide-scale use of CFLs has a significant impact.

Description of 2005 Activities

Enbridge - TAPS

Action

- In June 2005, Toronto Hydro contracted Enbridge Gas Distribution Inc. to deliver efficient showerheads and CFL bulbs to TH customers.
- From August on, the subcontractors of Enbridge visited customers' residences and performed the following services:
  - Install pipe wrap on water heater lines
  - Conduct test to determine if showerheads are already low-flow
  - Replace up to two showerheads
  - Provide home owner with two faucet aerators
  - Drop off four CFL bulbs
  - Install programmable thermostat (for low income customer only)
  - Provide literature with energy efficiency tips

Results to Date

- 7,821 homes were visited.
- 595 efficient showerheads and 6 programmable thermostats were installed.
- 31,284 CFL bulbs were dropped off.
- Peak demand reductions for the TAPS program in 2005 were: 1,559 kW (as contracted) and 26 kW (per TRC Guide).
- Annual energy savings in 2005 were: 3,098,519 kWh (as contracted) and 3,504,513 kWh (per TRC Guide).

Next Steps

- Continue the program with Enbridge in 2006 and 2007.

Refrigerator Buy-Back Program

Description:

The program targeted the return of old inefficient refrigerators. These so called "beer fridges" in the basements or garages of many homes use significant amounts of electricity.

Target users

Residential customers.

Benefits

A reduction in both demand and consumption due to the removal of inefficient appliances.

Description of 2005 Activities

Refrigerator Bounty Program

Action

- Toronto Hydro entered into a contract with 1-800-Got-Junk Inc. and kicked off the program in October, 2005.
- Various marketing programs were run, such as newspaper advertising and flyer drops.
- A subcontractor was used to dispose and decommission the old refrigerators in an environmentally friendly way.
- Each customer was provided with a "Power Pac" (a gift bag that contained approximately $25 of energy efficient products and energy conservation information).

Results to Date

- 1,978 homes were visited, 2,072 fridges collected (1,977 of them were in working condition) and 1,970 Power Pacs distributed.
- Each customer saved up to $150 per year by removing their old fridges.
- Peak demand reductions for 2005 were: 484 kW (as contracted and per TRC Guide).
- Annual energy savings in 2005 were: 2,876,059 kWh (as contracted and per TRC Guide).

Next Steps

- A second program is being considered.

Social Housing Program

Description

Due to funding constraints and high incidences of electric heating, the Social Housing Sector is a prime candidate for CDM incentives.

Target users

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

Benefits

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

Description of 2005 Activities

Toronto Community Housing Corp.

Action

- On December 9, 2005, an agreement was signed between Toronto Hydro and Toronto Community Housing Corp. (TCHC), in which TCHC agreed to implement an Appliance Replacement Program and a Building Renewal Program.
- For the Appliance Replacement Program, a total of 14,746 old, inefficient appliances are set to be replaced in 2006, and 14,430 in 2007.
- For the Building Renewal Program, a target demand reduction of 3,538.5 kW was set, coming from both lighting retrofits and appliance replacement.

Results to Date

- Result will be achieved starting in January 2006.

Next Steps

- Monitor projects for delivery of results.

Social Housing Services Corporation

Action

- A pilot program was developed with Social Housing Services Corporation for energy efficiency retrofits of six buildings in Toronto.

Results to Date

- Results will be achieved in January 2006.

Next Steps

- Monitor projects for delivery of results and review feasibility of a larger program with Social Housing Services Corporation.

Commercial, Industrial and Institutional (> 50 kW)

SMART Meters

Description:

Toronto Hydro made an investment to study the use of SMART or interval meters by commercial, industrial and institutional customers.

Target users

Large commercial, industrial and institutional customers.

Benefits

This program supports the Minister of Energy's commitment to the installation of 800,000 SMART meters across Ontario by 2010. 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.

Description of 2005 Activities

SMART Meters – SmartSynch & Nertec

Action

- SmartSynch technology was implemented successfully. The technology uses GPRS (cell phone technology) and pager network to communicate with SMART meters.

Results to Date

- Ten Smartsynch SMART meters were installed in 2005.

Next Steps

- Proceed with further Nertec SMART meters installation in 2006.

LED Traffic Signals

Description:

This initiative involves replacing traffic signals at intersections with 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 (LEDs last longer) and improved visibility.

Description of 2005 Activities

City of Toronto LED Traffic Lights

Action

- An incentive has been provided to the City of Toronto to convert conventional traffic signals to LEDs.

Results to Date

- Project to start in 2006.

Next Steps

- Monitor project and results.

Leveraging Energy Conservation and/or Load Management Programs

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 LDCs 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, institutional, 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.

Description of 2005 Activities

Loblaws/Enerspectrum

Action

- The City of Toronto Better Building Partnerships, Toronto Hydro Corporation, Loblaws Properties Ltd. and EnerSpectrum Group entered into an agreement to pursue a pilot conservation program for three stores.
- The program consisted mainly of lighting and motor changes.

Results to Date

- Peak demand reductions for the program in 2005 were: 68kW (as contracted and per TRC Guide).
- Annual energy savings in 2005 were: 1,302,140kWh (as contracted and per TRC Guide).

Next Steps

- Project is complete.

45/47 Sheppard Ave. E. – Lighting Retrofit

Action

- Pursuant to a CDM contract with Powering Application Group Inc., a lighting retrofit project was completed at 45/47 Sheppard Ave. E.

Results to Date

- 5,014 fixtures were converted from T12 to T8.
- Peak demand reduction for the program in 2005 was: 209kW (as contracted and per TRC Guide).
- Annual energy savings in 2005 were: 837,539kWh (as contracted and per TRC Guide).

Next Steps

- Project is complete.

U of T Scarborough Campus – Student Residences

Action

- The program includes conversion of the interior incandescent lighting to compact fluorescents, conversion of the outdoor lighting to a new form of compact fluorescent technology, the installation of smart/programmable thermostats to control and limit electric baseboard heating and the conversion of electric domestic hot water heating to natural gas.

Results to Date

- The lighting and programmable thermostats were installed in three units as a pilot. Toronto Hydro staff have toured these facilities and reviewed preliminary metering results.
- The University has installed interval meters in all of the units for the purpose of managing energy costs.

Next Steps

- Monitor implementation and results in 2006.

U of T – St. Georges Campus – Various Buildings

Action

- This major initiative consists of lighting retrofit of three buldings on the St. George campus and upgrading the chilled water system in nine buildings. The project also targets behavioural change.

Results to Date

- Project will proceed in 2006.

Next Steps

- Monitor implementation and results in 2006.

Crown Property Mgmt. – 3080 Yonge – Lighting Retrofits

Action

- The project involves the replacement of all existing T12 lamps and magnetic ballasts with the more energy efficient T8 lamps with reflector and electronic ballasts.

Results to Date

- The project will proceed in 2006.

Next Steps

- Monitor implementation and results in 2006

McDonald's Restaurants – Conservation Program

Action

- The project includes four conservation initiatives:
    1. Employee Energy Awareness Program
    2. Replacement of refrigeration systems.
    3. Lighting Retrofits.
    4. HVAC- replacing existing rooftop units with new mid efficiency units.

Results to Date

- The project will proceed in 2006.

Next Steps

- Monitor implementation and results in 2006.

TH Energy

Action

- TH Energy has received a CDM incentive for lighting retrofits, power factor correction and other energy efficiency measures at a number of locations:
  Manulife – North American Centre – 5650, 5700 Yonge Street
  Skymark Condominium – 85 Skymark Drive
  USMC (St. Michael's College) - Kelly Library, Alumni Hall, 59 Queens Park, Elmsley Hall and Sorbara Hall.
  Lexington Project – 35-45 Carlton Street
  Optima Condominium – 81 Navy Wharf Way
  Matrix Condominium – 373 Front Street West
  Apex Condominium - 365 Front Street West
  Kraft Lighting – 56 Huxley Road
  Courtyard By Marriott – 475 Yonge Street

Results to Date

- Projects will proceed in 2006.

Next Steps

- Monitor projects and results.

Toronto District School Board – 49 Sites – Lighting Retrofits

Action
- The incentive supports the Toronto District School Board (TDSB) implementation of an energy management project to reduce the energy consumption in selected schools.
- The main aspect is the retrofit of the existing interior lighting systems in each school facility from T12 to T8 fluorescent technology or other approved energy efficient lighting systems.

Results to Date
- The project will proceed in 2006.

Next Steps
- Monitor project and results.

York University

Action
- York University has worked with MCW Custom Energy Solutions to propose energy savings for the Keele and Glendon campuses.
- The measures developed include both energy and water efficiency measures, such as lighting, new steam chillers, tertiary chilled water pumping systems, modified condenser water systems, new compressed air systems, ice storage and conversion of constant volume air handling to variable air volume.

Results to Date
- The project will proceed in 2006.

Next Steps
- Monitor project and results.

City – Arenas

Action
- The project includes energy and water efficiency retrofits to approximately 100 of the city's arenas and outdoor ice rinks.
- The feasibility study was finalized in 2005.

Results to Date
- The project will proceed in 2006.

Next Steps
- Monitor project and results.

City – Fire Stations

Action
- The project involves energy and water efficiency retrofits to eighty-five of the City's fire stations.
- The feasibility study was finalized in 2005.

Results to Date
- The project will proceed in 2006.

Next Steps
- Monitor project and results.

City – Civic Centres

Action
- The CDM Partner will be implementing an array of energy efficiency measures at the selected civic facilities.
- The feasibility study was done in 2004.
- The project started in January 2005.

Results to Date
- The project will be completed in 2006.

Next Steps
- Monitor project and results.

City – Exhibition Place Buildings

Action
- The project involves energy and water efficiency retrofits to six buildings at Exhibition Place. The project includes measures such as building envelope upgrades, HVAC and control upgrades and/or replacements, and lighting retrofits.
- The feasibility study was in process in 2005.

Results to Date
- The project will proceed in 2006.

Next Steps
- Monitor project and results.

Playtek – Lighting Retrofits – 47 Buildings

Action
- This major project consists of T8 lighting retrofits, in-suite lighting upgrades, sub-metering and building automation controls.

Results to Date
- The project will proceed in 2006.

Next Steps
- Monitor project and results.

Green THC

Action

- A CDM incentive was used to make energy efficiency improvements in Toronto Hydro's portfolio of buildings and stations:
  60 Eglinton Ave.W – Replacement of computer room HVAC unit
  Various Substations in former Etobicoke – Replace station heaters
  George and Duke Station – Lighting upgrades
  10 Belfield Road – Replace rooftop HVAC unit
  500 Commissioners St. – Upgrade fleet parking lighting
  500 Commissioners St.– Installation of window film
  Staff Education
  500 Commissioners Street – Staff parking lighting retrofit
  Defoe Station – replace heating system
  14 Carlton Street– install window film
  5800 Yonge Street– New fan controls
  5800 Yonge – Lighting controls
  10 Belfield Road – Garage and warehouse lighting retrofits
  14 Carlton Street– Eliminate non-network printers
  500 Commissioners St. – office lighting upgrades

Results to Date

- The projects are complete.
- Peak demand reduction for the Green THC was: 73 kW (as contracted and per TRC Guide).
- Annual energy saving in 2005 was: 660,600 kWh (as contracted and per TRC Guide).

Next Steps

- Work is complete.

powerWISE Business Incentive Program (PBIP)

Action

- This program invites small commercial customers (under 100kW) to apply for an incentive to install measures that improve energy efficiency.
- The program is being conducted by each of the CLD partners and applications can be done over the Utility website.

Results to Date

- The PBIP project will proceed in January 2006.

Next Steps

- Monitor project and results.

Commercial Industrial & Institutional (CI&I) 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.

Target Users

Larger commercial, industrial and institutional customers.

Benefit

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

Description of 2005 Activities

CI & I Load Control – IT System Work to Support Interval Metering

Action
- The current interval meter data management systems are not adequate to support the 12,000 additional interval meters to be installed in accordance with the government initiative for conservation and demand management.
- Enhancement work on the relevant systems is necessary.

Results to Date
- Modifications complete.

Next Steps
- Will be part of wider installation of SMART meters.

Minto Conservation & DR Program

Action
- The objective of this program is to reduce consumption and demand by 10% in the Minto portfolio of buildings.
- Energy savings will be achieved through the implementation of a number of energy saving measures, mainly lighting improvements.
- The demand response aspect involves using Minto's building energy management system to control variable speed motors and remotely controlled thermostats.

Results to Date
- Project is proceeding in 2006

Next Steps
- Monitor progress of project.

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, certification, 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.

Description of 2005 Activities

Action

- After approval of the CDM Plan, Toronto Hydro tended to focus on projects that have measurable demand and energy savings, rather than fund feasibility studies.

Results to Date

- Have tended to use this program very little.

Next Steps

- Review use of funds in an alternate program.

Design Advisory Program

Description

This initiative helps to create an integrated approach to the design process for new buildings, and involves architects, engineers, building owners and Toronto Hydro design advisors, with the goal of creating more energy efficient buildings.

Target users

Commercial, industrial and institutional customers.

Benefits

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

Description of 2005 Activities

Design Advisory Program – Enbridge

Action

- The initiative will be focusing on New Building Construction Program (NBCP). NBCP offers incentives to an owner of a building to build a more energy efficient building. In this turn key project, on a monthly basis, Enbridge Gas Distribution (EGD) will submit to Toronto Hydro a list of potential projects in the City of Toronto, with their expected completion dates. Upon completion of the design of the building/project, EGD will submit a summary report showing kW and kWh savings. Energy savings shall be determined by an Approved Energy Simulation Program, which could be any of the following: EE4-CBIP, EE4-Code, or CBIP 33-Wizard.

Results to Date

- Project will proceed in 2006 and 2007.

Next Steps

- Monitor project and results.

Design Advisory Program – City

Action

- The program would secure voluntary improvements in energy efficient design and practices for the construction of new buildings or building additions in the City of Toronto. Buildings can be industrial, commercial or high-rise multi-residential. Improvements are targeted to achieve at least 25% energy savings over standard building code design.

Results to Date

- Project will proceed in 2006 and 2007.

Next Steps

- Monitor project and results.

Distribution Loss Reduction

Distribution Loss Reduction

Description:
The Distribution Loss Program is a broad network based initiative to drive greater efficiencies within the distribution grid. This program will identify opportunities for system enhancements. Next steps will be to complete the engineering analysis and feasibility studies. Projects will be prioritized 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 reduce the losses associated with a feeder as higher voltages and lower current results in lower losses. This study will ascertain the locations and value of voltage conversions. This program could also involve changing out all the meters on a particular feeder to SMART Meters so that the exact losses can be determined.

Power System Load Balancing - This program is designed to ascertain where load shifting can occur within the grid to improve system efficiency including the location of optimized "open points".

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

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

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

Target users
The results of this program will positively impact all of Toronto Hydro'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.

Description of 2005 Activities

Line & Transformer Loss

Action

- We launched a number of projects in 2005 for line and transformer loss reduction through conversions and transformer replacement, where old, inefficient and low voltage transformers at various locations were replaced with new, efficient and high voltage transformers.
- A capacitor installation project was also carried out in 2005 to reduce line and transformer losses.

Results to Date

- Peak demand reduction for 2005 was: 779kW (as contracted and per TRC Guide).
- Annual energy saving in 2005 was: 9,328,928kWh (as contracted and per TRC Guide).

Next Steps

- Project is under review given very poor TRC test results.

Load Profile Management

Action

- A project was done in 2005 to reduce distribution losses through load balancing.

Results to Date

- Peak demand reduction for 2005 was: 1kW (as contracted and per TRC Guide)
- Annual energy saving in 2005 was: 30,051 kWh (as contracted and per TRC Guide).

Next Steps

- Project is under review given very poor TRC test results.

Power Diversion

Action

- A CDM incentive was used to partially fund staff that would determine instances of power diversion
- In 2005, 207 cases of power diversion were found to be in our service area
- Working with other authorities, Toronto Hydro identified the causes of the power diversion and billed the losses accordingly.

Results to Date

- Peak demand reduction for 2005 was: 3,162 kW (as contracted and per TRC Guide).
- Annual energy saving in 2005 was: 22,437,301kWh (as contracted and per TRC Guide).

Next Steps

- Continue power diversion program in 2006 and 2007.

Distributed Energy

Load Displacement

Description

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

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

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

Target users

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

Benefits

Benefits include additional capacity within the grid. Cleaner technologies result in reductions in green house gas (GHG) emissions. Other benefits include improved system reliability, reduced harmonics, backup power possibilities, education and skills development.

Description of 2005 Activities

Enwave Projects

Action

- In 2005, Toronto Hydro entered into agreements with Enwave Energy Corporation (Enwave) to launch a series of projects, which would result in the replacement of existing air conditioning equipment with Enwave district cooling service utilizing deep water cooling technology.
- Deep lake water cooling is an alternative to typical air conditioning systems (i.e. electric chilling towers). The delivery of the district cooling service to customer buildings allows the removal of electric chillers, pumps and cooling towers from

these buildings and delivers the same quantity of cooling with substantially less electrical energy input.

- Projects included:
  - Richmond Adelaide Centre
  - Queen's Park
  - TD Centre
  - Commerce Court
  - Simpson's Tower/Hudson's Bay
  - College Park
  - Metro Hall

Results to Date

- The projects will commence district cooling operation in 2006.

Next Steps

- Monitor projects and results.

500 Commissioners – Solar Panels

Action

- In late 2004, a solar panel system was installed at 500 Commissioners Street and began operation.

Results to Date

- The solar panel output offsets some consumption requirements at 500 Commissioners Street.
- Peak demand reduction for 2005 was: 32kW (as contracted and per TRC Guide)
- Annual energy saving in 2005 was: 47,432kWh (as contracted and per TRC Guide).

Next Steps

- Continue operation of solar panels.

Loblaws – 12 Stores

Action

- Loblaws has proposed to offset peak demand requirements at a number of stores by installing small generators that will supply non-critical load, mainly lighting.

Results to Date

- The project will proceed in 2006.

Next Steps

- Monitor project and results.

CLD – Safety Power R & D

Action

- This was a demonstration generation project funded by the CLD

Results to Date
- The demonstration was completed successfully in 2005.
- No kW or kWh results to report.

Next Steps
- Project is complete.

Exhibition Place – PV Power Generation Pilot

Action
- The project involves the installation of photo-voltaic (PV) generation on the roof of the Horse Palace at Exhibition Place.
- The pilot phase will see the installation of a 100 kW array to evaluate the performance of two or more types of PV systems.
- The results of the pilot will be used to design a larger system with the potential capacity of 2MW.
- The RFP for the pilot phase was issued in July 2005.

Results to Date
- Project to proceed in 2006.

Next Steps
- Monitor project and results.

1 Avondale – Baghai Developments

Action
- The project consists of the installation two renewable forms of energy (wind turbine and solar panels) to supplement power requirements for common areas.

Results to Date
- Project to proceed in 2006.

Next Steps
- Monitor project and results.

St. Gabriel Village – 640 Sheppard Ave. E.

Action
- The project consists of the installation two renewable forms of energy (wind turbine and solar panels) to supplement power requirement for common areas.

Results to Date
- Project to proceed in 2006.

Next Steps
- Monitor project and results.

Stand-by Generators

Description

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

Target Users

Commercial and industrial customers with sufficiently sized standby generators.

Benefits

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

Description of 2005 Activities

Ontario Power Generation Inc. – 700 University Ave

Action

- In December 2005, an agreement was signed between Toronto Hydro and Ontario Power Generation Inc., under which Toronto Hydro would dispatch the generating unit owned by OPG, therefore resulting in a peak demand reduction to Toronto Hydro's distribution network.
- In December 2005, OPG made connection readiness of generating unit to Toronto Hydro's distribution system.

Results to Date

- Peak demand reduction of 1,250 kW has been achieved.

Next Steps

- Continue to work with OPG to further expand the project.

North York General Hospital

Action

- An agreement was made effective in November, 2005 between Toronto Hydro and North York General Hospital to enable the hospital's generator to be available for dispatch.
- The project involved the acquisition and installation of transfer switches and associated electrical equipment at two generating units by North York General Hospital.

Results to Date
- We achieved a peak demand reduction of 1,100 kW.

Next Steps
- Continue to dispatch generator on peak.

Enbridge – Gas Fired Generator

Action
- Toronto Hydro and Enbridge entered into this agreement for the purpose of improving the efficiency of the operation of the standby generating unit and permitting the synchronization of the unit with Toronto Hydro's distribution system.
- In 2005 CDM partner equipment was procured and installed, performance testing was done and the unit was available for dispatch.

Results to Date
- A peak demand reduction of 1,250 has been achieved.

Next Steps
- Continue to dispatch generator on peak.

Yorkdale Plaza/Oxford Properties – 3401 Dufferin Street

Action
- The project involves the upgrade of CDM partner's existing generator and installation of new bi-fuel stand-by generators.

Results to Date
- The project will be completed in early 2006.

Next Steps
- Monitor project and results.

5800 Yonge Street

Action
- A standby generator at Toronto Hydro's Control Centre was retrofitted to be available for dispatch

Results to Date
- Project completed in 2005.
- 1,100kW available for dispatch.

Next Steps
- Continue dispatch of generator.

Enwave – Steam Plant – Metro Convention Centre

Action
- CDM funds were used to incent the installation of two 5,500kW generators at the Metro Convention Centre.

Results to Date
- The project will proceed in 2006.

Next Steps
- Monitor project and results.

Dispatch of the following stand-by generators projects will be implemented in 2006:

City Of Toronto – Gas Fired Generator – 545 Commissioners Street
P & G Building –3080 Yonge Street
Baycrest Seniors Centre
Toronto Zoo
Aventis Pasteur – Co-Gen
Exhibition Place –Tri-Gen
Realstar/Ozz – 235 Bloor St.
Realstar/Ozz – Bretton Place
Realstar/Ozz – Main Square
Villa Colombo/Ozz – Columbus Centre
Air Canada Centre
First Canadian Place
Fairmont Royal York Hotel
City Of Toronto Humber Waste Treatment Plant

Overall Program Support

Description

Several supporting initiatives may be considered such as: an annual Key Account Conference, Home Show participation, an energy conservation website, customer newsletters, staff training and media support activities etc.

Outreach support to smaller utilities is an additional area that may be explored.

Target Users

All customer classes.

Benefits

Supports existing programs and drives energy conservation awareness that will facilitate the culture change in Ontario.

Description of 2005 Activities

Regulatory Reporting

Action

- A regulatory reporting function was created in order to manage the project approval process, negotiate contracts, track projects and monitor and verify results.

Results to Date

- 137MW of projects approved and contracted.

Next Steps

- Continue with regulatory reporting function.

4. Lessons Learned

Working Together

During the past year, the members of the Coalition of Large Distributors (Toronto Hydro, Hydro Ottawa, Horizon Utilities, Veridian, Enersource Hydro Mississauga and Powerstream) have worked together on the execution of their individual CDM plans. A Steering Committee was established to oversee and coordinate joint actions, and program-specific working committees were constituted to promote the sharing of ideas, experiences and costs. The benefits of this joint action are numerous. For example:

Purchasing power:

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

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 recognized 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.

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 agreed early on 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 www.powerwise.ca website, the development of the powerWISE Business Incentives Program and more. Sharing costs has enabled individual CLD members to help minimize program costs.

Exchange of Ideas/Approaches:

- Customers' attitudes towards energy use are not homogeneous. Achieving a conservation culture in Ontario will require experimentation with varied and diverse approaches. Working in partnership, the CLD members have learned 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 a nominal financial reward. This success will be translated into a broader scale program across all CLD service areas in 2006.

Market Conditions

- Toronto Hydro reviewed proposals from proponents on a “first come first served” basis and committed approximately 80% of the available CDM funds to projects in 2005.

- It was evident, particularly from the Home Depot and Fridge Unplugged programs that residential customers are eager to learn more about, and install, energy savings measures.

- In the commercial, industrial and institutional sectors it was surprising to learn that many companies have not installed energy savings measures in order to reduce power costs. It was found that capital investment decisions must have a very fast payback, typically less than two years. The CDM incentive made energy efficiency projects viable for a significant number of customers.

- There are a number of larger customers that have generators used for back-up power requirements. Working with these customers we were able to retrofit these installations to make the generators available for dispatch on peak. This capability can significantly reduce summer peak loads.

- We were able to design and start to install the peakSAVER load management system whereby customers’ air conditioning units can be managed to reduce summer peak demand.

- In the Social Housing Program, it became very evident that the needs of low income housing customers must be addressed. Social and low income housing customers are typically spending a greater percentage of their income on utilities or rent and can least afford to purchase retrofits or appliance upgrades. Fortunately we were able to commit CDM incentives to Toronto Community Housing Corporation in order specifically address these issues.

- We completed voltage conversion projects on our distribution system that contribute to lower line losses, and found that the TRC test results were very poor.

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

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.

Throughout this report we have shown kW and kWh results both "as contracted" and "per TRC guide". A number of our contracts with partners were executed before the TRC Guide was available. Our partners contracted to reduce summer peak demand by specified amounts that were supported by calculations. In some cases the impact of a measure on summer peak reduction does not align with the OEB allowed amounts. This is most pronounced for CFLs where partners made assumptions that there would be an impact on summer peak load, and the TRC Guide indicates that there is no impact.

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.

Comments on Program Success

	Successful? H/M/L	Continue?	Notes
Residential and Commercial <50kW			
Co-Branded Mass Market	Yes – H	Yes	Significant interest in mass market for techniques for saving energy
SMART Meter Pilot Programs	Yes – H	Yes	As part of Provincial directive
Design Advisory Program	Too early to tell	Too early to tell	
Residential Load Control Initiative	Yes – H	Yes	peakSAVER program shows great potential
TAPS Program	Yes – H	Yes	Excellent Program
Refrigerator Buy-Back Program	Yes - H	Yes	This program can be expanded province wide and to include freezers.
Social Housing Program	Too early to tell	Yes	Sector needs significant support; higher prevalence of electric heat

	Successful / H/M/L	Continue	Notes
Commercial Institutional and Industrial >50kW			
SMART Meter Program	Yes - H	Yes	As part of Provincial Directive
LED Traffic Signals	Too early to tell	Too early to tell	
Leveraging Energy Conservation or Load Mgmt	Yes - H	Yes	Significant interest in CI&I Sector
CI&I Load Control	Yes - H	Yes	Significant potential for on-peak load reductions
Energy Audits and Feasibility Studies	No - L	No	No measurable kW/kWh benefits
Design Advisory Program	Too early to tell	Too early to tell	
Distribution Loss Reduction			
Distribution Loss Reduction	No - L	No	TRC test results very poor
Distributed Generation			
Load Displacement	Yes - H	Yes	Significant potential for on-peak load reductions
Standby Generators	Yes - H	Yes	
Overall Program Support			
Program Support Initiatives	Yes - H	Yes	These activities support all the program areas and assist with marketing, promotion and governance

5. Conclusions

While 2005 was a period of development and learning for Toronto Hydro, the year was also very successful. We quickly created and went to market with a Conservation and Demand Management program and made considerable progress in a very short period of time:

- One-third of funds spent ($13.5 million out of $40 million)
- Over fifty contracts in place with commitments to deliver 137MW of demand reductions.
- Excellent exposure in all customer segments
- Achieved first kW and kWh reductions

Results for 2006 will be much more significant because programs launched throughout 2005 will have had time to operate for a number of months and generate the expected results.

With limited existing resources, CDM program implementation required the significant use of partnerships.

As we gained market experience, we were able to re-evaluate and fine-tune our plans. CDM Program development is complex and time consuming. We were able to maximize our results by working with the Coalition of Large Distributors, which provided a significant advantage in knowledge and resource sharing, efficiency and cost effectiveness.

We deployed various SMART meter technologies in the residential, commercial and industrial sectors. Through these pilot programs we were able to learn and share our findings with our CLD partners. This also ensured readiness for compliance with the Provincial directive on wide-scale deployment,

We experienced highly recognized successes with the Home Depot, Fridge Unplugged, peakSAVER and Distributed Energy programs.

THESL TRC Results for 2005 – Summary

	TRC Net Benefits, $	TRC Benefits, $	TRC Costs, $	Benefit/Cost ratio	KWh saved in 2005	KWh saved over the life of measure	Peak demand saved (KW)	CDM Funding (spend 2005)
Programs with identified kwh and kw savings								
Mass Market*	8,858,259	14,042,419	5,184,160	2.71	50,584,655	233,381,075	3,231	4,777,320
TAPS	736,643	1,092,788	356,145	3.07	3,504,513	16,814,194	26	434,267
Refrigerator Buy-Back Program	576,047	964,901	388,854	2.48	2,876,059	15,466,422	484	343,562
Leveraging Energy Conservation	321,109	1,364,501	1,043,391	1.31	2,800,279	20,724,395	350	715,785
Load displacement	(254,150)	51,917	306,068	0.17	47,432	948,640	32	811,974
Stand-by Generators	1,336,151	3,726,158	2,390,008	1.56	0	0	4,700	977,498
Total	11,574,058	21,242,684	9,668,625	2.20	59,812,939	287,334,727	8,823	8,060,406
Programs without identified kwh and kw savings**								
Residential Smart Meter Pilot	0	0	0	0.00	0	0	0	1,808,401
Residential Load Control Initiative	0	0	0	0.00	0	0	0	2,144,670
Social Housing	0	0	0	0.00	0	0	0	147,371
CI&I Smart Meters	0	0	0	0.00	0	0	0	246,372
CI&I Load Control	0	0	0	0.00	0	0	0	69,541
Energy Audits and Feasibility Study	0	0	0	0.00	0	0	0	8,208
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,424,563
Regulatory reporting and support	(566,143)		566,143					566,143
Total - Customer focused programs	11,007,915	21,242,684	10,234,768	2.08	59,812,939	287,334,727	8,823	13,051,112
Other CDM initiatives								
Distribution Loss Reduction	(7,802,529)	9,298,204	17,100,733	0.54	31,796,280	256,411,763	3,942	374,294
Total	**3,205,387**	**30,540,888**	**27,335,502**	**1.12**	**91,609,218**	**543,746,490**	**12,765**	**13,425,406**

THESL TRC Results for 2005 - Summary by Portfolio

	TRC Net Benefits, $	TRC Benefits, $	TRC Costs, $	Benefit/Cost ratio	KWh saved in 2005	KWh saved over the life of measure	Peak demand saved (KW)	CDM Funding (spend 2005)
Conservation								
Residential and Small Commercial (<50 Kw)	10,170,949	16,100,108	5,929,159	2.72	56,965,227	265,661,691	3,741	6,270,934
Commercial, Industrial and Institutional	321,109	1,364,501	1,043,391	1.31	2,800,279	20,724,395	350	4,424,563
Total Conservation	10,492,058	17,464,608	6,972,550	2.50	59,765,506	286,386,087	4,091	10,695,497
Distribution Loss Reduction	(7,802,529)	9,298,204	17,100,733	0.54	31,796,280	256,411,763	3,942	374,294
Distributed Energy	1,082,000	3,778,075	2,696,075	1.40	47,432	948,640	4,732	1,789,472
Regulatory reporting and support	(566,143)	0	566,143		0	0	0	566,143
Total Plan	**3,205,387**	**30,540,888**	**27,335,502**	**1.12**	**91,609,218**	**543,746,490**	**12,765**	**13,425,406**

Note: Presentation at bottom of this chart follows OEB approved CDM Plan. The table on page 4 follows THESL's management of the programs.

Appendix A - Evaluation of the CDM Plan

	Total	Residential and Small Commercial (<50 Kw)	Commercial, Industrial and Institutional	Distribution Loss Reduction	Distributed Energy	Overall Program Support
*Net TRC value ($):***	*$3,205,387*	$10,170,949	$321,109	-$7,802,529	$1,082,000	-$566,143
Benefit to cost ratio:	*1.12*	2.72	1.31	0.54	1.40	0.00
Number of participants or units delivered:	*n/a*	661529 - number of residential and small commercial customers	2	1	4	n/a
*Total KWh to be saved over the lifecycle of the plan (kWh):****	*543,746,490*	265,661,691	20,724,395	256,411,763	948,640	n/a
Total in year kWh saved (kWh):	*91,609,218*	56,965,227	2,800,279	31,796,280	47,432	n/a
Total peak demand saved (kW):	*12,764.6*	3,741.1	350.3	3,942	4,732	n/a
Total kWh saved as a percentage of total kWh delivered (%):	*0.34%*	0.21%	0.01%	0.12%	0.00%	n/a
Peak kW saved as a percentage of LDC peak kW load (%):	*0.26%*	0.07%	0.01%	0.08%	0.09%	n/a
*Gross in year C&DM expenditures ($*****):*	*$13,429,726*	$9,659,911	$1,039,907	$374,293	$1,789,472	$566,143
*Expenditures per KWh saved ($/kWh)**:*	*$ 0.09*	*$ 0.10*	*$ 0.26*	*$ 0.00*	*$ 28.86*	n/a
*Expenditures per KW saved ($/kW)***:*	*$ 610.52*	*$ 1,486.07*	*$ 2,043.63*	*$ 37.80*	*$ 289.27*	n/a
Utility discount rate (%):	5.97%					

*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.
*** Gross of programs with no kw/kwh results in 2005
**** Applies only to projects with results in 2005
*****The difference of $5K to the annual report is due to the timing differences in invoice payment

Appendix B - Discussion of the 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 among six of the largest municipal LDC's, this program is becoming synonymous with specific initiatives such as Compact Fluorescent Lighting (CFL) change out programs, LED Holiday Lights, Energy Star, Multi-Choice, energy audits, hot water heater blanket wraps, school based education and a host of other programs aimed at providing customers with the tools and education needed to reduce their energy usage. Access to online services such as energy consumption calculators, an energy expert, and personalized energy audit services are contemplated as components of this program.

Target users

Mass-market including residential, commercial and industrial.

Benefits

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

Measure(s):

	CFL	Room AC	Holiday Lights
Base case technology:	60W incandescent	old RAC	traditional holiday lights
Efficient technology:	CFL	RAC removal /replacement	SLED
Number of participants or units delivered:	497,106	5,195	90,681
Measure life (years):	4	4	6

B. **TRC Results:**

TRC Benefits ($):		$ 14,042,419
TRC Costs ($):		
	Utility program cost (less incentives):	$ 5,184,160
	Participant cost:	$ -
	Total TRC costs:	$ 5,184,160
Net TRC (in year CDN $):		8,858,259
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		2.71

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

Conservation Programs:

Demand savings (kW):	*Summer*		3,231
	Winter		-
		lifecycle	*in year*
Energy saved (kWh):		233,381,075	50,584,655
Other resources saved :			
	Natural Gas (m3):		
	Other (specify):		

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$	-
	Incremental O&M:	$	*887,500*
	Incentive:	$	*3,889,821*
	Total:		4,777,320
Utility indirect costs ($):	*Incremental capital:*	$	-
	Incremental O&M:	$	-
	Total:	$	-
Participant costs ($):	*Incremental equipment:*	$	-
	Incremental O&M:	$	-
	Total:	$	-

E. **Comments:**

1. The costs in part B are presented at NPV and discounted at the rate of free ridership;
costs in part D represent the actual costs of the program, as spend.
2. Utility direct cost includes $752,287 spend on various marketing programs without directly attributable energy and demand savings (educational, marketing, fleet messaging etc.).

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

Appendix B - Discussion of the Program

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

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

A pilot program for residential SMART meters was 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 a bulk-metered situation (i.e. condominiums) may be considered.
This initiative will commence upon the release of a formal definition of a SMART meter by the Board.

Target users

Residential and small commercial customers.

Benefits

This program supports the Minister of Energy's commitment to the installation of 800,000 SMART meters across Ontario by 2010. It will provide THESL 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.

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):	$	1,808,401.00
Participant cost:		
Total TRC costs:	$	1,808,401.00
Net TRC (in year CDN $):	-$	1,808,401.00
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		-

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$	305,424.00
	Incremental O&M:	$	1,502,977.00
	Incentive:		
	Total:	$	1,808,401.00
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:	$	-
Participant costs ($):	*Incremental equipment:*		
	Incremental O&M:		
	Total:	$	-

E. **Comments:**

1. There were no results for this program (kw and kwh) in 2005

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

Appendix B - Discussion of the Program

A. **Name of the Program:** **Design Advisory Program**

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

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

Target users

Residential and small commercial customers.

Benefits

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

E. **Comments:**

1. There are no results for this program (kw and kwh) in 2005
2. There was no spending for this program in 2005

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

Appendix B - Discussion of the Program

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

Target users

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

Benefits

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

Measure(s):

	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):	2,144,670
	Participant cost:	
	Total TRC costs:	2,144,670
Net TRC (in year CDN $):		- 2,144,670
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		-

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	778,431
	Incremental O&M:	1,366,239
	Incentive:	
	Total:	2,144,670
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	$ -
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	$ -

E. **Comments:**

1. There were no results for this program (kw and kwh) in 2005

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

Appendix B - Discussion of the Program

A. **Name of the Program:** **TAPS Program**

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

This initiative enhances the existing Enbridge program by adding electricity measures such as compact florescent (CFL) light bulbs to replace existing incandescent bulbs.

Target users

Residential and small commercial customers

Benefits

This program is simple in concept and highly effective, since CFL's use 75% less energy than incandescent bulbs and fit into standard sockets. Although a single change-out makes a very small difference, wide-scale use of CFL's could have a significant impact.

Measure(s):

	Measure 1	Measure 2	Measure 3	Measure 4	Measure 5
Base case technology:	none	none	none	none	none
Efficient technology:	Efficient Showerheads	pipewrap	CFLs - 14 wt and 23 wt	aerators	Prog. Thermostats
Number of participants or units deli	595	551	31,284	1,128	6
Measure life (years):	12	6	4	12	18

B. **TRC Results:**

TRC Benefits ($):	$	1,092,787.78
TRC Costs ($):		
Utility program cost (less incentives):	$	356,145.14
Participant cost:		
Total TRC costs:	$	356,145.14
Net TRC (in year CDN $):	$	736,642.64
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		3.07

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

Conservation Programs:

Demand savings (kW):	*Summer*	25.81	
	Winter		
		lifecycle	*in year*
Energy saved (kWh):		16,814,194	3,504,513
Other resources saved :			
Natural Gas (m3):			
Water:		212,053	17,671

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*		
	Incremental O&M:	$	356,145
	Incentive:		
	Total:	$	356,145
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:	$	-
Participant costs ($):	*Incremental equipment:*		
	Incremental O&M:		
	Total:	$	-

E. **Comments:**

1. The costs in part B are presented at NPV and discounted at the rate of free ridership; costs in part D represent the actual costs of the program, as spent.

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

Appendix B - Discussion of the Program

A. **Name of the Program:** **Refrigerator Buy-back Program**

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

A program to facilitate the return of old inefficient refrigerators will be evaluated. So called "beer fridges" in the basement of many homes use significant amounts of electricity. Customers were also given a " Power Pack", a gift bag containing a number of energy savings measures.

Target users

Residential customers.

Benefits

Measure(s):

	Measure 1	Measure 2	Measure 3	Measure 4
Base case technology:	old refrigerators	none	none	none
Efficient technology:	old fridge revomal	Power pack - CFLs	Power Pack - insulator kit	Power Pack - caulking
Number of participants or units deli	1,977	3,940	1,970	3,940
Measure life (years):	6	4	1	5

B. **TRC Results:**

TRC Benefits ($):		$ 964,900.79
TRC Costs ($):		
	Utility program cost (less incentives):	$ 388,853.75
	Participant cost:	
	Total TRC costs:	$ 388,853.75
Net TRC (in year CDN $):		$ 576,047.04
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		2.48

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

Conservation Programs:

Demand savings (kW):	*Summer*		484
	Winter		
		lifecycle	*in year*
Energy saved (kWh):		15,466,422	2,876,059
Other resources saved :			
	Natural Gas (m3):		
	Other (specify):		

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 426,003
	Incentive:	
	Total:	$ 426,003
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	$ -
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	$ -

E. **Comments:**

1. The costs in part B are presented at NPV and discounted at the rate of free ridership; costs in part D represent the actual costs of the program, as spend.
2. The program has ended on Jan 31, 2006. The costs till the end of the program are included.

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

Appendix B - Discussion of the Program

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

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

A province wide centralized energy management service for the social housing sector may be developed in collaboration with the Provincial Government, utilities (e.g. Enbridge, Union Gas) and others.
A pilot program will be conducted to determine feasibility with an expectation that a full-scale provincial program would follow.

Target users

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

Benefits

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

Measure(s):

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

B. **TRC Results:**

TRC Benefits ($):			
TRC Costs ($):			
	Utility program cost (less incentives):	$	147,371.00
	Participant cost:		
	Total TRC costs:	$	147,371.00
Net TRC (in year CDN $):		-$	147,371.00
Benefit to Cost Ratio (TRC Benefits/TRC Costs):			-

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*		
	Incremental O&M:	$	147,371
	Incentive:		
	Total:	$	147,371
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:	$	-
Participant costs ($):	*Incremental equipment:*		
	Incremental O&M:		
	Total:	$	-

E. **Comments:**

1. There are no results for this program (kw and kwh) in 2005

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

Appendix B - Discussion of the Program

A. **Name of the Program:** **Smart Meters (Commercial, Industrial and Institutional (>50 kW))**

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

THESL 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

Larger Commercial, Industrial and Institutional customers.

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.

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):	$	246,372.00
Participant cost:		
Total TRC costs:	$	246,372.00
Net TRC (in year CDN $):	-$	246,372.00
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		-

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*		
	Incremental O&M:	$	246,372.00
	Incentive:		
	Total:	$	246,372.00
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:	$	-
Participant costs ($):	*Incremental equipment:*		
	Incremental O&M:		
	Total:	$	-

E. **Comments:**

1. There were no results for this program in 2005

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

Appendix B - Discussion of the Program

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

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.

E. **Comments:**

1. There are no results for this program (kw and kwh) in 2005
2. There was no spending for this program in 2005

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

Appendix B - Discussion of the Program

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

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 recommendations. The LDC's are well positioned to introduce such programs to their customer base. Work will be conducted with the existing program providers to maximize leverage opportunities. Promotion will potentially include face-to-face meetings, conferences and seminars.

Target users

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

Benefits

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

Measure(s):

	Loblaws project	45/47 Sheppard	Green THC
Base case technology:	old lighting, HVAC and equipme	T 12 lamp (1")	outdated technology
Efficient technology:	replaced equipment	T8 lamp (3/4")	more efficient technology
Number of participants or units deli	3 stores	5014	1
Measure life (years):	5	5	varies with the project

B. **TRC Results:**

TRC Benefits ($):		$ 1,364,500.54
TRC Costs ($):		
	Utility program cost (less incentives):	$ 689,347.47
	Participant cost:	$ 354,043.80
	Total TRC costs:	$ 1,043,391.27
Net TRC (in year CDN $):		$ 321,109.27
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		1.31

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

Conservation Programs:

Demand savings (kW):	*Summer*		*350.25*
	Winter		
		lifecycle	*in year*
Energy saved (kWh):		*20,724,395*	*2,800,279*
Other resources saved :			
	Natural Gas (m3):		
	Other (specify):		

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	*282,355*
	Incremental O&M:	*296,416*
	Incentive:	*169,635*
	Total:	*748,406*
Utility indirect costs ($):	*Incremental capital:*	-
	Incremental O&M:	-
	Total:	-
Participant costs ($):	*Incremental equipment:*	*393,382*
	Incremental O&M:	-
	Total:	*393,382*

E. **Comments:**

1. The costs in part B are presented at NPV and discounted at the rate of free ridership; costs in part D represent the actual costs of the program, as spend.

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

Appendix B - Discussion of the Program

A. **Name of the Program:** **Commercial Industrial & Institutional (CI&I) 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.

Target Users

Larger commercial, industrial and institutional customers.

Benefit

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

Measure(s):

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

B. **TRC Results:**

TRC Benefits ($):			
TRC Costs ($):			
	Utility program cost (less incentives):	$	69,541.00
	Participant cost:		
	Total TRC costs:	$	69,541.00
Net TRC (in year CDN $):		-$	69,541.00
Benefit to Cost Ratio (TRC Benefits/TRC Costs):			-

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*		
	Incremental O&M:	$	69,541.00
	Incentive:		
	Total:	$	69,541.00
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:	$	-
Participant costs ($):	*Incremental equipment:*		
	Incremental O&M:		
	Total:	$	-

E. **Comments:**

1. There are no results for this program (kw and kwh) in 2005

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

Appendix B - Discussion of the Program

A. **Name of the Program:** **Energy Audits 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, certification, 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.

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):	$ 8,208.00
	Participant cost:	
	Total TRC costs:	$ 8,208.00
Net TRC (in year CDN $):		-$ 8,208.00
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		-

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 8,208.00
	Incentive:	
	Total:	$ 8,208.00
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	$ -
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	$ -

E. **Comments:**

1. There were no results for this program in 2005

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

Appendix B - Discussion of the Program

A. **Name of the Program:** Design Advisory Program

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

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

Target users

Commercial, Industrial and Institutional customers.

Benefits

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

Measure(s):

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

E. **Comments:**

1. There are no results for this program (kw and kwh) in 2005
2. There was no spending for this program in 2005

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

Appendix B - Discussion of the Program

A. **Name of the Program:** **Distribution Loss Reduction**

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

The Distribution Loss Program is a broad network based initiative to drive greater efficiencies within the distribution grid. This program will identify opportunities for system enhancements. Next steps will be to complete the engineering analysis and feasibility studies. Projects will be prioritized 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;Voltage Conversion;Power System Load Balancing;Voltage Profile Management;Line Loss Reductions;Transformer and Other Losses.

Target users

The results of this program will positively impact all of THESL'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.

Measure(s):

	Line and transformer loss	Load balancing	Power diversion
Base case technology:	outdated inefficient equipment	non-balanced load	none
Efficient technology:	new transformers, feeders and capacitors	more balanced feeders load	identified and disconnected units of power diversion
Number of participants or units deli	1	1	1
Measure life (years):	25	25	1

B. **TRC Results:**

TRC Benefits ($):		9,298,204
TRC Costs ($):		
	Utility program cost (less incentives):	17,100,733
	Participant cost:	
	Total TRC costs:	17,100,733
Net TRC (in year CDN $):		(7,802,529)
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		0.54

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

Line Loss Reduction Programs:

Peak load savings (kW):		3,941.65
	lifecycle	*in year*
Energy savngs (kWh):	256,411,763	31,796,280

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:*		18,942,819
	Incremental O&M:	$	41,439.00
	Incentive:		
	Total:	$	18,984,258
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:	$	-
Participant costs ($):	*Incremental equipment:*		
	Incremental O&M:		
	Total:	$	-

E. **Comments:**

1. The costs in part B are presented at NPV and discounted at the rate of free ridership;
costs in part D represent the actual costs of the program, as spend.
2. For Line and transformer loss reduction, this analysis shows the real costs of the projects, rather than only CDM portion of it (which is shown in EMRT report). The CDM cost attributed to these projects amounts to $225,282

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

Appendix B - Discussion of the Program

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

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.
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:	n/a		
Efficient technology:	Solar panels		
Number of participants or units deli	1		
Measure life (years):	20		

B. **TRC Results:**

TRC Benefits ($):		$	51,917.34
TRC Costs ($):			
	Utility program cost (less incentives):	$	306,067.77
	Participant cost:	$	-
	Total TRC costs:	$	306,067.77
Net TRC (in year CDN $):		-$	254,150.43
Benefit to Cost Ratio (TRC Benefits/TRC Costs):			0.17

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

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):	31.6
Energy generated (kWh):	47,432
Peak energy generated (kWh):	
Fuel type:	solar energy

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$	306,068
	Incremental O&M:	$	505,906
	Incentive:		
	Total:	$	811,974
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:	$	-
Participant costs ($):	*Incremental equipment:*		
	Incremental O&M:		
	Total:	$	-

E. Comments:

1. The costs in part B are presented at NPV and discounted at the rate of free ridership;
costs in part D represent the actual costs of the program, as spend.
2. The incremental O&M costs include pre-payment of $420,770 to Enwave (deep water cooling projects do not have results in 2005)

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

Appendix B - Discussion of the Program

A. **Name of the Program:** **Stand-by Generators**

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

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

Target Users

Commercial and industrial customers with sufficiently sized standby generators.

Benefits

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

Measure(s):

	NYGH	Enbridge Gas Fired generator	5800 Yonge	OPG
Base case technology:	Stand by generator	Stand by generator	Stand by generator	Stand by generator
Efficient technology:				
Number of participants or units deli	1	1	1	1
Measure life (years):	10	10	15	10

B. **TRC Results:**

TRC Benefits ($):		$	3,726,158.14
TRC Costs ($):			
	Utility program cost (less incentives):	$	443,374.20
	Participant cost:	$	1,946,633.40
	Total TRC costs:	$	2,390,007.60
Net TRC (in year CDN $):		$	1,336,150.54
Benefit to Cost Ratio (TRC Benefits/TRC Costs):			1.56

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

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):	4,700
Energy generated (kWh):	
Peak energy generated (kWh):	
Fuel type:	bio diesel and natural gas

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	$	487,956
	Incremental O&M:	$	277,542
	Incentive:	$	532,000
	Total:	$	1,297,498
Utility indirect costs ($):	*Incremental capital:*	$	-
	Incremental O&M:	$	-
	Total:	$	-
Participant costs ($):	*Incremental equipment:*	$	2,162,926
	Incremental O&M:	$	-
	Total:	$	2,162,926

E. **Comments:**

1. The costs in part B are presented at NPV and discounted at the rate of free ridership; costs in part D represent the actual costs of the program, as spend.
2. The incentives for OPG and NYGH in total amount of $320,000 are to be paid in 2006.

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

Appendix B - Discussion of the Program

A. **Name of the Program:** **Regulatory Reporting and Program support**

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

Project review, approval, tracking and results verification. Development of contracts with CDM Partners.

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):	$	566,143
Participant cost:		
Total TRC costs:	$	566,143
Net TRC (in year CDN $):	-$	566,143
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	$	-

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*		
	Incremental O&M:	$	566,143.00
	Incentive:		
	Total:	$	566,143.00
Utility indirect costs ($):	*Incremental capital:*		
	Incremental O&M:		
	Total:	$	-
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.