



Hydro Ottawa Limited

Conservation and Demand Management

2005 Annual Report

Hydro Ottawa - RP-2004-0203\EB 2005-0523

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APPENDIX A

APPENDIX B

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 Hydro Ottawa Connections. This report is a requirement of that decision. In respect of the application filed by Hydro Ottawa Limited (“Hydro Ottawa”), the Board issued its Final Order on February 3, 2005 under docket number RP-2004-0203\EB 2005-0523.

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

2. Evaluation of Overall Plan

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

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

3. Discussion of the Programs

3.1 Residential and Small Commercial (< 50 kW)

Description

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

Target users

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

Benefits

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

Discussion of 2005 Activities

powerWISE[®] Brand

Action

- Hamilton Utilities Corp. (HUC) registered the powerWISE[®] mark prior to CDM activities.
- During CLD CDM plan preparation, it was agreed that the CLD would collectively develop a co-brand. HUC offered powerWISE for joint ownership and the CLD agreed that we would use this mark.
- As HUC owns the mark, the CLD needed to come up with a vehicle to transition the mark that would allow joint ownership. Legal counsel recommended the formation of a Joint Venture (JV) among other options. For expediency, and under the spirit of co-operation, the team recommended that

we start with an MOU and a sub-license agreement and then based on the direction that the CLD CEO's determined over time, we would either continue the way we are, move to a more formal JV, transition the mark into some other entity that the CLD may create in the future, or pursue other options. Bottom line, the MOU and License were seen as a way to get things moving quickly.

- Weekly conference call meetings are held with the communications sub-committee to coordinate all powerWISE and branding activities.
- The Ministry of Energy (Director of Communications) participates on weekly conference calls.
- Two-way monthly update meetings are conducted with the Ontario Power Authority (OPA).

Results to Date

- powerWISE trade mark MOU and powerWISE trade mark licenses were executed between each of Enersource, Horizon, Hydro Ottawa, PowerStream, Toronto Hydro and Hydro Ottawa with HUC.
- powerWISE brand launched April 1st, 2005
- powerWISE is being used extensively by the CLD to brand CLD conservation programs.
- The powerWISE brand has also been translated to Eco-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 LDC's.

powerWISE Website

Action

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

Results to Date

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

Next Steps

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

powerWISE® Retail Initiative

Action

- Enersource, Horizon, Hydro Ottawa, PowerStream and Veridian developed a major mass-market retail campaign to advance energy efficient devices into the marketplace through point of purchase redeemable coupons
- The campaign was designed to advance the penetration of energy efficient devices in the marketplace
- Coupons were distributed in Hydro Ottawa bills between October 1st and December 31st, 2005.
- Six products were selected for promotion including:
 - Compact Fluorescent Lights (CFL bulbs) (\$3.00 off per pack)
 - Seasonal LED lights (SLEDs) (\$5.00 off)
 - Ceiling Fans (\$5.00 off)
 - Programmable Thermostats (\$15.00 off)
 - Light and Appliance Timers (\$1.00 off)
 - Pool and Hot Tub Timers (\$4.00 off)

Results to Date

- In Ottawa over 275,000 coupons were distributed
- Over 22,000 coupons were redeemed locally
- The Campaign produced savings of greater than 1.1MW and over 3,000,000 kWhs.

Next Steps

- Conduct post mortem for lessons learned to improve future programs
- Finalize participation in 2006 campaign

powerWISE® School Based Education Initiative

Action

- In Ottawa, Hydro Ottawa's Hazard Hamlet Safety Education program for Grades 1-8 was enhanced to include a conservation curriculum

Results to Date

- Over 18,000 primary grade students received safety and conservation education in 2005
- This represents approximately 20% of the Ottawa region primary grade students

Next Steps

- Continue to develop and provide the program to approx 18,000 additional students in 2006
- Add a new interactive and targeted electricity conservation program specifically developed for the Grade 5 student curriculum.

powerWISE® Fleet Branding

Action

- On Nov 3rd, 2005 the CLD announced the powerWISE® 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

- 30 Hydro Ottawa vehicles have been branded

Next Steps

- Additional vehicle branding planned for 2006

Hydro Ottawa Website

Action

- The website www.HydroOttawa.com was refurbished in April 2005 to provide a stronger emphasis on conservation.
- The website now offers three streams - residential information, business information and conservation information
- The conservation component of the website is designed to provide Hydro Ottawa customers with immediate access to local conservation initiatives
- The website also acts as a repository for general electricity conservation information and offers useful links to other conservation related websites.

Results to Date

- Since it's launch www.HydroOttawa.com has received more than 230,000 visitors for an average of approximately 30,000 visits per month

Next Steps

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

Code Green

Action

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

Results to Date

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

Next Steps

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

3.2 Smart Meter Pilot (<50kW)

Description

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

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

Target users

Residential and small commercial customers.

Benefits

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

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

Action

- A Smart Meter pilot has been undertaken in Ottawa testing two different meter technologies
- Customers are engaged in three different areas of the City to test the technologies as well as the customer implications and response

Results to Date

- 200 meters have been deployed throughout three test bed communities including Lindenlea (50 meters), Manor Park (50 meters), and Alta Vista (100 meters).
- Two customer approaches to Smart Meter installation were tested. In Lindenlea and Manor Park volunteers were solicited. In Alta Vista we simply provided notice that Smart Meters were to be installed. For the most part, customers readily accepted the Smart Meters.
- Monthly time-of-use consumption reports were mailed to participants
- Participants were provided the capability to view their hourly consumption information by 8:00am of the following day
- Gained experience and tested two Smart Meter technologies in an in-service situation.

- Developed an understanding of the impact that Smart Meters and time-of-use rates will have on our customer base

Next Steps

- Continue to test the telecommunications capabilities of the new meters
- Perform a detailed focus group with a cross section of participants to gain a better understanding of how time-of-use information influenced their electricity usage.
- Monitor the next Smart Meter roll-out steps as determined by the Ontario government
- Transition to billing the customer time-of-use rates when they become effective.

3.3 Design Advisory Program (<50 kW)

Description

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

Target users

Developers and designers who deal with residential and small commercial customers

Benefits

This program results in cost effective improvements to the energy efficiency of a building without adversely affecting other performance requirements stipulated by the owner. More specifically, 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

- Hydro Ottawa was the first LDC in Canada to support Natural Resources Canada's (NRCan) national Energy Star for New Homes initiative. This program was launched in a new community being developed by two local homebuilders.
- Energy Star Homes are fitted with improvements that will result in a 1kW reduction over the electricity consumed in a traditional model of the same house
- Hydro Ottawa is offering a \$100 incentive per home for the first 100 homes payable to the builder to facilitate promotion of these homes.

Results to Date

- As this is a new community, homes are currently being built. Incentive payments are expected to be paid out starting in 2006

Next Steps

- Monitor home building and selling progress
- Re-evaluate the incentive

3.4 Residential Load Control Program

Description

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

Target users

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

Benefits

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

Action

- Hydro Ottawa 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 Q1 2006
- An RFP for control equipment will be issued and awarded in Q1 2006
- Customers will be canvassed to sign up for the program in Q1 and Q2 2006
- Installations will take place from April to June 2006

3.5 Energy Audits and Support

Description

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

Target users

Residential and small commercial customers

Benefits

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

powerWISE® Tips

Action

- A brochure providing electricity saving tips was developed for general distribution through a variety of promotional opportunities (i.e. powerWISE® PowerPacks, SLED giveaways, conservation events, etc).
- These powerWISE® tips are also available for download from Hydro Ottawa's website

Results to Date

- Over 20,000 powerWISE® Tips brochures have been distributed through promotional events
- Many powerWISE® Tips have been downloaded from Hydro Ottawa's web site

Next Steps

- Continue to include the powerWISE® Tips brochure in promotional events
- Continually update the brochure with new tips

powerWISE® PowerPack

Action

- Hydro Ottawa created the powerWISE® PowerPack for promotional purposes. The PowerPack consists of:
 - Two Compact Fluorescent (CFL) bulbs
 - One LED nightlight

- Several educational brochures including powerWISE® Tips
- A series of other energy conservation pamphlets
- The powerWISE® PowerPack is available:
 - For free pick-up at EnviroCentre
 - By delivery through ARC Industries
- To qualify to receive a free powerWISE® PowerPack (retail value \$20), Hydro Ottawa customers must:
 - Participate in a Hydro Ottawa conservation program like the powerWISE® Fridge Bounty Program or
 - Complete an energy conservation survey and

Results to Date

- Over 1200 powerWISE® PowerPacks have been distributed
- The powerWISE® PowerPack concept is also used by other members of the CLD in a variety of promotional opportunities

Next Steps

- Continue to promote the powerWISE® PowerPacks
- Review and enhance the PowerPack contents and delivery channels

powerWISE® Electricity Tune-up

Action

- Hydro Ottawa launched the powerWISE Electricity Tune Up in April 2005
- The powerWISE® Electricity Tune Up includes:
 - A personal home visit by a qualified conservation consultant who will spend 30 minutes identifying potential conservation opportunities and
 - The installation of the powerWISE® PowerPack items
 - If the customer has an electric water heater, the consultant will also install a water tank blanket and some insulating pipe wrap
- The powerWISE® Electricity Tune Up retails for \$100. Hydro Ottawa is contributing \$50 towards each Tune Up to reduce the consumer's cost for this expert consulting service to \$50.

Results to Date

- Since April 2005, over 150 powerWISE® Electricity Tune Ups have been conducted

Next Steps

- Expand the promotion of this service
- Investigate additional qualified contractors
- Enhance the value of the powerWISE® Electricity Tune Up to both the customer and Hydro Ottawa

Coolshops

Action

- Contracted the Clean Air Foundation to conduct lighting audits and deliver energy savings advice to 1,000 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, Ottawa Citizen and Globe and Mail

Results to Date

- 577 audits conducted
- 577 CFL bulbs installed (over 27kW saved)
- Detailed Database created to be mined for programs in 2006
- 33 companies purchased additional products through the program

Next Steps

- Use the 2005 results database to target customers for the 2006 campaigns
- Modify customer contact process to allow Hydro Ottawa 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 Business Ottawa

Action

- Hydro Ottawa provided an incentive for customers to engage in this program offered through the EnviroCentre to provide audits and retrofits for owners and operators of small to medium sized businesses and commercial buildings.
- The program provides
 - An audit of all major electrical appliances and equipment, including fans, pumps, as well as lighting and heating (if electric) and air conditioning;
 - A seven-day Time of Day (TOD) load profile
 - A report describing investment opportunities and payback potential for upgrades based on both increased power rates and TOD rates;
 - A turnkey installation service for recommended upgrades at extra cost.

Results to Date

- The program was launched in November with no significant results to report

Next Steps

- Promote the program directly to businesses as well as through business associations such as the Ottawa Business Improvement Areas, the Chamber of Commerce, Small Business Association, Building Owners and Managers Association, etc.

3.6 powerWISE® Refrigerator Bounty Program

Description:

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.

Target users

Residential customers.

Benefits

Customers will benefit from the free removal and decommissioning as well as electricity consumption reductions. The electricity system benefits from a reduction in both demand and consumption due to the removal of inefficient appliances.

Action

- Hydro Ottawa developed and launched one of the first refrigerator reclamation programs in the Province on June 6th, 2005
- The program, designed to remove working fridges from basements, garages, etc. ensured appropriate disposal of the fridges and that the metals were recycled
- A powerWISE® PowerPack was left with each participant as a thank you bounty to the customer

Results to Date

- The original goal of 500 fridges was achieved within 6 weeks, or less than half the time expected
- The savings from this pilot initiative are approximately 600,000 kWhs of annual electricity consumption, or enough electricity to power 67 homes
- Each customer saved up to \$150 per year in electricity savings by removing their old fridge

Next Steps

- Further improve efficiencies and costs in the reclamation process
- Target a larger number of fridges in the next campaign
-
- Expand this program beyond Hydro Ottawa’s boundary
- Launch the enhanced powerWISE® Fridge Bounty II, which will improve the decommissioning process by adding the removal of compressor oils.

3.7 Electric Avenue

Description:

A pilot neighbourhood of selected homes and/or small businesses may be chosen to become a “showcase” community to demonstrate the overall effectiveness of energy conservation initiatives including energy audits, retrofits and load control devices etc.

Target users

Residential and small commercial customers

Benefits

Potential high visibility project that could demonstrate the before and after impact of serious energy conservation and load control initiatives

Action

- Hydro Ottawa’s “Electric Avenue” program will include demonstration projects in 14 community homes (resource centers in low income and social housing areas). These homes will be audited to identify cost effective upgrades, they will be retrofitted and then showcased to the local community. As these centers receive significant walk-in traffic from their constituents, information will be posted on the improvements that have been made and their impact on electricity bills for education purposes.
- In addition, a number of individual low-income homes (10) will be equipped with electric thermal storage units to demonstrate this technology and to provide data for analysis. Thermal storage units offer the ability to shift electric heating load from peak times to off peak times thereby reducing costs for homes heated by electric baseboard heaters when time of use rates come into effect.

Results to Date

- Electric thermal storage units have been ordered and participant selection is underway with installation completion in Q1 2006

Next Steps

- Complete the audits and retrofits of the community homes
- Create awareness and visitor traffic through these homes
- Complete the design of the monitoring and verification process for the ETS homes
- Complete the installation and commissioning of these units as well as the education for residents

3.8 Social Housing Program

Description

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

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

Target users

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

Benefits

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

Social Housing Services Corporation (SHSC)

Action

- Working with SHSC, Hydro Ottawa is providing pilot program development funding (\$50/unit) for electricity audits of 161 units.
- These funds are being used for the energy audit process and for residential awareness programs. It is estimated that the average energy savings will be approximately 15% in each unit.

Results to Date

- SHSC is now leading the implementation phase of this project

Next Steps

- Ongoing follow-up with SHSC to promote implementation
- Incentives have been offered for the implementation

Power Group – PowerPlay Audits

Action

- Power Group audits are underway in cooperation with the City of Ottawa (EFA branch), Envirocentre and PIAC (Poverty Issues Action Committee).
- This program will invest \$25K of CDM funds combined with matching funds from the Province for a total of \$125K.
- The target is to reduce electricity consumption in 1000 low-income homes in Ottawa.

- The results of this program will be used to determine on-going initiatives in this sector.

Results to Date

- 1400 customers have been contacted by mail
- To date 60 household visits have been completed
- Information sessions have been completed with 12 of 14 community resource group caseworkers in attendance to make them aware of the program.

Next Steps

- Continue to promote the audits and determine the best way to reach this group.
- Work with the landlords, community representatives and agencies to design the most effective means to be able to provide these upgrade services
- Work with stakeholders to design and implement education programs for residents that will result in behavioural changes

powerWISE® Electricity Tune ups for Low Income Customers

Action

- Fully subsidized powerWISE® electricity tune-ups are offered through EnviroCentre for low income residents
- Customers are referred by social agencies including The Salvation Army and Community Support groups.

Results to Date

- 50 powerWISE® electricity tune-ups have been provided

Next Steps

- Continue to promote the program
- Increase the outreach by building further awareness to all the support groups and agencies

3.9 Commercial, Industrial and Institutional (> 50 kW)

Smart Meter Program

Description:

Hydro Ottawa will make an investment to further the use of SMART or interval meters by commercial industrial and institutional customers. This program will commence upon the release of a formal definition of a SMART meter by the Board.

Target users

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

Benefits

This program supports the Minister of Energy's commitment to the installation of 800,000 SMART meters across Ontario by 2007. These meters are seen as an important means of establishing a 'conservation culture' in Ontario. In conjunction with appropriate rate structures, they will encourage customers to conserve or shift energy use.

Action

- Four technologies are being tested by Hydro Ottawa for C&I customers. We have identified that many larger meter vendors lag behind in the C&I space as they concentrate on bringing their residential solutions to market.
- Hydro Ottawa has been developing pilots with Itron and Elster in 2005/2006
- The Itron pilots will review three technologies
 - Pilot #1 - SmartSync Wireless on Rogers Network, 5 Meters Only, 3 Element T.R. Interval
 - Pilot #2 - Trilliant Technologies (Nertec) Wireless on Bell Network, 5 Meters Only, 3 Element T.R. Interval
 - Pilot #3 - Sentinel Meter with Ethernet connection data backhaul on Rogers fiber network, 24 X 240V, 200A, Meters on Rogers flat rate services
- Elster Pilot:
 - This pilot will trial Elster Meters with Mesh Network connection and data backhaul on POTS on the Elster collector.
 - This evaluation of 950 commercial type meters tests a mix of a variety of C&I meter types including: Commercial Self Contained Watthour Meters, Commercial Self Contained Demand Meters, and Commercial Transformer Rated Demand Meters.

Results to Date

- Meter deliveries have only just started to arrive at Hydro Ottawa with deployments slated in the upcoming months
- Vendors have been keen to work with Hydro Ottawa as we explore the many options open for deployment in the C&I space.
- Learning continues with the vendors and the other utility partners and associations in the province.

Next Steps

- Hydro Ottawa continues to test the telecommunications capabilities in house in a controlled lab type environment
- Monitor the next Smart Meter roll-out steps as determined by the Ontario government and watch for emerging technologies and trends
- Implement pilots in the field, evaluate the meter technologies, communications, installation standards variations from conventional meter deployments, and determine a strategy for equitable apportioning of communication costs for the pilot and full deployment metering networks.

3.10 LED Traffic Lights

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 greater than 80% less electricity. Other benefits include reduced maintenance (LED's last longer) and improved visibility.

Action

- A business case is under development by City Traffic Department for a program to retrofit traffic signals with LED's in 2007
- LED retrofit budgets and current technologies are under review at the municipality

Results to Date

- Agreement developed with City Traffic Department to deploy LED traffic lights once an acceptable technology is chosen

Next Steps

- Finalize acceptable technology for Local Winter Conditions
- Begin installations in 2007

3.11 Leveraging Energy Conservation and Load Management

powerWISE[®] Business Incentive Program

Description

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

Target users

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

Benefits

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

Action

- This program provides incentives of up to \$50K per customer to advance energy conservation projects
- Two streams of funding are available
 - The Prescriptive program provides incentives for specific technologies on a predetermined cost per unit basis, i.e. retrofitting T12 lighting to T8 lighting
 - Custom Projects will be considered on an individual case basis with incentives at \$150 per kW

Results to Date

- This program was launched in October 2005
- 6 retrofit projects have been accepted to date with several others under review

Next Steps

- Continue to promote this program to key customers, contractors and energy service providers
- Determine results once the individual retrofit programs are complete

3.12 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.

Action

- A demonstration monitoring and control system has been installed at a Hydro Ottawa Office facility

Results to Date

- System implemented and preliminary results are under review
- Initial results show electricity and gas savings in excess of 25%

Next Steps

- Define monitoring and verification protocol
- Promote the technology to potential customers

3.13 On the Bill Financing

Description

On-the-Bill financing will start with a pilot offering that will be developed to help remove a significant energy conservation purchase barrier. This will allow customers to finance their conservation investment off their balance sheet via an “expense budget” on their hydro bill instead of having to contend for scarce capital dollars. Financing arrangements will be made with third party investment organizations and the payment amounts will be presented on the customer’s hydro bill.

Target Users

Larger commercial, industrial and institutional customers

Benefit

It is anticipated that this program will remove a significant energy conservation investment-purchasing barrier.

Action

- Hydro Ottawa has worked cooperatively with Enersource on the development of this program. Enersource has issued an RFP for a service provider
-

Results to Date

- No results to report

Next Steps

- Hydro Ottawa will monitor this program for implementation based on Enersource’s experience

3.14 Design Advisory Program (CI&I)

Description

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

Target users

Commercial, Industrial and Institutional customers

Benefits

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

Action

- This program is at a very early stage and will be addressed in 2006

Results to Date

- No results to report

Next Steps

- Finalize the program documentation
- Test market the program and modify as necessary
- Prepare for full implementation

3.15 Distribution Loss Reduction

Description:

The Distribution Loss Reduction Program is a broad network based initiative to drive greater efficiencies within the distribution grid. This program will identify opportunities for system enhancements. Next steps will be to complete the engineering analysis and feasibility studies. Items to be addressed may include the following:

Power Factor Correction - A power factor assessment will be completed which will identify locations for the installation of power factor correction capacitor banks.

Voltage Conversion - Voltage upgrades can save up to 90% of the losses associated with a feeder as higher voltages and lower current results in lower losses. This study will ascertain the locations and value of voltage conversions.

Power System Load Balancing - This program is designed to ascertain where load shifting can occur to improve system efficiency. It is estimated that approximately 5% - 10% of system losses could be saved.

Voltage Profile Management - Changing voltage profiles at the distribution station level can result in a peak reduction at the controllable distribution stations.

Line Loss Reductions - Replacement of conductors can reduce line losses. An evaluation of where such opportunities exist may be undertaken.

Target users

The results of this program will positively impact all of Hydro Ottawa's customers.

Benefits

Reducing electricity distribution system delivery losses will have a number of positive impacts including reducing system demand, relieving network capacity to accommodate growth and reducing the requirement for new generating capacity in the Province. Costs associated with distribution system delivery losses are recovered through electricity distribution charges. Reductions in these costs will therefore benefit all customers.

Action

- In 2005, purchased the "AdaptiVolt" Voltage Profile Management System
- Analyzed the Fallowfield F1 & F2 feeders for power factor correction.

Results to Date

- For the Adaptivolt Voltage Profile Management System

- Completed the infrastructure and propagation studies at CentrePointe substation
- Contracted for purchase and installation of the AdaptiVolt system at our 8.32kV CentrePointe substation.
- Commissioning is expected in April 2006.
- For the Power Factor Correction project
 - Created the capacitor general materials specification document for the project.
 - Identified practical installation locations and potential installation issues.

Next Steps

- Refine the projects to be undertaken.
- Issue RFPs for the Voltage Profile Management, System Study and Transformer Loss work.

3.16 Distributed Energy & Load Displacement

Description

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

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

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

Target users

Commercial, industrial and residential schools, colleges and universities

Benefits

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

Action

- A demonstration site for solar thermal and photovoltaic is being installed at a Hydro Ottawa facility.
- This installation will displace electricity used for the building heat and hot water systems as well as generate electricity for the facility.
- Thermal energy will be stored off-peak and used on-peak (night time to day time) and stored during the summer for use in the winter heating season.

Results to Date

- Installation is planned for 2006

Next Steps

- Complete the installation
- Monitor and Verify the results

- Make adjustments to the program, promote the results and provide support for further installations

3.17 Stand-by Generators

Description

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

Target Users

Commercial and industrial customers with sufficiently sized standby generators.

Benefits

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

Action

- Through a joint initiative with the Coalition of Large Distributors (CLD), a leading energy consultant was engaged to survey target customers to assess the capacity and availability of back-up generators in Hydro Ottawa's service area
- Upon completion of this customer survey, the CLD engaged the same consultant to further study and make detailed recommendations on a back-up generator program through which distributed generation capacity could be aggregated and made available during times of supply constraints. The study, which will assess technical, financial and operational issues, is currently underway.
- Also with the CLD, have worked with representatives of Enbridge Consumers Gas to identify and remove barriers to the use of back-up generators.

Results to Date

- Discussions have taken place with a number of customers interested in making back-up generation capacity available for dispatch by Hydro Ottawa. No formal commitments have been made to date.

Next Steps

- Work with the CLD to finalize application guidelines and incentive levels for back-up generator projects, follow-up on current project leads, and promote to other eligible customers

3.18 Overall Program Support

Description

Several program 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.

Community Events

Action

- Participated in 31 local events including the Help Santa Toy Parade, the Ottawa Home Show, Eco -fairs, etc.
- Concentrated on education regarding CFL bulbs, SLEDs and other simple and effective conservation products

Results to Date

- Distributed 930 SLEDs and 2500 CFL bulbs
- Distributed conservation brochure materials
- Enhanced public awareness of conservation and available Hydro Ottawa programs

Next Steps

- Continued participation in targeted public events
- Broaden conservation messaging
- Mobile Special Events Conservation Initiative planned

Walking the Talk

Action

- Employee challenge launched to increase employee awareness and engagement

- Regular monthly articles relating to conservation were placed in the employee newsletters
- Demonstration monitoring and Control System installed in a Hydro Ottawa Office facility
- Solar demonstration planned for a second facility

Results to Date

- Distributed conservation brochure materials
- Enhanced employee awareness of conservation and available Hydro Ottawa programs

Next Steps

- Continued employee events
- Broaden conservation engagement strategies

Project Porchlight

Action

- Hydro Ottawa contributed \$50K and promotional support as a founding supporter to Project Porchlight, a volunteer led grassroots project launched in Ottawa on October 29th, 2005.
- Project Porchlight's vision is to have every home in Canada using at least one compact fluorescent light bulb
- CFL bulbs were delivered door to door
- An additional 50,000 coupons for a free CFL bulb were mailed to Ottawa South residents for redemption at neighbourhood Giant Tiger stores

Results to Date

- Volunteers delivered 10,000 CFL bulbs door to door in the Federal riding of Ottawa South
- An additional 15,000 CFL bulbs were redeemed through the Giant Tiger stores,
- This will result in enough savings to power over 250 homes

Next Steps

- Expand the program to the entire City of Ottawa
- Support program expansion to other parts of Ontario and Canada

Canadian Electric Association (CEA)

Action

- Cooperation to coordinate the development and implementation of CDM programs and initiatives at the National level
- Established goal to eliminate incandescent lighting in Canada by 2015

Results to Date

- Planning work underway

Next Steps

- Broaden conservation messaging

4. Lessons Learned

We are learning as we go and have accomplished much to date by working with and leveraging various partnerships and relationships, by leveraging individual thought and innovation and by developing programs at the “grassroots” level. This is truly an evolution.

In particular, we are pleased with the unprecedented cooperation between utilities, especially throughout the CLD and feel that we have all benefited from the shared learning and the program development efficiencies.

While we have set up the necessary internal and external structures to manage CDM, we continue to fine-tune our processes. We believe that these initiatives are now starting to pay significant dividends as the programs start to roll out in earnest. In particular, we have learned the following:

Program Development

- 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.
- Conservation opportunities exist with residential and small commercial customers but the channel to market has many challenges. These customers are overwhelmed by market information, but lack the appropriate tools or models to accurately assess their options to implement appropriate individual solutions.
- We found that simple, low cost incentives like the powerWISE® Power Pack or free CFL bulbs were very well received by residential customers, offered good TRC results and proved that customers did not require significant incentives to participate in programs. In fact, ease of participation accompanied by moderate incentives with a perceived high value to customers appear to be the hallmarks of program success.
- Our powerWISE® Business Incentive Program showed us that Commercial and Industrial customer timelines for conservation projects are often longer than we expected and have a lower sense of urgency than we would prefer. Incentives have to be very meaningful, in order to encourage and speed up conservation projects at this large commercial level.
- Commercial Programs must address the needs of the customers at the Corporate, Municipal, Provincial and National levels to allow implementation across jurisdictions and beyond individual stores. Coordination is required to allow large Corporations to make programs available to all store locations regardless of location by City or Province.

Education

- Public education is a critical element as we build a culture of conservation, yet under the current reporting format, no reportable benefits can be attributed to this activity. This effectively penalizes Utilities from participating in this type of worthwhile and necessary initiative.
- As we develop a conservation culture in Ontario, we must continue to balance the need for short-term results while fostering a long-term conservation attitude among the citizens and businesses in the Province.
- Residential customers are generally aware of the simple products and initiatives that are available to help them to reduce their energy consumption. However, they have a limited understanding of the dollar impact and quick return provided by these simple solutions such as pipe wrap, SLEDs and CFL bulbs. It is critical to educate our customers and to provide a savings comparison in dollars to highlight these impacts.
- It is important to offer Commercial and Industrial customers access to information through convenient forums such as trade shows. There are many emerging technologies and an explosion of service providers in the marketplace. We need to concentrate our efforts on helping these customers understand not only the technologies but the impact and value these technologies can have on their specific organizations. This will lead to increased participation and adoption of new energy efficient technologies.

Regulatory Issues

- The energy industry must coordinate its many organizations and their individual efforts to ensure that program delivery is efficient, readily available and understood by all customers. Our goal should be rapid program deployment through the LDC's direct channel to market. Most customers don't understand the relationship among the various organizations within the hydro industry, so an attempt to deliver programs to the end customer by different groups only confuses the customer and suggests a lack of industry coordination. Clarity regarding the roles of the LDC, OPA, IESO, EDA, etc. would be beneficial in this regard.
- Further, clarity on the topics of LDC cost recovery, lost revenues and criteria for assessing prudence of CDM spending would also be helpful. This will lead to more aggressive applications for second generation funding.
- Finally, we must strive to streamline the LDC's administrative reporting efforts where possible. For example, if we can collectively identify certain conservation programs that have already proven to be effective, this should minimize the verification efforts required to substantiate these same programs at their conclusion.

4.1 Recommendations by Program Area

Residential and Commercial <50kW	Successful / H/M/L	Continue	Notes
Co-Branded Mass Market	Yes – High	Yes	Identify credits for softer measures such as education programs that will encourage CLD to implement further
Smart Meter Pilot	Yes - High	Yes	Meets the objectives of the provincial plan
Design Advisory	Too early to tell	Too early to tell	Opportunity to influence the construction of energy efficient buildings
Residential Load Control	Yes - High	Yes	Based on Toronto Hydro's experience, this program will deliver key summer peak reductions
Energy Audit Support & Incentives	Yes – High	Yes	Standardize the specific measures to be included in this program
Refrigerator Bounty	Yes - High	Yes	This program can be expanded province wide and could include freezers.
Electric Avenue	Early indications are positive	Yes	ETS units can limit costs when TOU rates are initiated Demonstrations well received.
Social Housing Program	Too early to tell	Yes	SHSC facilitated program will be effective. Individual initiatives require unique local support to reach lower income customers and gain their active engagement

Commercial Institutional and Industrial >5kW			
	Successful / H/M/L	Continue	Notes
Smart Meter Program	Yes - High	Yes	Meets the objectives of the provincial plan
Energy Audits and Feasibility Studies	Too early to tell	Too early to tell	This program will identify commercial conservation opportunities
LED Traffic Lights	Too early to tell	Too early to tell	Project planned for 2007 with the City of Ottawa. Preliminary estimates are positive.
Leveraging Energy Conservation or Load Mgmt	Yes - High	Yes	This program will provides a model and application process for any programs in the CI&I sectors
CI&I Load Control	Planned for 2006 and 2007	Yes	This program will deliver key summer peak reductions.
Distribution Loss Reduction			
Distribution Loss Reduction	Yes - Medium	Yes	TRC results not as positive as some other program areas, but savings are firm and sustainable.
Distributed Generation			
Load Displacement	Too early to tell	Planned for late 2006 or 2007	These programs have considerable potential to encourage new distributed generation as well as to utilize existing generators
Standby Generators	Too early to tell	Planned for late 2006 or 2007	
Overall Program Support			
Community Initiatives	Yes- High	Yes	These activities support all the program areas and assist with conservation education

5. Conclusion

While this was a discovery and development year for Hydro Ottawa's CDM program, the year was very successful. We developed and ramped up an effective Conservation and Demand Management program and generated some impressive results in a very short period of time. We took action, learned by doing and improved as we learned.

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.

The year started with a well-crafted CDM plan at a high level, but the plan had few details defined and we had minimal resources on hand to execute the plan. We had little experience with the marketplace related to CDM initiatives and the marketplace had little understanding of conservation as well. The regulatory environment was evolving so the market rules and reporting requirements were unclear. In spite of the uncertainty, we forged ahead, developed unprecedented alliances within the industry and built a diversified program with strong first year results.

CDM Program development is a complex and time-consuming process. Procurement and legal processes were more costly and time consuming than originally expected. 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. As we gained market experience, we were able to fine-tune our individual CDM plans as well.

We enjoyed highly recognized successes with two particular programs developed by Hydro Ottawa. The powerWISE® Fridge Bounty Program and the powerWISE® Business Incentive Program both proved to be very popular with our customers and have since been adopted by other LDC's throughout the Province.

We have great optimism for the future of Hydro Ottawa's CDM programs. The constraints facing the Provincial electricity distribution system, as demonstrated last summer, are well known and have created a heightened sense of urgency for all users to contribute to better management of our electricity demand. Our customers are recognizing the value of conserving electricity and Hydro Ottawa's role in delivering CDM programs locally is becoming well established. The marketplace is ready and we are gaining the expertise and resources required for fast, effective deployment of new and effective CDM programs and initiatives.

Hydro Ottawa has a very aggressive 2006 program planned. New programs will specifically target consumption during the summer peak and bring a new awareness to conservation awareness throughout the city.

Hydro Ottawa is committed to helping lead the evolution to a culture of conservation in this Province and will work with the regulator, the LDCs and other provincial organizations such as the OPA and EDA to make this happen.