

September 8, 2006

On the release of the CEEA submission:

I am pleased to make available our report to the Canadian Energy Efficiency Alliance (CEEA) who undertake, every two years, to assess progress by the provinces and the federal government on matters relating to energy efficiency.

In response to their request for a summary of energy conservation activities and policies undertaken for the fiscal year ending March 31, 2006, the Ministry prepared this report following the template suggested. Although the 2006 National Report Card on Energy Efficiency is not yet public, we would like to use this opportunity to share our report with all Ontarians as we look forward to getting the CEEA's feedback on our report.

The Ministry and this government are dedicated to creating a culture of conservation in the province. As is outlined in the report, this has meant creating the institutional structure to ensure conservation is properly considered, providing leadership by setting aggressive conservation targets, and utilizing a variety of policy tools and programs to ensure there is a sustained and aggressive pursuit of conservation opportunities.

The pace of activity is quickening and, even in the short five months since we submitted this report, there have been a number of new developments. Among these:

- The government directed the Ontario Power Authority (OPA) to create an Integrated Power System Plan that would meet the goal of total peak demand reduction from conservation by 2025 of 6,300 MW – a number double that which was suggested in the OPA's report to government. This aggressive target will ensure conservation remains one of the key focuses of any long term plan to achieve the government's core principles of safe, clean, reliable, and affordable supply of electricity.
- The government authorized over \$400 million in new spending (on top of \$163 million previously approved) for local utilities to build on existing conservation programs. This provides stable financial support for conservation initiatives and signals a commitment by this government to ensure all economically prudent conservation opportunities are pursued.
- Local utilities had, as of June 30th, launched over 250 conservation initiatives across the province. Program spending is accelerating with utilities having spent almost \$60 million (out of the \$163 million initially made available) whereas \$34 million had been spent in the previous 15 months.
- The Conservation Bureau, acting on Ministerial directions received earlier, launched a number of key conservation programs over the summer.
 - o Residential conservation campaigns such as "Every Kilowatt Counts" and "Cool Savings" – providing incentives for energy efficient goods and services,

- and “Refrigerator Retirement” – helping to remove and properly dispose of old, secondary fridges.
- Conservation programs for residents of social housing such as “Green Light” providing financial assistance to social housing providers wishing to invest in energy conservation
 - Industrial and commercial conservation programs such as the OPA’s Demand Response program to build capacity in those sectors which will enable the OPA to procure reduced consumption under peak demand conditions
- The Conservation Bureau funded more than 35 conservation projects from its Conservation Fund. Projects such as “Greening Sacred Spaces”, “Efficient Sudbury”, and “Greening Health Care” have all benefited from the Conservation Bureau’s support.
 - The Ministry moved to re-establish some funding for community-based conservation outreach and education projects in recognition of the success of its previous Conservation Partnerships program and to address a funding gap which affected community-based education projects.
 - Energy efficiency provisions in the Building Code have been updated with higher energy efficiency requirements such as higher insulation and furnace efficiency levels. Over the next eight years alone, the Building Code’s increased energy-efficiency requirements will save enough energy to power 380,000 homes and will reduce greenhouse gas emissions by an amount equal to removing 250,000 cars from Ontario’s roads.
 - The government’s central building management agency has completed additional projects to reduce its energy use, bringing the total of such projects to 289 and increasing the government’s confidence that it will be able to meet its target of 10% reduction in the government’s own electricity consumption by 2007.
 - New agreements between the Ontario Power Authority and the Building Owners and Managers Association (BOMA), the City of Toronto and Toronto Hydro mean Toronto will meet the province’s goal of 300 megawatts of electricity conservation by 2010

I hope you will find the report informative and that all Ontarians can continue to work together to build the culture of conservation.

Sincerely,

Dwight Duncan
Minister of Energy

SUMMARY OF REPORT SUBMITTED TO CEEA BY ONTARIO GOVERNMENT

The report submitted to the Canadian Energy Efficiency Alliance (CEEA) outlines the various energy efficiency initiatives and measures that have been introduced or implemented by the province of Ontario between January 2005 and April 2006. Initiatives include changes to standards and codes such as the Energy Efficiency Act and the Building Code. In addition the submission outlines actions by utilities as well as energy efficiency improvements made to government facilities. The CEEA will use this report as the basis of a conservation and energy efficiency Report Card for Ontario.

The objective of the Report Card is to identify government actions designed to improve energy efficiency, and raise market awareness of energy efficient technology and opportunities. Governments are marked on their ability to foster an environment that supports energy efficiency. Government initiatives must encourage industry, utilities and consumers to boost their energy efficiency, while providing the necessary tools to make this change possible.

Ontario has worked hard over the past year and a half and has succeeded in meeting these requirements. For example, the province created the Chief Energy Conservation Officer (CECO), who is responsible for raising awareness of conservation in Ontario. Ontario also established a 1.2 million dollar Conservation Partnership program, which includes outreach and education programs such as Cool Shops, EcoSchools and Reduce the Juice. The Ministry of Energy directed the Conservation Bureau to seek up to 1,300 MW of demand response and demand management throughout Ontario.

Energy efficiency programs in Ontario are offered by local electric and gas utilities, the newly created Conservation Bureau, the Ministry of Energy, and others. The powerWISE program is a partnership between the Ontario Government and six of Ontario's largest local electricity distribution companies. powerWISE works with the government to work together to create vital public awareness and to deliver multi-year, initiatives promoting energy conservation. In addition powerWISE will help reduce electricity demand in their service areas. This organization has already spent over \$10 million on programs. These funds supported CFL (lighting) change out programs, seasonal LED (lighting) exchanges, refrigerator buy-backs, smart meter pilots, commercial lighting upgrades, as well as load displacement and stand-by generator programs.

The Province of Ontario has set 2007 as the deadline to reduce overall electricity consumption within the government by 10% and to reduce projected peak electricity demand consumption by 5%. So far there have been over 387 individual conservation programs by utilities identified that once in place are projected to save an aggregate 62 million kilowatt hours. The Ministry of Energy has also invested over \$1.2 million in a range of innovative, replicable conservation outreach projects in a number of sectors. These initiatives include conservation initiatives in social housing, agriculture, schools, home construction and small business.

The Government has also created legislation and programs to enable the development of conservation plans by ministries, agencies, and public sector organizations. Recent legislation (Bill 21) is designed to support the government's smart metering initiative. Other initiatives include the development of the Net metering regulation and the development of the Standard Offer program, which will induce businesses to sell renewable power to the grid, by improving the cost-effectiveness of this practice.

The report also includes a summary of Ontario's Energy Efficiency Act, which matches California standards (the highest in North America) for 95% of the product categories regulated through standards. The report also gives an overview of Ontario's Building Code, which has been a leader among provinces with respect to energy efficiency housing requirements



Ontario Ministry of Energy submission to the
Canadian Energy Efficiency Alliance

CEEA April 2006 Report Card

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Attachments provided in separate volume:

Attachment 1 – Reports from Coalition of Large Distributors

Attachment 2 – Report from Hydro One

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Attachment 4 – OEB reporting template

Attachment 5 – Conservation Partnerships summary

Attachment 6 – Conservation Fund summary

Attachment 7 – Conservation Action Team report

Attachment 8 – CECO report

Executive Summary

Programs

- The Ministry of Energy authorized the Conservation Bureau to seek up to 1300 MW of demand response and demand management through six directives. Initial programs to be rolled out include a social housing initiative and a residential outreach and education campaign.
- The Chief Energy Conservation Officer (CECO) took on a leadership role in raising awareness on conservation and building ties to key energy users. 100 speeches delivered to multiple sectors and across the province, 80 Certificates of Recognition given to conservation leaders, over 200 media mentions, and over 10 million exposures.
- The government authorized over \$160 million in conservation and demand management programs by Local Distribution Companies (LDCs), to be delivered over 3 years. LDCs have proposed over 500 conservation initiatives in total and have spent \$34 million thus far (as of December 31, 2005).
- The Ministry funded a total of 25 innovative conservation outreach and education projects through its \$1.2 million Conservation Partnerships program including Cool Shops, EcoSchools, and Reduce the Juice. The Conservation Bureau is continuing the success of this through its \$1.5 million Conservation Fund to promote sector-specific conservation action and awareness.
- The Government of Ontario joined local distribution companies in establishing the powerWISE brand. Phase 1 Television ads promoting conservation awareness and easy actions (under the theme Working Together) were launched between February 1 and March 20. Average daily hits to the website jumped from approximately 100 to 800 a day in February 2006
- Through a variety of conservation programs in the residential, commercial and industrial sectors, Ontario has saved 2.2 billion m³ of natural gas since 1995, of which 162 million m³ were saved in the last reporting period.
- The natural gas savings are equivalent to the consumption of 755,000 homes per year, with the additional environmental savings in CO₂ emissions of about 4.1 million tonnes, equivalent to removing 1,088,000 cars from Ontario's roads for one year.

Energy Efficiency Act

- Since 1988, 13 regulation amendments have established minimum efficiency levels for more than 50 product categories that are responsible for over 70 percent of the

energy used in the residential sector and 50 percent in the commercial and industrial sector.

- Ontario matches California standards (the highest in North America) for 95% of the product categories regulated through standards.
- New efficiency standards established in 2005 for large residential gas-fired furnaces, street and industrial lighting ballasts, and refrigerated display cabinets.
- EnerGuide labelling requirements established for gas fireplaces.
- Tougher standards for residential and commercial air conditioners, household clothes washers, and household water heaters. These new standards increased the minimum efficiency level of air conditioners by 30 per cent and eliminated the production of approximately 50 per cent of the least efficient models currently available in Ontario.

Building Code

- Since 1992 Ontario has been a leader among Provinces with respect to energy efficiency housing requirements under the Building Code. Ontario is the only province to mandate energy efficiency in its own building code by referencing the model National Energy Code for Buildings and the ASHRAE 90.1 energy efficiency model standard. The *Building Code Act, 1992* also identifies Conservation and Environmental Integrity as purposes of the Building Code.
- Consultations are currently underway to update the Building Code and the Ministry of Municipal Affairs and Housing (MAH) is now in the process of developing changes to improve upon the energy efficiency provisions of the OBC. The new changes to the Building Code are expected to be finalized and released in Spring 2006.

Energy Business Plan

- The Government set a target to reduce overall electricity consumption in Ontario government operations by 10% by 2007 and to reduce projected peak demand consumption by 5% by 2007 (equal to 1350 MW). As a result of government policy, various parties implemented numerous energy efficiency programs and initiatives across the province to not only reduce present power consumption, but to develop a long-term solution through the creation of a “Culture of Conservation” in Ontario.
- The Ontario government also created the institutional structure to ensure that supply and demand options are treated on an equal footing. The Ontario Power Authority has been created to develop plans for system development that meet the goals established by the government. The Conservation Bureau, being part of the Ontario Power Authority, will contribute information on the potential for and costs of

conservation programs that can defer the need for expenditures on new supply. This Integrated Power System Plan (IPSP) will provide a foundation to ensure that the electricity system will continue to meet Ontario's needs well into the future.

- The Conservation Action Team (CAT) was established on January 16, 2004 with a mandate to assist in the creation of a conservation culture in Ontario and make demand management a cornerstone of Ontario's long-term energy policy framework. The Team released its report "Building a Conservation Culture in Ontario" on May 19, 2005, recommending 30 specific actions to address a range of issues raised by the over 300 stakeholders with whom the Team consulted with. The Team's recommendations address numerous issues, ranging from the actions required for government to reduce its own electricity consumption, ways to lever conservation into provincially funded infrastructure projects, reforming codes and standards and outreach programs for those vulnerable to energy price increases.

Housekeeping

- The government has set a target of 10% reduction in the government's own electricity consumption by 2007. 387 individual conservation projects have been identified thus far which are projected to save 62 million kilowatt hours at an estimated cost of \$93 million. 106 projects were complete as of March 31, 2005. The number of projects completed as of March 31, 2006 will be available shortly but is unavailable at this time due to end-of-year reporting requirements.
- Among the projects initiated through this process, the government is working with Enwave Corporation to extend the Deep Lake Water Cooling project to government buildings, helping to conserve 9.8 million kilowatt hours a year. Lighting, building automation, chiller replacement, and other HVAC projects make up the balance of the initial project list.
- Employee awareness programs are also a part of the government's plan for meeting its target and will serve to develop a culture of conservation among Ontario Public Service employees.

Regulation of Utilities

- Electricity Restructuring Act changed the status of LDCs to permit them to deliver conservation and load management programs. The Minister of Energy then, through the OEB, authorized LDCs to spend more than \$160 million in conservation initiatives for their customers.
- Most large LDCs have organized themselves into conservation working groups to facilitate program planning and implementation. There has been substantial

coordination of conservation initiatives among and between these three conservation groups (CLD, CHEC, and NEPPA) as well as with Hydro One, the provincially owned utility covering the largest geographical service territory.

- The Ontario Energy Board has made a number of regulatory decisions to remove barriers to conservation by LDCs (LRAM and a shared savings mechanism) and has enabled additional conservation funding through the 2006 rate hearing process. Eleven LDCs came forward in their 2006 rate hearings to request additional funds on top of the initial 3-year program funding.
- In order to streamline CDM regulation, minimize regulatory uncertainty for LDCs and facilitate annual reporting, the OEB issued a Total Resource Cost Guide that contains deemed costs, energy savings and other input variables for over 100 CDM technologies. The Guide is used to perform a cost-benefit analysis to screen the viability of CDM programs, as well as provide information in the annual CDM reports that LDCs must file.
- The Ministry has organized an opportunity for information sharing and policy discussion with LDCs and electricity sector agencies through the Electricity Conservation Working Group. In addition, the Ministry has organized a number of workshops and over the past year to disseminate information on conservation opportunities and help foster discussion among key stakeholders.
- The Ontario Energy Board instituted a two-block price structure for residential and low-volume electricity users, helping to establish the correct price signals to incent conservation behaviour. The price structure continues the effort to ensure consumers pay the real costs of electricity but provides different thresholds for the higher rates based on seasonality.
- The Ontario Energy Board regulates gas distribution utilities in Ontario. The objective of regulatory intervention is to enable DSM and to ensure that DSM investments are fairly compensated. To this aim, the Ontario Energy Board commissioned the gas distribution companies to design and implement DSM plans through its decision EBO-169 in 1993.

Access to Government Information

- The Ontario Power Authority established its website making available stakeholder consultation documents, projects and initiatives documentation, and the Supply Mix Advice documents
- Conservation Bureau has established its own website with information on studies commissioned to identify conservation opportunities, projects underway, program information, and general tips and information.

- The Ministry's website was revamped to serve as a more useful gateway to conservation information for Ontarians and the Ministry's activities. Additional practical tips for households and businesses, along with profiling of successful conservation initiatives have helped to increase site traffic by 32%.
- The Ministry initiated a series of public consultations on the Supply Mix Advice document, received from the Ontario Power Authority.
 - Following up on the Ontario Power Authority's extensive consultation over the second half of 2005, the Supply Mix Advice was posted on the Environmental Bill of Rights registry as well as the Ministry and Ontario Power Authority websites for public comment. Public consultations were held in 12 cities along with an informational brochure mailed out to all Ontario households.
 - More than 5,000 comments were received through this process.
- The Ministry's correspondence unit and call centre regularly field queries on conservation from individuals and businesses. In 2005 alone, the correspondence unit and call centre replied to 1490 letters or emails (30% of volume received) plus an additional 458 phone calls.
- The Environmental Registry: Over 2004/2005, the Ministry used the registry to post four documents (legislation, regulations, reports) for public information and comment.
- The Conservation Action Team, mandated to seek out and promote best practices in conservation and energy efficiency, met with over 300 stakeholder groups, and in 2005 released an action plan summarizing their learning and comprised of 30 recommendations for action.
- PowerWISE program instituted to raise awareness of conservation importance and opportunities.

Related Policy Developments

- Bill 21 (Energy Conservation Responsibility Act) received Royal Assent on March 28, 2006. Its purpose is to support the government's smart metering initiative and to enable the government to introduce new regulations, such as requiring the development of conservation plans by ministries, agencies, and public sector organizations. Consultations on possible regulations to follow.
- On March 21, 2006, the Ontario Power Authority was directed to implement a Standard Offer Program for small-scale renewable projects (up to 10 megawatts). Wind, water, and biomass projects would receive a base rate of 11 cents per kilowatt-

hour, while solar projects would receive a base rate of 42 cents per kilowatt-hour, guaranteed for 20 years.

- On October 25, 2005, the Net Metering Regulation passed allowing small-scale renewable generators (up to 500 kilowatts) to receive credit for excess electricity generated.
- The Ontario Strategic Infrastructure Financing Authority (OSIFA) is in the process of expanding its lending criteria to include conservation investments for municipalities and universities. OSIFA has provided \$2.4 billion of low cost financing to municipalities for infrastructure projects to date.
- Three Requests for Proposals have been issued to develop renewable energy in Ontario. The results from the first two Requests for Proposals have yielded a total of over 1,300 megawatts of renewable energy, increasing Ontario's installed windpower capacity by 80 fold over that period. A third Request for Proposal is outstanding.
- A Clean Energy Supply RFP resulted in the announcement on April 13, 2005, of four new electricity projects, including a cogeneration project, a demand response project, and two new combined-cycle natural gas-fired generating plants. These projects have a combined capacity of 1,675 megawatts, enough power for over 650,000 homes, and will bring an estimated \$1.1 billion of new capital investment to Ontario.

Performance

- The province is on track to meet the government's goal of a 5% reduction in the growth of peak energy demand by 2007 (i.e., a peak demand of 25,650 MW). Peak demands in 2004 and 2005 were 23,372 MW and 24,609 (weather-corrected) respectively.
- Ontario has 90+ LDCs, seven of which represent 70% of the customer base (Coalition of Large Distributors plus Hydro One). These seven LDCs reported almost 120 million kilowatt hours of demand reduction over the past year, or enough power to run almost 13,000 homes.
- The Conservation Bureau launched a number of conservation initiatives under the authority of Minister's directives. \$9 million as part of financial incentives and support for a social housing energy efficiency program will partially address the 100 MW target for demand reduction in low income and social housing. The "Every Kilowatt Counts" residential campaign has been launched with "Cool Savings", a \$15 million air conditioner tune-up and upgrade program being the first component.
- The Government of Ontario continues to make good progress on its goal of reducing electricity consumption in government buildings by ten percent by 2007. More than

half of the conservation goal is accounted for through projects either undertaken or identified and planned for completion by 2007.

- The government's smart meter initiative is on track with the most recent accomplishment being Bill 21 (Energy Conservation Responsibility Act) receiving Royal Assent, paving the way for regulatory changes needed for smart meters to be installed in 800 000 homes by 2007 and in all homes by 2010. In addition, LDCs have installed over 17 000 smart meters in various pilot programs in order to ensure an efficient rollout in the near future.
- The Ontario Energy Board established time-of-use rates, in support of the government's smart meter initiative, in order to provide consumers with the right price signals and to encourage peak-shifting activities.
- LDCs have spent \$34 million on conservation initiatives in the initial stage of a \$163 million investment. Investments are accelerating, with half of the \$34 million having been spent in the last quarter of 2005.
- Gas utilities have realized 162 m³ of savings in the last reporting period alone, adding to the cumulative total of 2.2 billion m³ since 1995.

Evaluation

- The government set out, as a legislative requirement, that the Chief Energy Conservation Officer must prepare an annual report evaluating the province's progress on meeting its conservation goals and identifying barriers to action. The first such report was issued in November 2005 and provided details of the Conservation Bureau's planned activities as well as a review of progress in meeting the government's targets.
- The Ontario Energy Board evaluated LDC conservation program performance through the requirement for quarterly and annual reporting. Program portfolios are required to meet Total Resource Cost test requirements, based on Ontario Energy Board reporting criteria.
- The Conservation Bureau commissioned a number of market assessment studies in order to properly evaluate and assess conservation opportunities in a number of market segments.
- The Conservation Action Team, made up of Parliamentary Assistants, consulted widely, meeting with over 300 groups and individuals who represented several sectors, leading-edge technologies and a wide range of interests in energy. Based on its findings, the Conservation Action Team evaluated the opportunities for conservation and proposed 30 recommendations to help create a conservation culture.

- Natural gas programs are also evaluated on an annual basis by the Ontario Energy Board. There have been numerous awards received from independent, third parties that highlight the successes achieved on natural gas conservation. A review is underway to further improve the delivery of natural gas conservation programs.

Energy Efficiency Programs

Introduction:

Energy efficiency programs in Ontario are offered by local electric and gas utilities (there are over 90), by the newly created Conservation Bureau, by Ministries, and by others. The programs include public outreach, partnerships with NGO and non-profit agencies, and public-private partnerships.

Summary:

- The Ministry of Energy authorized the Conservation Bureau to seek up to 1300 MW of demand response and demand management through six directives. Initial programs to be rolled out include a social housing initiative and a residential outreach and education campaign.
- The Chief Energy Conservation Officer (CECO) took on a leadership role in raising awareness on conservation and building ties to key energy users. 100 speeches delivered to multiple sectors and across the province, 80 Certificates of Recognition given to conservation leaders, over 200 media mentions, and over 10 million exposures.
- The government authorized over \$160 million in conservation and demand management programs by Local Distribution Companies (LDCs), to be delivered over 3 years. LDCs have proposed over 500 conservation initiatives in total and have spent \$34 million thus far (as of December 31, 2005).
- The Ministry funded a total of 25 innovative conservation outreach and education projects through its \$1.2 million Conservation Partnerships program including Cool Shops, EcoSchools, and Reduce the Juice. The Conservation Bureau is continuing the success of this through its \$1.5 million Conservation Fund to promote sector-specific conservation action and awareness.
- The Government of Ontario joined local distribution companies in establishing the powerWISE brand. Phase 1 Television ads promoting conservation awareness and easy actions (under the theme Working Together) were launched between February 1 and March 20. Average daily hits to the website jumped from approximately 100 to 800 a day in February 2006
- Through a variety of conservation programs in the residential, commercial and industrial sectors, Ontario has saved 2.2 billion m³ of natural gas since 1995, of which 162 million m³ were saved in the last reporting period.
- The natural gas savings are equivalent to the consumption of 755,000 homes per year, with the additional environmental savings in CO₂ emissions of about 4.1 million tonnes, equivalent to removing 1,088,000 cars from Ontario's roads for one year.

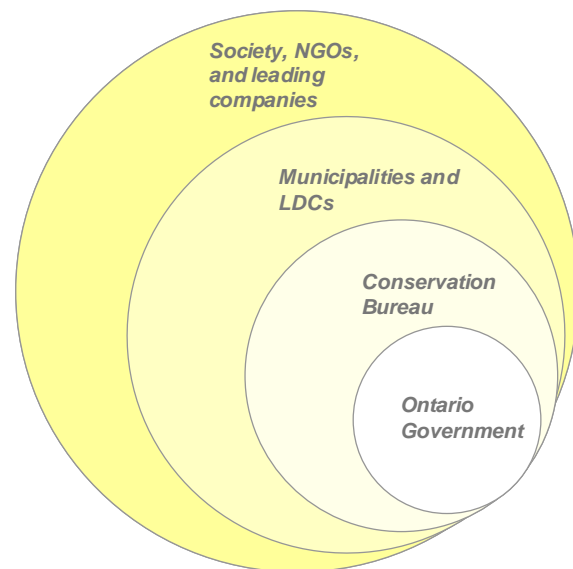
Ontario's model for conservation delivery

Ontario has a unique conservation delivery framework. More than 90 local distribution companies (LDCs) are the primary point of contact for electricity users in the province and have established a level of trust and familiarity with their customers. In addition, there are a number of agencies whose mandate includes conservation and are engaged in helping to deliver a culture of conservation across the province.

As the figure below illustrates, a 'ripple effect' initiated by policy direction and target setting from the government moves outward to help generate conservation program activity among key stakeholders such as the Conservation Bureau, LDCs, municipalities, non-governmental organizations (NGOs), and other leading organizations.

This newest entity, the Conservation Bureau, was created under the *Energy Restructuring Act* passed on December 9, 2004. Working from within the Ontario Power Authority, the Conservation Bureau is the first entity since the late 1980's to become the focal point for electricity conservation planning and programming in Ontario

The role of the Conservation Bureau is to develop, coordinate and stimulate commitment to electricity conservation and demand management programs. It is an independent agency with a long-term focus under the direction of the Chief Energy Conservation Officer.



The *Energy Restructuring Act* established these requirements of the Conservation Bureau:

- Develop province-wide conservation programs that are delivered on a provincial basis and/or develop fundamental program elements that can be tailored for local delivery
- Lead the educating and informing of consumers on the benefits and techniques for conservation
- Assess the technical, economic and market potential for conservation in Ontario, which can serve as the basis for informing targets, priorities and program design at the provincial and local levels

- Develop the methodology for assessing the cost and benefits of conservation measures and maintain a catalogue of conservation measures, their average costs and benefits for use by local distribution companies and others
- Develop the system for monitoring and evaluating conservation impacts and report on Ontario's progress in achieving its conservation targets and specify what further action is required

The Conservation Bureau, the LDCs, and other key stakeholders operate under an environment framed by the government's conservation targets. The government has set three important targets for the electricity sector:

- Achieving a 5% reduction in the growth of peak electricity demand by 2007,
- Reducing electricity use in government operations by 10% by 2007, and
- Installing 800,000 smart meters by 2007 and all households by 2010.

In addition, the government has outlined a policy goal of treating conservation and generation on an equal footing. The first Request for Proposal (RFP) for 2500 MW of Clean Energy Supply was the first instance where this was put into practice, by seeking both supply and demand management through the single call for proposals.

While the results of this RFP were disappointing in terms of the number of demand management proposals received, it provided a useful learning experience and has been a building block for additional RFPs such as the York Region demand side management RFP which explicitly sought to address a potential regional electricity shortage issue.

Ontario has promoted gas conservation for over a decade. Numerous gas DSM programs are currently in place addressing the residential, commercial and industrial customers. For the last 10 years, the province has encouraged conservation and has enabled the gas industry to develop and implement DSM plans.

The initial guidelines for gas DSM were established in 1993 in the Ontario Energy Board's Order 169 (see Section 8, Regulation of Utilities). The design and implementation of specific DSM plans was undertaken by the gas distribution companies, while the government through regulatory agencies ensured the financial viability of DSM. Numerous programs were implemented, and evolved into the current suite of offerings or served their purpose and ended their lifecycle.

Ontario has delivered the following results through gas DSM:

- Saved 2.2 billion m³ of gas since 1995, of which 162 million m³ were saved in the last reporting period;
- Produced net societal benefits of \$1,414 M based on the approved Total Resource Cost Test since inception;
- Established additional targets of 347 million m³ for 2006-2007;

- Estimated a cost of \$70 M to deliver the 2006-2007 targets;
- Estimated additional societal benefits of \$632 M for 2006-2007.

The volumetric savings are equivalent to the natural gas usage of 755,000 homes per year, with the additional environmental savings in CO₂ emissions of about 4.1 million tonnes, equivalent to removing 1,088,000 cars from Ontario's roads for one year.

Note on layout of this section

The government has created the framework for the delivery of conservation programs and initiatives through target setting, legislative and regulatory initiatives, and by outlining key policy decisions. As a result of the sheer number of conservation programs (just considering LDC programs in a three year period, over 500 LDC initiatives alone are planned or have been launched), it is a challenge to fully describe all the activity currently underway in Ontario.

It is also difficult to cleanly separate out the various programs into the categories of public outreach, NGO partnerships, and public-private partnerships. For example, the Clean Air Foundation's successful Keep Cool air conditioner bounty program was an NGO partnership, funded by Toronto Hydro and operated through a partnership with Home Depot, a private retailer.

Rather than trying to artificially divide up individual programs into those three categories, the framework under which programs are developed is described below, categorized on the basis of which organization held primary responsibility. Further details on key LDC programs are provided through the attached annual reports prepared for the Ontario Energy Board, in order to give the reader a sense for the breadth of activities currently underway.

Conservation Bureau programs

In advance of the Integrated Power System Plan, the Conservation Bureau is unable to independently launch significant conservation initiatives. In light of this, the Minister of Energy has exercised the legislative authority to issue directives to the Ontario Power Authority, authorizing them to take on responsibility for conservation initiatives. To date, there have been six such directives related to conservation (scale of initiative in brackets):

- Demand side management and/or demand response initiatives across the province with particular focus in the Cities of Toronto, Mississauga, Brampton, and Oakville (500 MW)

- Programs to increase conservation and demand management for residents of low income and social housing (100 MW)
- Programs to take energy-inefficient appliances out of service and encourage the adoption of efficient lighting technologies and efficient lighting design (100 MW)
- Programs to increase conservation and demand management in the Toronto area (300 MW)
- Programs to increase conservation and demand management in commercial buildings and in the municipal, university, schools, and hospital sectors (150 MW)
- Programs to increase conservation and demand management in the residential sector through such initiatives as energy audits and consumer incentives (150 MW)

It is estimated that these government directives will enable over \$1.5 billion of investments by the Conservation Bureau over the life of these initiatives. Immediate results are already being seen through such activities as:

- Ontario Power Authority has issued a series of Requests for Proposals for demand response initiatives across the province. Proposals are due in the spring with contract execution expected to occur by late summer.
- The Conservation Bureau has announced a \$9 million investment to upgrade appliances and lighting in social housing to support energy conservation. This is the first phase of a multi-phase initiative to achieve 100 MW of savings in low income and social housing. Additional initiatives starting in the summer of 2006 will target building envelope upgrades, low-income multi-residential housing and First Nations housing.
- Residential education and incentive programs are to be launched by the Conservation Bureau in early Spring 2006 to provide incentives and education to customers on energy efficient lighting and appliances. These programs will be rolled out in cooperation with LDCs. The first such initiative – the “Cool Savings” campaign, is a \$15 million air conditioner tune-up and replacement program that will seek 31 megawatts of savings over the summer.

In addition to these program-related activities, the Chief Energy Conservation Officer was active in reaching leaders across Ontario and raising awareness on conservation among the general public in order to develop the “culture of conservation”. Over the past year, Chief Energy Conservation Officer, Peter Love, has:

- Delivered 100 speeches to multiple sectors and across the Province,
- Awarded 80 Certificates of Recognition to conservation leaders,

- Received over 400+ media mentions and generated over 10 million exposures through his media appearances and public events.

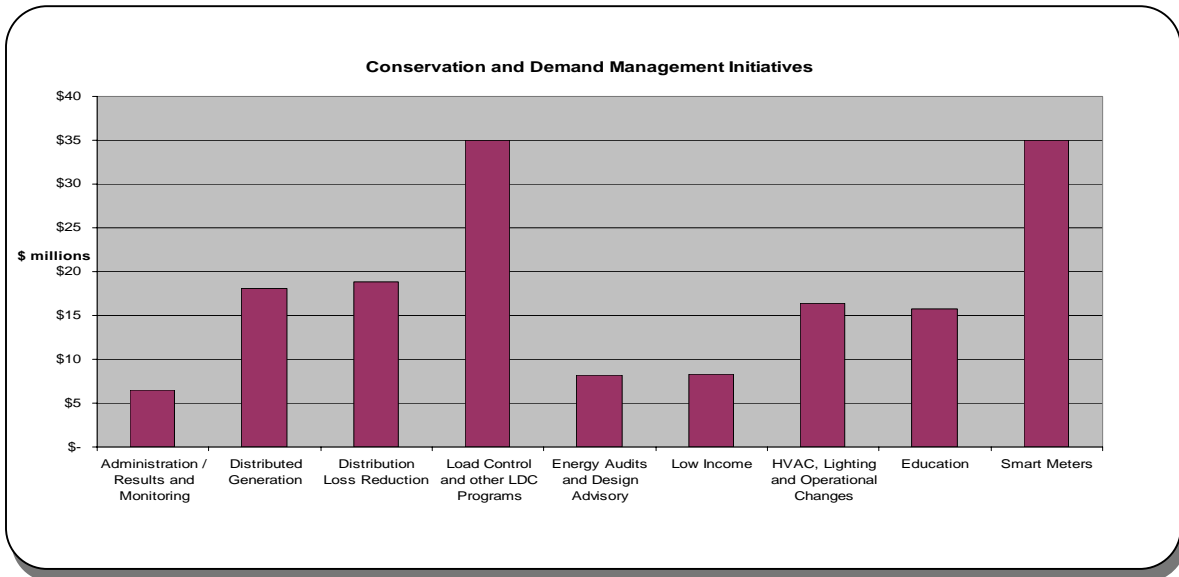
The other role of the Chief Energy Conservation Officer is the publication of an annual evaluation of the province’s progress on conservation matters (please reference “Evaluation” section below).

Local Distribution Company Programs

On May 31, 2004, the Minister of Energy wrote to all Local Distribution Companies (LDCs), authorizing them to begin investing in new conservation initiatives for their customers.

The Minister's letter also stated the intention that the forthcoming regulatory framework for electricity demand-side management to remove barriers to conservation. This would include addressing concerns related to impacts on utility revenues.

The Ontario Energy Board subsequently approved \$163 million in conservation spending.



Almost all of the province’s 93 LDCs submitted conservation plans to the Ontario Energy Board and most have programs up and running. The spending can be divided into the following broad categories identified in the figure above.

Other points of note:

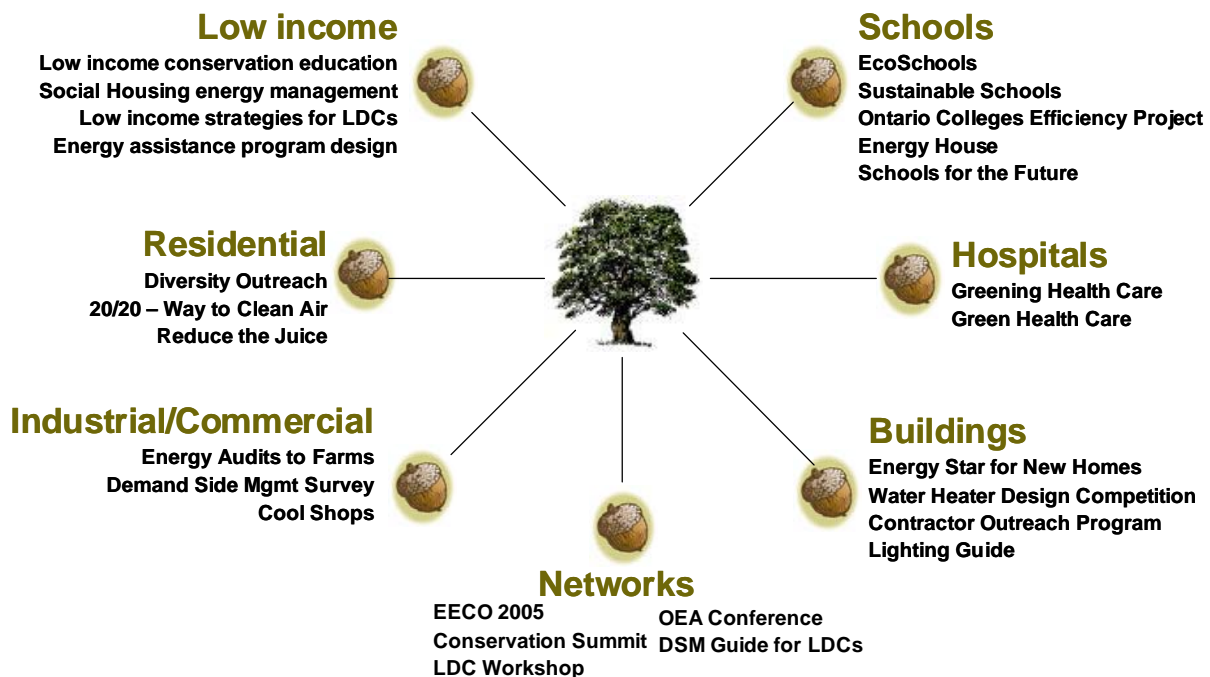
- LDCs have until September 30th, 2007 to spend these funds. The most recent annual report indicates LDCs had spent over \$34 million on conservation initiatives, or 20% of the \$163 million approved.
- The rate of program spending is accelerating, with half of the \$34 million having been spent in the 4th quarter of 2005. Program design and identification of conservation opportunities required a gradual ramping up of spending. In addition, LDCs have had to reacquaint themselves with conservation issues after a period of inactivity – pointing to the need for capacity building in the conservation industry.
- The Coalition of Large Distributors (CLD), comprising Enersource, Hamilton Utilities, Toronto Hydro, Hydro Ottawa, Power Stream and Veridian, are collaborating under the brand “powerWISE” to deliver conservation programming. The CLD serves 1.7 million customers or 40% of the province.
- The CLD group’s 2005 activities resulted in 110.6 million kilowatt hours of electricity savings through their collective programs, which included a mixture of in-house conservation programs, partnerships with NGOs, and partnerships with private-sector retailers (see attachment 1 – CLD reports).
- Hydro One, the provincially owned corporation, has the largest geographical service territory and serves approximately 30% of the province. Hydro One’s 2005 activities resulted in 8 million kilowatt hours of electricity savings. Hydro One also delivered programs through a mixture of in-house conservation programs, partnerships with NGOs, and partnerships with private-sector retailers (see attachment 2 – Hydro One report).
- The remaining 86 LDCs implemented a wide variety of conservation programs and incentives (see attachment 3 – CHEC and NEPPA summaries). Key programs offered by a variety of LDCs include:
 - “Conserver Joe” public outreach campaign
 - Secondary fridge retirement programs
 - Rebates for Energuide for Homes audits
 - LED lightbulb exchanges and CFL lightbulb promotions
 - Industrial seminars on energy conservation
- Formal reporting by the individual LDCs on an annual basis was due on March 31, 2006 but was not available in time for this report due to the auditing and error checking process. LDCs will be required to provide comprehensive program details including dollars spent and savings achieved (see attachment 4 - template).

Provincial Government programs

The Government of Ontario has been active on a number of fronts in order to directly influence the development of a culture of conservation.

The Ministry of Energy invested over \$1.2 million in a range of innovative, replicable conservation outreach projects in a number of sectors – including conservation initiatives in social housing, agriculture, schools, home construction and small business (see attachment 5 – Conservation Partnerships summary).

The Ministry’s Conservation Partnerships program leveraged an additional \$4+ million in funding from other sources in order to support this work. Projects funded covered a wide range of sectors and, as shown in the figure below, were intended to be “acorns” planted to ensure growth in an overall conservation culture.



Of the various Conservation Partnerships programs funded, the following merit special attention:

- *Power Up Renewable Energy Cooperative’s Reduce the Juice program* – A door-to-door conservation outreach program delivered by local high school students. The students delivered conservation tips and materials and got local residents to

sign pledges committing themselves to energy conservation. An analysis done following the campaign indicates that the towns' electricity consumption was reduced by more than 5% among homes and small businesses.

- *Toronto Environmental Alliance's Low Income Conservation Education program* – A pilot low-income tenant conservation outreach program where tenants were trained and hired to provide conservation information and education to their fellow residents.
- *York University's EcoSchools program* – An innovative conservation outreach initiative targeted at schools with a focus on operational improvements and teaching techniques and materials focused on conservation.
- *Ontario Federation of Agriculture's Energy Audits to Farms program* – A pilot energy audit program for farms and a complementary series of workshops.
- *Conservation Council of Ontario's Conservation Summit* – A summit for non-governmental organizations attended by 400 individuals to discuss the development of a culture of conservation.

The Conservation Bureau has since expanded this program and continued many of the initial pilot programs started by the Ministry. The Conservation Bureau's Conservation Fund funded over one million dollars in programs in 2005 (see attachment 6 – Conservation Fund summaries) and has established a \$1.5 million budget for 2006. These programs assist small business, farms, first nations, retailers and other sectors to conserve energy.

Some initiatives and pilot projects include:

- *Chill Out* – An appliance exchange program by London Hydro to rid the system of 3,500 inefficient fridges, freezers and air conditioners. Participants receive cash incentives to turn in inefficient appliances for more energy-efficient ones
- *Project Porchlight* – A community based project launched in November to encourage consumers to replace incandescent light bulbs with more energy efficient CFLs.
- *Greenlearning.ca* – An education program first started in Alberta where students and teachers are supplied web-based material on energy and the environment.
- *Reduce the Juice* – An energy conservation awareness program based in Shelburne which delivered a summertime 5% reduction in demand
- *Doors Closed!* – a public awareness campaign that urged shopkeepers to keep their doors closed on hot days to reduce air conditioning waste.

In addition to the funding of these types of grassroots education and outreach initiatives, the Ministry is also partnering with local distribution companies in establishing the powerWISE brand for conservation. PowerWISE represents conservation, education and programs geared towards the customers. The LDC's will work to deliver a major, multi-year, initiative designed to promote energy conservation to consumers and reduce the demand for electricity in their service areas.

Other Ministries also have a number of conservation-related programs currently available:

- Agriculture, Food and Rural Affairs

Working with the agri-food sector (producers, processors, growers, suppliers, etc.) in providing energy audits and training opportunities through the Ontario Federation of Agriculture and other stakeholders such as the Agricultural Energy Co-op.

- Community and Social Services/Children and Youth Services

This ministry implemented a broad conservation strategy including reduction of electricity consumption in their facilities. Each region, facility and corporate site developed a conservation team, terms of reference were prepared and plans developed to address the ministry's strategies.

- Economic Development and Trade

The Small and Medium Enterprise (SME) Division developed a seminar series that provided business clients with awareness of the opportunities for energy costs savings through the use of real case studies and availability of experts to show how energy conservation plans could be developed and implemented with financial assistance from the federal government and gas utilities. In the first quarter of 2005/2006, six seminars have been organized while in 2004/2005, 15 seminars were held for more than 750 attendees. In 2005/2006, SME division expects between 850 – 1,000 attendees.

- Finance

Government of Ontario offers sales tax rebates of the provincial retail sales tax on the purchase of residential solar, wind, micro-hydroelectric or geothermal energy systems, or on any expansions or upgrades to existing systems installed in residential premises.

- Municipal Affairs and Housing

The Ministry of Municipal Affairs and Housing is supporting and promoting energy conservation across the province through the Provincial Policy Statement, conducting research and analysis on energy saving measures that may be considered

in the development of potential amendments to the Building Code, and several initiatives related to affordable housing.

- Natural Resources

Ontario Parks has initiated numerous small-scale projects throughout the park system to realize savings by investing in energy efficiency. Initiatives include alternative power generation, efficient lighting and heating systems, building re-design, and building retrofits to accommodate efficient energy usage.

powerWISE

The powerWISE program is a partnership between the Ontario Government and six of Ontario's largest local electricity distribution companies [Coalition of Large Distributors (CLD)] representing 1.7 million customers or 40% of electricity customers in Ontario.

As well as undertaking their own distinct program, powerWISE is a catalyst for the government and the CLD to work together to create vital public awareness, and to deliver major, multi-year, initiatives that will promote energy conservation and help reduce electricity demand in their service areas.

The group has spent over \$10 million on programs, to date—including, for example: CFL change out programs, seasonal LED exchanges, refrigerator buy-backs, smart meter pilots, commercial lighting upgrades, as well as load displacement and stand-by generator programs.

To support the issue of conservation, and the many initiatives being undertaken—and planned—by powerWISE, in early 2006, the first phase of a major advertising campaign was launched—with positive results.

Under the theme of “Working Together,” the first campaign ran between January 30 and March 26, 2006. Phase II is slated to commence in spring.

The campaign consisted of television advertising on both network and specialty channels (e.g. the Weather Network) plus print advertising in major markets (Toronto, Ottawa, Hamilton, Kitchener and London.) English, French and ethnic publications were targeted.

Over the course of the campaign, average daily visits to powerwise.ca jumped from approximately 100 to more than 800 throughout February. Frequency of television ads indicate high reach: 95.6 per cent of Adult 18+ viewers saw the ads approximately 14 times.

Independent Electricity System Operator programs

The Independent Electricity System Operator (IESO) has developed various publications on conservation to help educate their customers as well as providing workshops specifically geared for industrial customers to assist them in identifying conservation opportunities. The IESO also has an informative website that provides data and information to IESO customers.

Natural Gas DSM Programs

Local gas distribution companies offer a wide variety of DSM programs in each market segment. They have developed considerable expertise in the design and delivery of the DSM programs for the residential, commercial and industrial markets and adopted different approaches to meet the needs of each customer type. The programs include education and provision of information, direct delivery and installation of simple products, and incentives to assist in making an energy conserving decision for a product or system. Many DSM programs are currently in place and some are briefly described here.

1. Residential Programs.

These programs address gas DSM through education and incentives. These programs:

- promote energy conservation in existing or new homes and offices
- assist in installing energy efficient appliances and equipment, and
- encourage potential participants to purchase and install high efficiency products.

Among other programs, the following are noteworthy:

- A. Programmable thermostats. A program is in place providing education and assistance to install programmable thermostats, in conjunction with Natural Resources Canada.
- B. Energy Star windows. A program is in place to install energy efficient windows in new construction, or retrofit existing homes.

- C. High efficiency furnace retrofit. A program is in place to provide incentives to install high efficiency furnaces.
- D. Heat traps. These are devices intended to capture heat otherwise wasted in the hot water tanks. A program is in place to educate, promote and deliver/install heat traps.
- E. Aerator showerheads. A program is in place to deliver and install these showerheads in certain municipalities. Pipe insulation and kitchen aerators are also delivered/installed as part of the program.

2. Industrial and Business Programs.

This sector includes industrial, agricultural, multi-residential, social housing, offices, warehouses, hospitals, municipalities, schools, etc, typically with consumption exceeding 75,000 m³ per year.

- A. Replacement and Retrofit. Programs in place address the use of best practices resulting in energy and water efficiency. The programs include the use of technology, education and services necessary to enable the retrofit to higher efficiency products.
- B. HVAC programs. This program addresses operational efficiency gains. It includes measuring and information provision to the facilities management, with alerts and suggestions when consumption exceeds pre-set limits.
- C. Energy audit. These are offered at no charge to certain sectors, leading to the identification of areas for improvement.
- D. General Assistance. Through these programs, technical expertise as well as financial assistance is available targeting commercial and institutional facilities.
- E. Boilers. These programs audit the boiler and distribution system, and compares its efficiency to established benchmarks to allow for identification of problems and increasing efficiency.
- F. Recovery of Heat. Opportunities are identified by technical personnel, and a recovery plan is submitted to the customer for implementation.
- G. Monitoring and informational programs. These programs are based on establishing measurements to provide an indication of potential areas for improvement. Information systems are used to help in target setting.

Energy Efficiency Act

Summary:

- Since 1988, 13 regulation amendments have established minimum efficiency levels for more than 50 product categories that are responsible for over 70 percent of the energy used in the residential sector and 50 percent in the commercial and industrial sector.
- Ontario matches California standards (the highest in North America) for 95% of the product categories regulated through standards.
- New efficiency standards established in 2005 for large residential gas-fired furnaces, street and industrial lighting ballasts, and refrigerated display cabinets.
- EnerGuide labelling requirements established for gas fireplaces.
- Tougher standards for residential and commercial air conditioners, household clothes washers, and household water heaters. These new standards increased the minimum efficiency level of air conditioners by 30 per cent and eliminated the production of approximately 50 per cent of the least efficient models currently available in Ontario.

Energy Efficiency Act

Since the Energy Efficiency Act was passed in 1988, Ontario has been a leading jurisdiction in the development and regulation of minimum efficiency standards. The Act allows the province to set minimum efficiency standards and compliance dates for residential, commercial and industrial electrical products sold or leased in Ontario. To date, 13 regulation amendments have now established minimum efficiency levels for more than 50 product categories that are responsible for over 70 percent of the energy used in the residential sector and approximately 50 percent of the energy used in the commercial and industrial sectors.

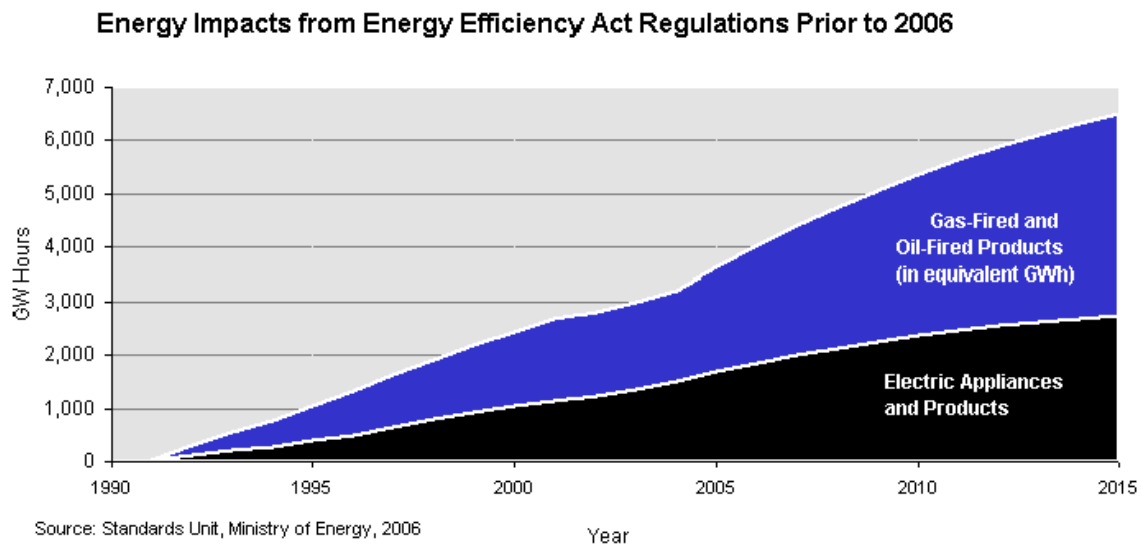
Through the Energy Efficiency Act, Ontario matches the top North American energy efficiency standards for most residential appliances (see table below comparing Ontario with California). These regulations cover an estimated 95% of the energy consumption as covered by California regulations (see table for a comparison across major product categories).

Product Category	California Regulation	Ontario	Consumption (percentage of whole house use)
Air Conditioners	√	Matches	14%
Refrigerators	√	Matches	11%
Clothes Dryers	√	Matches	7%
Ranges	√	Matches	7%
Dishwasher	√	Matches	7%
Freezers	√	Matches	6%
Water Heaters	√	Matches	5%
Clothes washer	√	Matches	2%
Whole house fans and residential exhaust fans	√	In Development	0-4%
Residential pool pumps	√	In Development	0-10%
Torchieres	√	In Development	< 1%

Product Category	California Regulation	Ontario	Consumption (percentage of whole house use)
Lighting	In Development	In Development	19%
Furnace Electricity Use	In Development	In Development	15%
Power supplies and consumer audio and video equipment.	July 2007	In Development	7%

In the summer of 2005 the government filed a Regulation under the Ontario’s Energy Efficiency Act that mandated new efficiency standards for large residential gas-fired furnaces, street and industrial lighting ballasts, and refrigerated display cabinets. The new Regulation also set an EnerGuide labelling requirement for gas fireplaces and also set tougher standards for residential and commercial air conditioners, household clothes washers, and household water heaters. The new energy efficiency standards increased the minimum efficiency level of air conditioners by 30 per cent and eliminated production of approximately 50 per cent of the least efficient models currently available in Ontario.

The graph below indicates the energy savings that have resulted by minimum efficiency standards to appliances and products in Ontario since 1990.



Regulatory work is ongoing and Ministry staff are expecting to bring forward additional updates, including updates to the following:

- P.2 Gas-Fired Furnaces
- A440.2 Energy Rating for Windows
- C656 - Through the wall, and high velocity units
- C746 Unitary Air Conditioners
- C360 Commercial Clothes washers
- C860 Exit Sign (including LEDs)

In addition, it should be noted that the Ministry of Energy's Ed Grzesik is this year's recipient of the Canadian Standards Association John Jenkins Award. The John Jenkins Award is the most prestigious honour bestowed by the CSA to the person who is judged to have rendered distinguished service in the development, advancement, and application of voluntary standards.

Only one award is given out each year - Ed now joins the ranks of twenty-five individuals who have received the John Jenkins award since it was first created in 1979. This is a testament to the outstanding work Ed has done over the years to advance energy efficiency standards and demonstrates the high regard his colleagues and the industry have for him.

Building Codes

Summary:

- Since 1992 Ontario has been a leader among Provinces with respect to energy efficiency housing requirements under the Building Code. Ontario is the only province to mandate energy efficiency in its own building code by referencing the model National Energy Code for Buildings and the ASHRAE 90.1 energy efficiency model standard. The *Building Code Act, 1992* also identifies Conservation and Environmental Integrity as purposes of the Building Code.
- Consultations are currently underway to update the Building Code and the Ministry of Municipal Affairs and Housing (MAH) is now in the process of developing changes to improve upon the energy efficiency provisions of the OBC. The new changes to the Building Code are expected to be finalized and released in Spring 2006.

Building Code

Ontario is currently a leader in Canada with respect to addressing energy efficiency through regulation in its building code. The principles of conservation and environmental integrity are embedded in legislation (Building Code Act, 1992) as objectives of the Ontario Building Code (OBC). The OBC includes specific requirements for energy efficiency in small-scale (Part 9) residential buildings.

For other buildings not covered by the residential Part 9 provisions (larger and/or non-residential) the OBC provides designers choice in how to address energy efficiency. The OBC allows the option of following either the Model National Energy Code for Buildings or ASHRAE/IES 90.1, which, in themselves, allow flexibility on how the efficiency requirements are achieved.

The OBC's conservation objective is not limited to energy. Water conservation provisions are also included in the OBC. Those provisions that impact hot water consumption have the benefit of conserving the water, the energy to heat it and the energy to treat and pump it.

Pursuant to the Government of Ontario commitment to reducing peak electricity demand and creating a culture of conservation, the Ministry of Municipal Affairs and Housing (MAH) is now in the process of developing changes to improve upon the energy efficiency provisions of the OBC. The new changes to the Building Code are expected to be finalized and released in Spring 2006. In order to give the industry time to adjust to comply, the new provisions would take effect at the end of the year. This will be the first improvement in the OBC's energy efficiency provisions since 1993.

There are related proposals in four areas:

- Increased insulation requirements for houses
- Increased requirements for large commercial and residential buildings
- An energy efficiency-labelling requirement for houses.
- Proposed changes to address barriers and ambiguities related to conservation and self-generation in the OBC, including:
 - Provisions allowing photovoltaic assemblies on roofs, where combustible assemblies are not normally allowed.
 - Provisions making it clear that wind turbine towers exceeding 16.6 metres fall under the OBC.

- Various provisions related to solar water heating, wastewater heat recovery and storm water management.

At time of writing, MAH was in the process of public consultation on specific initial options it put forward in these areas. The make-up of the provisions MAH proceeds to move forward with will be impacted by the feedback from the consultation process.

Following are the current OBC energy efficiency provisions under Part 9 for houses, for which upgrade changes are currently being considered.

<i>Existing Building Code Provision</i>			
9.25.2. Thermal Insulation			
9.25.2.1. Required Insulation			
(4) Except as permitted in Sentences (5), (6), (7), (8), (13) and (14) the minimum thermal resistance of insulation shall conform to Table 9.25.2.1.			
(6) All sliding glass doors separating heated space from unheated space shall have a thermal resistance of not less than 0.30 m ² °C/W (1.70 ft ² .h.°F/Btu).			
Table 9.25.2.1.			
Minimum Thermal Resistance of Insulation to be Installed based on Degree Day Zones⁽¹⁾			
Forming Part of Sentence 9.25.2.1.(4)			
<i>Building Element Exposed to the Exterior or to Unheated Space</i>	RSI (R) Value Required		
	Zone 1 Less than 5000	Zone 2 5000 or more	<i>Electric Space Heating</i> Zone 1 & 2
<i>Ceiling below attic or roof space</i>	5.40 (R31)	6.70 (R38)	7.00 (R40)
<i>Roof assembly without attic or roof space</i>	3.52 (R20)	3.52 (R20)	3.87 (R22)
<i>Wall other than foundation wall</i>	3.00 (R17)	3.87 (R22)	4.70 (R27)
<i>Foundation walls enclosing heated space</i>	1.41 (R8)	2.11 (R12)	3.25 (R19)
<i>Floor, other than slab-on-ground</i>	4.40 (R25)	4.40 (R25)	4.40 (R25)
<i>Slab-on ground containing pipes or heating ducts</i>	1.76 (R10)	1.76 (R10)	1.76 (R10)
<i>Slab-on-ground not containing pipes or heating ducts</i>	1.41 (R8)	1.41 (R8)	1.41 (R8)
Column 1	2	3	4
Notes to Table 9.25.2.1.:			
⁽¹⁾ Number of degree days for individual locations are contained in Table 2.5.1.1.			

(7) All glazing that separates heated space from unheated space shall have a thermal resistance of not less than $0.30 \text{ m}^2\text{C/W}$ ($1.70 \text{ ft}^2\text{h.}^\circ\text{F/Btu}$).

(10) When *electric space heating* is used in a category TIL3 *dwelling unit*, all sliding glass doors separating heated space from unheated space or the outdoors shall have an energy rating of not less than -13 ER.

(11) When *electric space heating* is used in a category TIL3 *dwelling unit*, all glazing that separates heated space from unheated space or the outdoors shall have an energy rating of not less than -13 ER for operable windows and 0 ER for fixed glazing.

9.25.2.4. Installation of Thermal Insulation

(10) Insulation applied to the interior of *foundation* walls enclosing heated space shall extend from the underside of the subfloor to not less than 600 mm ($23\frac{5}{8}$ in) below the adjacent exterior ground level.

The current OBC energy efficiency provisions for all buildings except Part 9 residential houses, for which upgrade changes are currently being considered, are as follows:

Existing Building Code Provision

2.1.1.11. Energy Efficiency

(1) Except for *buildings* of *residential occupancy* within the scope of Part 9, *farm buildings* and areas of *buildings* intended primarily for manufacturing or commercial or industrial processing, the energy efficiency of all *buildings* shall be designed to good engineering practice such as described in

(a) the ASHRAE/IES 90.1-1989, “Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings” and the Supplementary Guidelines to the 1997 OBC, or

(b) the Model National Energy Code for Buildings, 1997.

Energy Business Plan

Summary:

- The Government set a target to reduce overall electricity consumption in Ontario government operations by 10% by 2007 and to reduce projected peak demand consumption by 5% by 2007 (equal to 1350 MW). As a result of government policy, various parties implemented numerous energy efficiency programs and initiatives across the province to not only reduce present power consumption, but to develop a long-term solution through the creation of a “Culture of Conservation” in Ontario.
- The Ontario government also created the institutional structure to ensure that supply and demand options are treated on an equal footing. The Ontario Power Authority has been created to develop plans for system development that meet the goals established by the government. The Conservation Bureau, being part of the Ontario Power Authority, will contribute information on the potential for and costs of conservation programs that can defer the need for expenditures on new supply. This Integrated Power System Plan (IPSP) will provide a foundation to ensure that the electricity system will continue to meet Ontario’s needs well into the future.
- The Conservation Action Team (CAT) was established on January 16, 2004 with a mandate to assist in the creation of a conservation culture in Ontario and make demand management a cornerstone of Ontario's long-term energy policy framework. The Team released its report “Building a Conservation Culture in Ontario” on May 19, 2005, recommending 30 specific actions to address a range of issues raised by the over 300 stakeholders with whom the Team consulted with. The Team’s recommendations address numerous issues, ranging from the actions required for government to reduce its own electricity consumption, ways to lever conservation into provincially funded infrastructure projects, reforming codes and standards and outreach programs for those vulnerable to energy price increases.

Setting conservation targets

The government set three important targets for the electricity sector:

- Achieving a 5% reduction in the growth of peak electricity demand by 2007,
- Reducing electricity use in government operations by 10% by 2007, and
- Installing 800,000 smart meters by 2007 and all households by 2010.

By setting these targets, the government is establishing the environment under which conservation programs and initiatives will be developed and evaluated. In addition, the government has outlined a policy goal of treating conservation and generation on an equal footing. Through target setting, legislative and regulatory initiatives, and by outlining key policy decisions, the government has created the framework for the delivery of conservation programs and initiatives.

Conservation and the Integrated Power System Plan

The Electricity Act, amended in 2004, provides the institutional structure for the development of an Integrated Power System Plan (IPSP) by requiring the Ontario Power Authority to bring forward, for review by the Ontario Energy Board, a long term plan to ensure Ontario's electricity needs are met.

The Supply Mix report presented by Ontario Power Authority (OPA) provides recommendations to the Minister of Energy on options for the future development of this plan. The report was requested by Minister Duncan on May 2, 2005 which asked for recommendations with respect to:

- Conservation targets for Ontario for 2015, 2020 and 2025
- Additions of new renewable energy capacity by 2015, 2020 and 2025
- The appropriate mix of electricity supply sources to satisfy the remaining expected demand in Ontario after conservation and renewables have been taken into account.

The report, which was released at the beginning of December of last year and which the government is currently consulting on, reflected three Ontario Government priorities:

1. Creation of a conservation culture

2. Preference for renewable sources of energy
3. Replacement of coal-fired generation for environmental and health reasons

The Supply Mix report recommends that electricity derived from renewable energy play an increasingly important role in future energy production, where in 2015, Ontario will derive 40% of its' energy from renewable sources.

Conservation Action Team Report

The Conservation Action Team was established in January 2004 with a mandate to seek out the best conservation ideas and practices and promote conservation through outreach to energy sector stakeholders and the citizens of Ontario. The Team was to assist in the creation of a conservation culture in Ontario and make demand management a cornerstone of Ontario's long-term energy policy framework. The Team's role, as announced by the Minister of Energy was to champion conservation by:

- promoting government's conservation initiatives;
- engaging stakeholders to seek out and promote best practices;
- developing a framework to assist in meeting the government's target of five per cent reduction in electricity consumption;
- working to identify and remove barriers;
- exploring ways for government policies and programs to incorporate conservation principles.

Based on its findings, the Conservation Action Team proposed 30 recommendations (please see attachment 7 for a complete list of recommendations) to help create a conservation culture. The recommendations address:

- Actions government could take to build on its commitment to reduce its own electricity use by 10 per cent and continue to reduce consumption in its operations.
- Ways to lever conservation into provincially funded infrastructure projects and government policies.
- The reform of codes and standards for which the government has authority.
- Working with sectors to pursue strategies for conservation.

- Suggestions for outreach to vulnerable energy consumers and other targeted groups.
- The future role of the Conservation Action Team and the newly created Conservation Bureau in building a culture of conservation.

The Team consulted widely, meeting with over 300 groups and individuals who represented several sectors, leading-edge technologies and a wide range of interests in energy. The Team received presentations from a range of stakeholders which including: associations that advocate for conservation and renewable energy, groups who represent building and water works operators, the agricultural community, small business, large energy-intensive industries, schools and post-secondary institutions, companies marketing new technologies, economic consulting firms, LDCs, municipal departments, local chambers of commerce and energy service companies.

In response to the report, the Government has responded with numerous initiatives to lay the foundation for a culture of conservation in Ontario by:

- Establishing a conservation target for a five per cent reduction in peak electricity demand (equal to 1,350 megawatts) to be achieved by 2007 and in order to lead by example, a ten per cent target was set in the government's own operations (equal to 62 million kilowatt-hours).
- Creating passing the Electricity Restructuring Act, 2004 to reform the sector and provide an institutional infrastructure for demand management. Under this Act the Conservation Bureau was created within the Ontario Power Authority, and headed by a Chief Energy Conservation Officer. The Bureau is responsible for developing plans to meet the directives set by the Minister of Energy as well as administer demand-side management programs.
- Introducing an interim two-tier pricing plan to encourage conservation, where the Ontario Energy Board was directed to develop a new rate plan that will encourage time-differentiated rates and wise use of electricity.
- Designing a Smart Metering program, where the meters measure the time of day when power is consumed, allowing consumers to provide demand response by shifting their consumption to off-peak hours. By 2007, 800,000 smart meters are to be installed and every consumer is to have a smart meter by 2010.
- Allowing Local Distribution Companies (LDCs) to achieve their full commercial rate of return on the condition they invest an amount equivalent to one year's worth of this money in demand-side management programs (up to \$163 million).
- Encouraging renewable energy with the issuance of a request for proposals (see Related Policy Developments section).

Housekeeping

Summary:

- The government has set a target of 10% reduction in the government's own electricity consumption by 2007. 387 individual conservation projects have been identified thus far which are projected to save 62 million kilowatt hours at an estimated cost of \$93 million. 106 projects were complete as of March 31, 2005. The number of projects completed as of March 31, 2006 will be available shortly but is unavailable at this time due to end-of-year reporting requirements.
- Among the projects initiated through this process, the government is working with Enwave Corporation to extend the Deep Lake Water Cooling project to government buildings, helping to conserve 9.8 million kilowatt hours a year. Lighting, building automation, chiller replacement, and other HVAC projects make up the balance of the initial project list.
- Employee awareness programs are also a part of the government's plan for meeting its target and will serve to develop a culture of conservation among Ontario Public Service employees.

10% conservation target in government operations

In 2002-2003, the Ontario government consumed an estimated 620 million Kwhs of electricity. A 10% conservation target requires the government to reduce its annual consumption by 62 million kilowatt hours. The conservation goal is being accomplished through implementation of a four-point plan:

- Employee awareness: engaging 62,000 Ontario Public Service employees in government-wide conservation efforts.
- Engaging the public: inviting the public to help us attain our electricity savings goals
- Facility upgrades: aggressively conserving energy in government-owned buildings by changing
 - Facility operations
 - Implementing building upgrades and retrofits
 - Examining special initiatives
- Lease improvements: enhancing leasing schedule to reflect conservation priorities; working with private sector landlords to reduce electricity in leased space

Facility upgrades will contribute greatly to the conservation goal the Ontario Government has set. The energy conservation projects fall under four categories:

- Chiller replacements,
- Lighting upgrades,
- Heating, ventilation, air conditioning, and
- Building controls.

Energy audits are conducted around the province of government-owned facilities in order to identify high payback energy savings. More than 83 audits have been completed since 2001 to discover energy savings through building upgrades and retrofits. Other initiatives include: limiting lighting in office space from 6:00 a.m. until 8:00 p.m., changing facility cleaning schedules to encourage early shut down and examining each facility to find simple energy saving measures.

One of the more unique initiatives is the Deep Lake Water Cooling (DLWC) project, which uses water taken from Lake Ontario's chilly depths to provide cooling to buildings

in the downtown core. As part of the government's initiatives to lower its energy consumption, this is being extended to cover the government buildings in the Queen's Park complex.

Substantial effort was also undertaken in the area of billing data analysis in order to clearly establish energy use profiles and historical energy usage for a large number of government occupied buildings.

The following table shows the current status of facility upgrades undertaken or identified in government-owned buildings in Ontario. It is important to note that these estimates are adjusted and that projects are evaluated on an ongoing basis. As of March 31, 2005, 106 projects were completed.

Further details on the March 31, 2006 end of year reporting will be available shortly.

Type	Planned Projects
Lighting	135
Building Automation	27
Chiller Replacement	23
Other HVAC	92
Subtotal	277
Deep Lake Water	1
Total	278

The table indicates that the government is well on its way in meeting the conservation commitment. Over 42 million kilowatt-hours in savings have been identified through the

implementation of 278 energy conservation capital projects at a cost of \$55.35 million.

In order to calculate progress on the conservation initiative, the electricity consumption across government will be tracked and reported on in July of each year. As consumption needs change according to season, it is effective to compare consumption on an annual basis.

Regulation of Utilities

Summary:

- Electricity Restructuring Act changed the status of LDCs to permit them to deliver conservation and load management programs. The Minister of Energy then, through the OEB, authorized LDCs to spend more than \$160 million in conservation initiatives for their customers.
- Most large LDCs have organized themselves into conservation working groups to facilitate program planning and implementation. There has been substantial coordination of conservation initiatives among and between these three conservation groups (CLD, CHEC, and NEPPA) as well as with Hydro One, the provincially owned utility covering the largest geographical service territory.
- The Ontario Energy Board has made a number of regulatory decisions to remove barriers to conservation by LDCs (LRAM and a shared savings mechanism) and has enabled additional conservation funding through the 2006 rate hearing process. Eleven LDCs came forward in their 2006 rate hearings to request additional funds on top of the initial 3-year program funding.
- In order to streamline CDM regulation, minimize regulatory uncertainty for LDCs and facilitate annual reporting, the OEB issued a Total Resource Cost Guide that contains deemed costs, energy savings and other input variables for over 100 CDM technologies. The Guide is used to perform a cost-benefit analysis to screen the viability of CDM programs, as well as provide information in the annual CDM reports that LDCs must file.
- The Ministry has organized an opportunity for information sharing and policy discussion with LDCs and electricity sector agencies through the Electricity Conservation Working Group. In addition, the Ministry has organized a number of workshops and over the past year to disseminate information on conservation opportunities and help foster discussion among key stakeholders.
- The Ontario Energy Board instituted a two-block price structure for residential and low-volume electricity users, helping to establish the correct price signals to incent conservation behaviour. The price structure continues the effort to ensure consumers pay the real costs of electricity but provides different thresholds for the higher rates based on seasonality.
- The Ontario Energy Board regulates gas distribution utilities in Ontario. The objective of regulatory intervention is to enable DSM and to ensure that DSM investments are fairly compensated. To this aim, the Ontario Energy Board commissioned the gas distribution companies to design and implement DSM plans through its decision EBO-169 in 1993.

Facilitating conservation and demand management by utilities

The Electricity Restructuring Act passed in 2004 changed the status of Local Distribution Companies (LDCs) from “wires only” distribution utilities to permit them to also deliver conservation and demand management (CDM) programs.

In May 2004, the Minister of Energy sent letters to LDCs and the Ontario Energy Board (OEB) authorizing LDCs to apply to the OEB to establish deferral accounts to track expenditures on CDM initiatives. This instruction was linked to a December 2003 letter to LDCs that conveyed the government’s intention to permit LDCs to apply to the OEB for the next instalment of their allowable return on equity. (This amount of money is known as the third tranche or instalment of Market Adjusted Revenue Requirement [MARR]. It resulted from the previous government’s action to freeze rates while it reassessed market restructuring, thus denying LDCs the final instalment of a rate increase of 9.88 per cent that was being implemented in three instalments).

The Minister directed that the final instalment of MARR would be conditional on LDCs’ commitment to reinvest an amount, equal to one year’s money from the rate increase, in CDM initiatives (which is equal to some \$163 million of third tranche funds).

LDCs are required to file CDM plans for Board approval and provide quarterly and annual reports to the OEB that demonstrate progress made in implementing CDM initiatives. The MARR funding is to be spent by September 2007. The OEB also indicated that LDCs could apply to spend incremental amounts on CDM, that is, funds over and above the amount of their MARR CDM investment.

Removing regulatory barriers

When authorizing LDCs to spend MARR funds on CDM, the Minister of Energy also requested that the Ontario Energy Board begin the process of removing any regulatory barriers to LDC spending on conservation initiatives.

As a result, the OEB established several rules and mechanisms to address potential barriers to conservation and to clarify the rules for implementing CDM programs under the third tranche MARR funding. In October 2004, the Board permitted LDCs to apply for pre-approval of CDM plans prior to the costs being actually incurred. The application must include certain information, such as: program descriptions, budget and expected energy savings. The OEB reiterated the types of CDM initiatives that the Minister

indicated the Board should support, such as: energy efficiency, smart meters, fuel switching, demand response and distributed generation.

In order to streamline CDM regulation, minimize regulatory uncertainty for LDCs and facilitate annual reporting, in mid-2005 the OEB issued a Total Resource Cost Guide that contains deemed costs, energy savings and other input variables for over 100 CDM technologies. The Guide is used to perform a cost-benefit analysis to screen the viability of CDM programs, as well as provide information in the annual CDM reports that LDCs must file. In conjunction with the TRC Guide, the OEB also provided data for the avoided costs of new electricity generation that is used by LDCs in their TRC calculations.

In addition, to facilitate more effective implementation of CDM and address what some stakeholders argue is a disincentive to utilities delivering CDM, the OEB permitted LDCs to receive revenue protection (through a Lost Revenue Adjustment Mechanism) against lower revenues resulting from lower volume throughputs due to CDM.

LDCs are also permitted to apply for and receive an incentive mechanism (a Shared Savings Mechanism) to achieve as much CDM as possible. An LDC will be able to recover and retain, as shareholder profit, five percent of the net benefits of the CDM program as determined by using the TRC test.

Utility spending on conservation and demand management

Of the \$163 million of MARR-related CDM funds, LDCs have indicated in their first annual report that they have spent \$34 million, about 20 per cent, of the available funds in 2005. Delivery of MARR-funded programs was expected to be fairly modest in 2005 relative to 2006-07 since it was the initial year where much of LDCs' efforts were devoted to pilot program design and ramp-up for full delivery.

In 2006 rate hearings, 11 LDCs applied to the OEB for incremental CDM funds, in addition to their third tranche MARR funds.

In addition, it is worthwhile to note that LDCs have voluntarily organized themselves into coalitions in order to make best use of limited resources and to be able to leverage their expertise. Among the utilities, the Coalition of Large Distributors represents approximately 40% of Ontario's customers and has resulted in the larger utilities collaborating on initiatives and sharing best practices. Similarly, the Cornerstone Hydro Electric Concepts (CHEC) and Niagara Erie Public Power Alliance (NEPPA) groups have benefited from joint efforts in developing and evaluating conservation opportunities.

Ongoing policy development with stakeholders

Policy development is underway involving the Ministry of Energy, OEB, OPA and LDCs to design the CDM regulatory framework post-2007 when delivery of the MARR CDM programs will end. The Electricity Conservation Working Group, comprised of members of the above organizations, serves as a discussion forum for stakeholders to articulate their interests in the future evolution of CDM policy.

The OPA is to deliver its Integrated System Power Plan to the OEB for approval in October 2006. The IPSP will contain the OPA's advice on delivery of CDM programs, funding levels and conservation targets.

Regulation of natural gas utilities

The Ontario Energy Board (OEB) regulates gas distribution in Ontario. The gas distribution landscape is dominated by two main franchises: Union Gas and Enbridge Gas Distribution that together deliver over 97% of the gas consumed in Ontario. The OEB established the framework for gas Demand Supply Management (DSM) programs through its decisions in Energy Board Order 169 (EBO-169 III) of July 23, 1993. In summary, EBO-169 provides a regulatory framework and financial incentives to design and implement DSM programs. The decision provided for the following actions and plans:

- a. Gas distributors were instructed to establish a portfolio of DSM programs after consultation and stakeholdering.
- b. DSM options considered must be evaluated using a least cost method, which includes all internal and external costs (Total Resource Cost, or TRC).
- c. Capital and operating costs of the DSM programs will be equivalent to other costs and recovered through rates approved by the OEB.
- d. The OEB will seek additional formal authority and legislative change to further pursue DSM if and when required.

Adjustments to the original framework took place over the years through a number of Board Orders and Settlements. Noteworthy, the OEB enabled the franchises to recover lost revenue due to successful DSM through the Lost Revenue Adjustment Mechanism (LRAM), provided ways for the franchises to fund DSM programs above the budgeted amounts, and provided additional incentives to pursue DSM related results.

Encouraged by the successes achieved in the past decade, and fitting into the culture of conservation that the Ministry of Energy promotes, the OEB called for a full revision of the DSM context for gas utilities. It is currently holding a new series of DSM hearings, leading to new orders dealing with the operation, evaluation and auditing of DSM plans starting January 1, 2007.

Access to Government Information

Summary:

- The Ontario Power Authority established its website making available stakeholder consultation documents, projects and initiatives documentation, and the Supply Mix Advice documents
- Conservation Bureau has established its own website with information on studies commissioned to identify conservation opportunities, projects underway, program information, and general tips and information.
- The Ministry's website was revamped to serve as a more useful gateway to conservation information for Ontarians and the Ministry's activities. Additional practical tips for households and businesses, along with profiling of successful conservation initiatives have helped to increase site traffic by 32%.
- The Ministry initiated a series of public consultations on the Supply Mix Advice document, received from the Ontario Power Authority.
 - Following up on the Ontario Power Authority's extensive consultation over the second half of 2005, the Supply Mix Advice was posted on the Environmental Bill of Rights registry as well as the Ministry and Ontario Power Authority websites for public comment. Public consultations were held in 12 cities along with an informational brochure mailed out to all Ontario households.
 - More than 5,000 comments were received through this process.
- The Ministry's correspondence unit and call centre regularly field queries on conservation from individuals and businesses. In 2005 alone, the correspondence unit and call centre replied to 1490 letters or emails (30% of volume received) plus an additional 458 phone calls.
- The Environmental Registry: Over 2004/2005, the Ministry used the registry to post four documents (legislation, regulations, reports) for public information and comment.
- The Conservation Action Team, mandated to seek out and promote best practices in conservation and energy efficiency, met with over 300 stakeholder groups, and in 2005 released an action plan summarizing their learning and comprised of 30 recommendations for action.
- PowerWISE program instituted to raise awareness of conservation importance and opportunities.

Public Consultation on the OPA's Supply Mix Advice

In late 2005/early 2006, the Ministry undertook a multi-component consultation process in order to gain public input on the Supply Mix Advice report that was submitted to the Minister by the OPA in December 2005. The goal: to ensure Ontarians could play a role in determining the future energy supply mix in Ontario.

The Ministry's process augmented the initial round of public consultations held by the OPA in the summer and fall of 2005. The OPA published their call for submissions in more than 40 newspapers across the province—and they received 175 submissions from individuals and organizations. In September, the OPA invited 38 special interest and expert groups to meet one-on-one for an hour to present their views. Twenty five organizations responded and presented from a list of 90 senior power industry and 90 special interest organization Ontario-wide (Additionally, 30 organizations from each category were randomly selected for a 45 minute telephone interview.)

The elements of the Ministry's consultations included:

1. Multiple venues for accessing the Report—to ensure easy public access to the information. The report was posted on:
 - a. The Environmental Bill of Rights website, allowing comment between December 15, 2005 and February 28, 2006.
 - b. The Ministry of Energy website—with access to the Supply Mix Report, supporting materials created by the Ministry, and to a short overview video that was used in the consultation process. It is also equipped to receive public comments.
 - c. A dedicated website—ontario.ca/energy—established as an additional direct response mechanism.
 - d. The OPA website features full documentation on the processes that were undertaken in preparing the advice.
2. Public Consultations were held in twelve cities throughout the province in February 2006. These sessions were advertised in relevant community newspapers, plus informational brochures were mailed out to every household in the province.

The brochure provided information about supply and conservation issues and invited individuals to forward their comments, concerns and questions. More than

5,000 comments were received by mail, e-mail and the dedicated website to March 2006.

Each session encompassed a full day open house, with Ministry staff on hand to answer questions, plus an evening public meeting session. Participants also had the opportunity to submit their questions and to comment via computer terminals throughout the day. The Minister and her staff captured all of the comments received in all formats for later review.

The Environmental Registry

The Environmental Registry is an important web-based notification tool and mechanism for public comment that was established under the Environmental Bill of Rights (EBR, 1994).

The EBR established the registry to provide a formal framework for notifying the public about proposed legislation, policies, regulations and other legal instruments that could have a significant effect on the environment and then considering the public's input before the government makes a final decision.

Over 2004-2006 the Ministry used the registry to post five major pieces of legislation or regulations for public information or comment including:

- The OPA's Integrated Power System – Supply Mix advice report (EBR Registry Number: "PO05E0001) submitted by the OPA was posted for comment between December 15, 2005 and February 28 , 2006.
- The Net Metering regulation (EBR# RO04E0001)—which allows people to connect a renewable energy system to the electrical grid in exchange for credit—was originally posted on the EBR for comment between January 5, 2005 and February 24, 2005. The decision was posted on February 8, 2006.
- The Energy Conservation Responsibility Act, 2005 (EBR # A005E051)—which established a framework for government leadership on conservation and for smart metering—was posted for comment between November 11, 2005 and 15 December, 2005.
- The decision with respect to changes to the Electricity Restructuring Act, 2004 (EBR #AO04E0001) was posted in March 15, 2005. (The legislation was posted for comment between June 22 and August 6, 2004.
- A proposed regulation to amend the Energy Efficiency Act [O. Reg. 82/95 (EBR# RO05E0011)] was posted for comment between February 16 and April 2, 2005.

Ministerial Activities

- An active Conservation Action Team: In January 2004, the Premier announced the introduction of Conservation Action Team, mandated to seek out and promote best practices in conservation and energy efficiency. The team, under the direction of then Parliamentary Assistant, and current Minister of Energy, Donna Cansfield met with over 300 stakeholder groups, and in 2005 released an action plan summarizing their learning and comprised of 30 recommendations for action.

The Team is now headed by the current Parliamentary Assistant, with the support of the Minister, and continues to be comprised of Parliamentary Assistants from eight Ontario government ministries responsible for a broad range of policy and program areas. The CAT has been working hard to promote the government's conservation initiatives across the province by engaging stakeholders from a variety of sectors to seek out and promote the best in conservation ideas and practices, developing an action plan to help the government meet its conservation targets, and identifying barriers to conservation in existing government policies and programs.

- The current Minister of Energy is an active advocate on issues of energy efficiency and conservation—in support of the government's comprehensive energy plan which entails clear targets reducing both government and province-wide consumption.
 - “Open Door” Policy—Insofar as is practicable, the Minister makes herself available to meet with organizations involved in energy efficiency and conservation.
 - Speaking Engagements—The Minister speaks on a regular basis (3-10 engagements a month) to a broad range of stakeholders, including an extensive focus on conservation and renewable energy audiences.

Public Information Requests

Information Requests:

- The Ministry's correspondence unit and call centre regularly field queries on conservation, energy efficiency and renewable energy from individuals and businesses. In 2005 alone, the correspondence unit and call centre replied to 1,490 letters or emails plus 458 phone calls.

- The Ministry responds to every request for Energy Saving Tips brochures—sending over 50,000 copies in 2005, and 72,000 in 2004.

Websites

Conservation Bureau Website

The Conservation Bureau of the Ontario Power Authority was established by the Ontario government in 2005, based on the recognition that conservation will play an increasingly important role in assuring an adequate supply of electricity for Ontario's public, businesses and institutions.

Key information to be found on the Bureau's site includes: Detailed information on each of the residential, commercial and industrial initiatives conservation projects currently underway, as well as the results of completed projects; access to many of the research projects undertaken in support of government directives; information about how to access the Bureau's conservation program funding; as well as summary information regarding the projects undertaken by various proponents that have received funding.

<http://www.conservationbureau.on.ca/>

Ontario Conserves Website

The Ontario Conserves website provides a guide on government initiatives is doing in terms of taking conservation initiatives in Ontario. The Ontario Conserves website provides information to the public on the various conservation initiatives that the government is currently undertaking. Program descriptions, targets, initiatives and tips are found on the site as well as a portal that allows individuals to share and post conservation ideas with others.

<http://www.ontarioconserves.gov.on.ca/>

powerWise Website

The powerWISE program is a partnership between the Ontario Government and the Coalition of Large Distributors, who are working together to promote conservation and energy efficiency to Ontario consumers. The website provides program news, highlights special offers and shares tips on what individuals can do to conserve energy. The website also provides information on what conservation initiatives the government is undertaking and the various programs that powerWISE is creating across Ontario.

<http://www.powerwise.ca>

Ministry of Energy Website

The Ministry of Energy website features up to the minute news (news releases), recent speeches by the Minister, as well as information on key issues in energy. Particularly germane to this report, there are sections dedicated to conservation and to renewable energy.

The conservation area details government programs and actions, as well as providing conservation tips and ideas to the public—The website has grown in popularity since 2004, increasing traffic site by 32% in 2005 compared to the previous year—and a comparison of the first two months of 2006 with the same period last year indicates an increase in traffic of 51%.

Some of the useful information that the public can access:

- The Conservation Tips brochure (available in English, French and 12 other languages)—is always among the top 5 pages accessed, since being launched in mid 2005. <http://www.energy.gov.on.ca/index.cfm?fuseaction=conservation.tips>
- The Lighting Efficiency Guide catalogues energy-efficient lighting types. <http://www.energy.gov.on.ca/english/pdf/conservation/LightingGuide.pdf>
- Heating and Cooling Your Home: A Conservation Guide (English and French) is a comprehensive guide to energy-efficiency for homeowners that is consistently in the top 10 pages accessed since it was first produced in May 2004. <http://www.energy.gov.on.ca/index.cfm?fuseaction=conservation.guide>
- A lighting calculator that enables a cost comparison of incandescent versus the equivalent compact fluorescent lightbulb. <http://www.energy.gov.on.ca/index.cfm?fuseaction=conservation.calculator&calcty pe=lighting&calc=savings>.
- The renewables area features news and developments, information on the technologies, plus useful publications, such as:
 - The “Net metering in Ontario” brochure—describes and promoting the opportunity to connect a renewable energy system to the electrical grid. <http://www.energy.gov.on.ca/english/pdf/renewable/NetMeteringBrochure.pdf>
 - The Renewable Energy Development in Ontario (REDO) guide contains valuable information for potential developers of renewable energy sources in Ontario. It describes, for example, federal and provincial legislation and financial assistance, regulations, project licensing information,

environmental assessment information, and other topics.
<http://www.energy.gov.on.ca/english/pdf/renewable/REDO.pdf>

Related Policy Development

Summary:

- Bill 21 (Energy Conservation Responsibility Act) received Royal Assent on March 28, 2006. Its purpose is to support the government's smart metering initiative and to enable the government to introduce new regulations, such as requiring the development of conservation plans by ministries, agencies, and public sector organizations. Consultations on possible regulations to follow.
- On March 21, 2006, the Ontario Power Authority was directed to implement a Standard Offer Program for small-scale renewable projects (up to 10 megawatts). Wind, water, and biomass projects would receive a base rate of 11 cents per kilowatt-hour, while solar projects would receive a base rate of 42 cents per kilowatt-hour, guaranteed for 20 years.
- On October 25, 2005, the Net Metering Regulation passed allowing small-scale renewable generators (up to 500 kilowatts) to receive credit for excess electricity generated.
- The Ontario Strategic Infrastructure Financing Authority (OSIFA) is in the process of expanding its lending criteria to include conservation investments for municipalities and universities. OSIFA has provided \$2.4 billion of low cost financing to municipalities for infrastructure projects to date.
- Three Requests for Proposals have been issued to develop renewable energy in Ontario. The results from the first two Requests for Proposals have yielded a total of over 1,300 megawatts of renewable energy, increasing Ontario's installed windpower capacity by 80 fold over that period. A third Request for Proposal is outstanding.
- A Clean Energy Supply RFP resulted in the announcement on April 13, 2005, of four new electricity projects, including a cogeneration project, a demand response project, and two new combined-cycle natural gas-fired generating plants. These projects have a combined capacity of 1,675 megawatts, enough power for over 650,000 homes, and will bring an estimated \$1.1 billion of new capital investment to Ontario.

Bill 21: Energy Conservation Responsibility Act

The energy conservation responsibility act will encourage conservation leadership in the public sector, and support implementation of conservation practices throughout Ontario.

The Energy Conservation Responsibility Act implements two major conservation initiatives: the introduction of smart metering technology in Ontario and conservation leadership.

Smart Metering

The Energy Conservation Responsibility Act enables the McGuinty government to install 800,000 smart meters in Ontario homes and businesses by 2007 with installation in all homes and businesses by 2010. These meters will revolutionize the way Ontario consumers track and manage their energy use. Smart metering provides consumers with greater control over their energy costs that can lead to system-wide savings through reduced demand.

With smart metering, customers can choose to control their energy costs through moving usage to off-peak periods (running the dishwasher at night) or lowering energy use during all periods (setting the air conditioning a few degrees higher). Customers may be able to do this manually by adding control devices themselves (i.e. programmable thermostats) or by contracting others who may control load remotely.

The legislation also sets the framework for an entity that will oversee Ontario's smart metering communications systems and technologies. The responsibilities of this organization could include facilitating the procurement of smart meter systems and the collection and management of data. Local distribution companies will own, install, operate and maintain the new meters, and they will retain their important role in working for their customers.

The legislation gives the government flexibility to determine the best options for the governance, ownership and regulatory structures of the smart metering initiative as it goes forward. These options will be the subject of consultations over the next two months.

Conservation Leadership

The second component of The Energy Conservation Responsibility Act is conservation leadership. This legislation will help Ontario's public sector lead the way in energy conservation and help it manage energy costs.

The legislation promotes public sector leadership in conservation, helps remove barriers to conservation and strengthens the conservation culture in Ontario. Some of the highlights of the bill include:

- Promoting Conservation Planning

Ministries, agencies and broader public sector organizations can be required to prepare and publish conservation plans on a regular basis. The plans may include reports on energy consumption, proposed conservation measures, and progress on energy conservation.

- Demonstrating Conservation Leadership

The government is committed to removing barriers and promoting opportunities for energy conservation and energy efficiency in its operations. For example, the bill would require government ministries and agencies to factor in conservation and energy efficiency in their procurement and capital investment decisions.

- Encouraging Conservation Actions

The legislation will help remove barriers to energy conservation that may exist in current codes or by-laws. It could also require energy efficiency and usage information to be made available when homes are being sold.

- Facilitating Conservation Co-operation

The legislation will facilitate agreements between the government and other sectors to collaborate on conservation programs. Agreements could involve co-operation on research, conservation benchmarking and improvements to facilities.

Standard offer

In 2004, the government committed to generating five per cent of Ontario's total energy capacity from new renewable sources by 2007, and 10 per cent by 2010.

While the government has been successful in contracting larger renewable energy projects through its Request for Proposal process, this approach for selling renewable power to the grid has been too costly and complex for smaller energy producers.

To encourage the development of more renewable energy in Ontario, the government asked the Ontario Sustainable Energy Association (OSEA) to put together a report outlining the criteria for a program offering a standard rate for electricity to small or community-based renewable power projects.

In 2005, after gathering research from best practices around the world, OSEA released their report called “Powering Ontario Communities,” which recommended that the government move quickly to develop a Standard Offer Program in Ontario.

Later that year, the Minister of Energy asked the Ontario Energy Board to work with the Ontario Power Authority to develop the terms and conditions for a Standard Offer Program.

Ontario's Standard Offer Program will make it easier and more cost-effective for businesses and entrepreneurs to sell renewable power to the grid by setting a fixed price for small generation projects that use renewable energy.

"Ontario's new policy could well become the model for North America to follow."

Janet Sawin, WorldWatch Institute

Over the next 10 years, this will add up to 1,000 megawatts of renewable power to Ontario's electricity system. Standard Offer is a step forward in the government's plan to build a sustainable energy future in Ontario.

Under a Standard Offer contract, all small-scale renewable energy producers will be able to sell renewable power to the grid for 20 years. Other key characteristics of the program include:

- There is no limit to the amount of renewable generating capacity that can be brought online through this program
- The project can be located anywhere in Ontario; however, projects must take into account distribution and transmission considerations
- Each individual project can produce up to a maximum of 10 megawatts
- The program is open to all interested developers with the exception of Ontario Power Generation
- All new projects must connect directly to the distribution system (50 kilovolts or less)
- Eligible projects must have been in service after January 1, 2000.

Net metering

Ontario's Net Metering regulation, now in place, ensures that all Ontarians have access to “net metering,” a practice that allows a customer who generates their own power from a

renewable source to connect their generation system to the electrical grid, and to receive a credit for any excess electricity they export to it.

Net metering allows consumers to reduce the amount of electricity they purchase from Ontario's electricity grid, and encourages the production of clean, renewable power. Typically, consumers considering generating their own power face two significant obstacles:

- The variable nature of electricity produced from renewable energy systems
- The high cost of installing battery storage systems

Net metering addresses both concerns. Being able to provide excess electricity to the grid for credit means consumers can "save" any excess production by exporting it to the grid for credit, and then draw on this credit to offset charges when their system can't supply their needs. This reduces the need for expensive backup or battery systems, and lets consumers use power from the grid to meet their needs when their own generation is insufficient.

Net metering allows Ontarians to contribute to the province's goal of providing five per cent of its electricity from renewable sources by 2007, and 10 per cent by 2010.

With net metering, the meter keeps track of what a consumer supplies to the electrical grid and what the consumer withdraws. A consumer is billed by the utility for the "net" difference between the charges for electricity consumed and the credits for electricity supplied to the grid. When credits exceed charges, they can be carried forward up to twelve months.

Net metering applies to both the electricity energy charge, and also the associated consumption based regulated charges. With sufficient generation, a net metering customer can lower their bill so they pay only the distributor's fixed monthly customer charge.

Net metering is an option for any consumer who can generate any portion of their electricity needs through wind, water, solar or agricultural biomass. A homeowner with solar panels, a farmer who can use agricultural waste to generate electricity, or a business with a small wind turbine could all benefit.

The new regulation ensures that all consumers have equal access and requires distributors to permit net metering for eligible projects up to 500 kilowatts. Most residential net metering systems will likely have the capacity to generate between 1 and 10 kilowatts, though farm systems may be significantly larger.

Ontario Strategic Infrastructure Financing Authority

In the 2004 Ontario Budget, the government created the Ontario Strategic Infrastructure Financing Authority (OSIFA) as an innovative financing vehicle that can be used by public sector borrowers to renew and build critical public infrastructure assets.

OSIFA is assisting 170 Ontario municipalities in communities across the province. Over \$2 billion in OSIFA financing is helping these municipalities with infrastructure investments for more than 1,000 local projects.

The Ministries of Energy and Finance worked together to expand OSIFA's lending criteria to include energy conservation projects, thereby giving them access to low-cost financing. This was confirmed in the 2005 Ontario Budget and details are now being worked out to ensure municipalities and universities will be able to access this pool of financing. Further work is needed to enlarge the eligibility criteria further and include schools and hospitals.

Development of renewable energy

With the start-up of the Melancthon I Wind Farm, the first in a number of new wind farms in Ontario, the results from the Ministry of Energy's various "Renewables RFP's" are starting to take physical form.

As recently as two years ago, Ontario only had 15 megawatts of wind power capacity. The recent government initiatives have set the wheels in motion to bring online over 1,300 megawatts of wind power capacity by the end of 2008, an 80-fold increase.

The \$126 million, 67.5 megawatt Melancthon I Wind Farm, located in Melancthon Township near Shelburne, is expected to provide enough power for 20,000 homes annually. Phase II of the project will provide an additional 132



megawatts of power, or enough to power 40,000 homes.

There have been three Requests for Proposals issued seeking renewable energy development.

- Renewables I: 10 successful proponents were offered contracts on their projects, for a total of 395 megawatts. These projects come from a variety of renewable sources and across the province and included wind, hydroelectric, landfill gas and biogas.
- Renewables II: This RFP called for wind, water, solar, biomass and landfill gas projects in Ontario that have a capacity of between 20 and 200 megawatts, inclusive. A total of nine projects were selected, and these projects have a combined capacity of 975MW, enough generation to power more than 250,000 Ontario homes.
- Renewables III: On July 12, 2005, the government issued a third RFP for up to 200 megawatts of power from small and medium-sized renewable energy projects. This RFP will be coordinated with the Ministry of Natural Resources' efforts to make Crown sites available for waterpower development.

Development of clean energy

On April 13, 2005, the government announced four new electricity projects, including a cogeneration project, a demand response project, and two new combined-cycle natural gas-fired generating plants. These projects have a combined capacity of 1,675 megawatts, enough power for over 650,000 homes, and will bring an estimated \$1.1 billion of new capital investment to Ontario. These projects represent the first four projects selected under the government's Request for Proposals (RFP) for 2,500 megawatts of electricity generation and demand-side projects. The government is in the process of addressing outstanding contract issues with other selected proponents.

In June 2004, the government initiated a Request for Proposals (RFP) for 2,500 megawatts of electricity generation and demand-side measures.

On December 15, 2004, the proposal submission deadline, the government received a tremendous response of 33 proposals, representing over 8,800 megawatts.

An inter-ministerial team evaluated all of the proposals, and an independent RFP fairness commissioner oversaw all aspects of the process. The proposals were first evaluated for completeness and compliance with all of the mandatory requirements of the RFP. Projects that met these requirements were then invited to participate in the binding

Economic Evaluation process which ranked proposals in ascending order of proposal price, after having been adjusted for locational and timing bonuses, electricity system voltage support bonuses and transmission system impacts. The selected proposals represent the most cost-effective projects for the ratepayers of Ontario.

The selected proponents have entered into contracts with the Ontario Power Authority for new, clean generation projects for a term of twenty years, and a demand response project for a term of five years.

The Clean Energy Supply contracts are designed to provide an incentive to operate efficiently and cost-effectively, and only when market prices justify the plant's operation. The projects get paid first by the market at market prices . However, the contract reduces the market risk by providing an assurance of sufficient revenue to cover the plant's fixed costs (the so-called Net Revenue Requirement [NRR]).

Performance

Summary:

- The province is on track to meet the government's goal of a 5% reduction in the growth of peak energy demand by 2007 (i.e., a peak demand of 25,650 MW). Peak demands in 2004 and 2005 were 23,372 MW and 24,609 (weather-corrected) respectively.
- Ontario has 90+ LDCs, seven of which represent 70% of the customer base (Coalition of Large Distributors plus Hydro One). These seven LDCs reported almost 120 million kilowatt hours of demand reduction over the past year, or enough power to run almost 13,000 homes.
- The Conservation Bureau launched a number of conservation initiatives under the authority of Minister's directives. \$9 million as part of financial incentives and support for a social housing energy efficiency program will partially address the 100 MW target for demand reduction in low income and social housing. The "Every Kilowatt Counts" residential campaign has been launched with "Cool Savings", a \$15 million air conditioner tune-up and upgrade program being the first component.
- The Government of Ontario continues to make good progress on its goal of reducing electricity consumption in government buildings by ten percent by 2007. More than half of the conservation goal is accounted for through projects either undertaken or identified and planned for completion by 2007.
- The government's smart meter initiative is on track with the most recent accomplishment being Bill 21 (Energy Conservation Responsibility Act) receiving Royal Assent, paving the way for regulatory changes needed for smart meters to be installed in 800 000 homes by 2007 and in all homes by 2010. In addition, LDCs have installed over 17 000 smart meters in various pilot programs in order to ensure an efficient rollout in the near future.
- The Ontario Energy Board established time-of-use rates, in support of the government's smart meter initiative, in order to provide consumers with the right price signals and to encourage peak-shifting activities.
- LDCs have spent \$34 million on conservation initiatives in the initial stage of a \$163 million investment. Investments are accelerating, with half of the \$34 million having been spent in the last quarter of 2005.
- Gas utilities have realized 162 m³ of savings in the last reporting period alone, adding to the cumulative total of 2.2 billion m³ since 1995.

Progress on targets

The government has set three important targets for the electricity sector:

- Achieving a 5% reduction in the growth of peak electricity demand by 2007,
- Reducing electricity use in government operations by 10% by 2007, and
- Installing 800,000 smart meters by 2007 and all households by 2010.

Definitive measurement on the achievement of these targets will not be available until closer to the target dates and, in some cases, after the target date once data can be collected and analyzed.

The following information is provided on an illustrative basis in order to track progress on these targets.

Provincial target: 5% reduction in peak demand

The 5% reduction target relates to an estimated 2007 peak of 27,000 MW (at the time of the announcement in December 2003). A 5% reduction would

Year	Summer Peak (MW)	Weather Corrected Peak (MW)
2004	23,976	23,372
2005	26,160	24,609

require the province to not exceed 25,560 MW in peak demand, after weather correction in order to remove the variability of extreme weather events and as recommended by the Chief Energy Conservation Officer. The table above indicates the province is on target to achieve its 5% target and consistent efforts will be needed on the part of all electricity users in order to maintain this progress.

In addition to measurements of peak demand, it is possible to gauge progress on meeting the 5% target through a projection of conservation initiatives that are currently being rolled out by various parties, namely the Conservation Bureau and LDCs. The Conservation Bureau estimates that 750 MW of conservation and demand response will be procured by 2007. Although this are not necessarily reductions that coincide with peak demands, it does give a sense for the scale of the initiatives being pursued.

Similarly, Toronto Hydro has indicated its conservation and demand response initiatives will yield an additional 250 MW of savings, bringing the province to within 350 MW of the 1,350 MW (5%) reduction target. Again, although summer peak demand will differ from these efforts there is expected to be a good degree of correlation.

Further analysis of LDC annual reports is required in order to properly assess additional MW expected but between the other 90-odd LDC initiatives, the government's own conservation projects, continuing structural changes in the economy (movement towards a service industry) and general price response by consumers it is reasonable to infer that significant additional savings are achievable.

Over the past year, Conservation Bureau has received six directives from the Minister of Energy (see "program" section above) authorizing programs and procurements totalling 1300 MW in areas including the residential sector, low-income sector, commercial buildings sector, and MUSH (municipal/university/schools/hospitals) sector. These directives have been estimated to authorize over \$1.5 billion of investment over the life of these initiatives.

Performance metrics that can be ascribed to these directives and other Conservation Bureau initiatives include the following:






- \$1.1 million of funding in 2005 for 24 replicable sector-specific projects, leveraging \$4 million in external funding, and representing a diverse sectoral and geographic profile
- \$1.5 million in funding approved for 2006, with seven projects announced as of April 15, 2006, thereby continuing to support innovative and replicable conservation initiatives
- Issued a 1,000 MW high efficiency combined heat and power RFP in 3 streams to promote 'behind the meter' generation projects and contribute to demand management. Proposals due in summer 2006.
- Issued a 20 MW reliability-based demand response RFP for York Region. Proposals received and currently under review.
- Extensive development and stakeholdering for a further 250 MW demand response program and additional 125 MW capacity demand response and 125 MW demand side management programs
- \$9.1 million invested as part of a larger social housing and low-income conservation program to deliver 100 MW of conservation and demand management. Initial phase of program targeted at providing financial support and incentives through Social Housing Services Corporation.
- Launching of "Every Kilowatt Counts" residential consumer conservation campaign which features a direct mail-out to all households with incentives and information to help consumers reduce their electricity use. The Conservation Bureau is partnering with the Heating, Refrigeration, and Air Conditioning Institute to rollout the "Cool Savings" phase of this program which will help reduce summer peaks and overall demand.

At the same time, the LDCs have been active on a number of fronts over the past year in order to deliver conservation programs and initiatives to a variety of customer types. LDCs are required to report on a quarterly and an annual basis on the progress of their conservation programs. The first annual reports were due on March 31, 2006 but due to the auditing and error-checking process, only some reports were analyzed at this time.

Among the larger LDC groups, the Coalition of Large Distributors (CLD) have organized themselves under the powerWISE brand to deliver conservation programs and initiatives to their customers. The CLD group represents 40% of the customers in Ontario and spent over \$19 million on conservation and demand management in 2005. Over 110 million kilowatt hours were saved through a variety of initiatives (see table below).

Coalition of Large Distributors 2005 accomplishments	
159	Community conservation events held
1,113	powerWISE vehicles branded
1,200	powerWISE water heater tune-ups
1,395	Energy audits conducted
1,427	Watt meters loaned
2,581	Refrigerators removed
3,438	peakSaver load control customers enrolled
5,195	Air conditioners removed
11,175	Smart meters installed
22,864	Energy efficient appliances installed
37,062	Visits to the powerWISE website
57,575	Seasonal LED strings distributed
111,265	Retail coupons redeemed
493,098	Compact fluorescent bulbs distributed
2,266,400	Retail coupon booklets distributed
2,780,757	Visits to powerWISE member websites
\$ 19,355,364.00	Invested in conservation and demand management
21,557,000	Conservation messaging bill inserts distributed
110,563,485	Kilowatt hours saved
12,285	Homes powered for 1 year by electricity saved

The Coalition of Large Distributors is composed of six LDCs: Enersource Hydro Mississauga, Horizon Utilities Corporation, Hydro Ottawa Limited, PowerStream, Toronto Hydro-Electric System Limited, and Veridian Connections. Along with Hydro One, they serve approximately 70% of Ontario customers. Top level results from the past year are provided below. For more detailed information, please consult the attached 2005 Annual Reports for the CLD group and Hydro One.

	Total number of customers: 180,000 Total CDM Investment: \$1.9 million Annual Energy Savings: 3.3 million kilowatt
	Total number of customers: 230,000 Total CDM Investment: \$0.9 million Annual Energy Savings: 6.5 million kilowatt hours
	Total number of customers: 278,000 Total CDM Investment: \$2.1 million Annual Energy Savings: 6.9 million kilowatt hours
	Total number of customers: 218,000 Total CDM Investment: \$1.1 million Annual Energy Savings: 3.1 million
	Total number of customers: 676,000 Total CDM Investment: \$13.0 million Annual Energy Savings: 90.0 million kilowatt hours
	Total number of customers: 104,000 Total CDM Investment: \$0.3 million Annual Energy Savings: 825,000 kilowatt hours

In addition, two other LDC conservation groups bear special mention: the Cornerstone Hydro-Electric Cooperative (16 LDCs) and the Niagara Erie Public Power Alliance (11 LDCs). These LDCs represent medium to small utilities that have banded together in order to share resources and expertise. Their combined programs over the past year yielded at least 35 million kilowatt hours of demand reduction, or enough power for more than 2,900 homes.

Government target: 10% reduction in consumption

The following table shows the current status of facility upgrades undertaken or identified in government-owned buildings in Ontario. It is important to note that these estimates are adjusted and that projects are evaluated on an ongoing basis. As of March 31, 2005, 106 projects were completed. Further details on the March 31, 2006 end of year reporting will be available shortly.

The table indicates that the government is well on its way in meeting the conservation commitment. Over 42 million kilowatt-hours in savings have been identified through the implementation of 278 energy conservation capital projects at a cost of \$55.35 million.

Type	Planned Projects
Lighting	135
Building Automation	27
Chiller Replacement	23
Other HVAC	92
Subtotal	277
Deep Lake Water	1
Total	278

In order to calculate progress on the conservation initiative, the electricity consumption across government will be tracked and reported on in July of each year. As consumption needs change according to season, it is effective to compare consumption on an annual basis.

Smart meters target

The government’s smart meter initiative is on track and cleared an important hurdle with the passage of Bill 21, Energy Conservation Responsibility Act. Bill 21 enables the government to proceed with this important initiative and sets up the framework for an entity to oversee the implementation of this technology.

In addition, there have been over 17, 000 smart meter installations through LDC pilot programs over the past year. These pilot initiatives will help facilitate the large-scale installations that will be required in order to fulfill the government’s goal of 800,000 installations by 2007 and all households and small businesses by 2010.

LDC	Installed meters
Bluewater	700
Cambridge	23
Chatham-Kent	1000
Middlesex	200
Enersource	555
Horizon Utilities	1000
Hydro One	600
Kingston	20
Milton Hydro	4000
Newmarket	600
Oakville	2500
Ottawa	200
PowerStream	450
PUC Distribution	80
Toronto Hydro	2300
Veridian	385
Wasaga	576
Woodstock	2500
Total # In Pilots	17689

Gas conservation performance

Ontario has promoted gas conservation for over a decade. Numerous gas DSM programs are currently in place addressing the residential, commercial and industrial customers. For the last 10 years, the province has encouraged conservation and has enabled the gas industry to develop and implement DSM plans.

The initial guidelines for gas DSM were established in 1995 in the Ontario Energy Board's Order 169 (see Section 8, Regulation of Utilities). The design and implementation of specific DSM plans was undertaken by the gas distribution companies, while the government through regulatory agencies ensured the financial viability of DSM. Numerous programs were implemented, and evolved into the current suite of offerings or served their purposed and lifecycle.

Ontario has delivered the following results through gas DSM:

- Saved 2.2 billion m³ of gas since 1995, of which 162 million m³ were saved in the last reporting period;
- Produced net societal benefits of \$1,414 M based on the approved Total Resource Cost Test since inception;
- Established additional targets of 347 million m³ for 2006-2007;
- Estimated a cost of \$70 M to deliver the 2006-2007 targets;
- Estimated additional societal benefits of \$632 M for 2006-2007.
- The volumetric savings are equivalent to the natural gas usage of 755,000 homes per year, with the additional environmental savings in CO₂ emissions of about 4.1million tonnes, equivalent to removing 1,088,000 cars from Ontario's roads for one year.

Evaluation

Summary:

- The government set out, as a legislative requirement, that the Chief Energy Conservation Officer must prepare an annual report evaluating the province's progress on meeting its conservation goals and identifying barriers to action. The first such report was issued in November 2005 and provided details of the Conservation Bureau's planned activities as well as a review of progress in meeting the government's targets.
- The Ontario Energy Board evaluated LDC conservation program performance through the requirement for quarterly and annual reporting. Program portfolios are required to meet Total Resource Cost test requirements, based on Ontario Energy Board reporting criteria.
- The Conservation Bureau commissioned a number of market assessment studies in order to properly evaluate and assess conservation opportunities in a number of market segments.
- The Conservation Action Team, made up of Parliamentary Assistants, consulted widely, meeting with over 300 groups and individuals who represented several sectors, leading-edge technologies and a wide range of interests in energy. Based on its findings, the Conservation Action Team evaluated the opportunities for conservation and proposed 30 recommendations to help create a conservation culture.
- Natural gas programs are also evaluated on an annual basis by the Ontario Energy Board. There have been numerous awards received from independent, third parties that highlight the successes achieved on natural gas conservation. A review is underway to further improve the delivery of natural gas conservation programs.

Evaluation of electricity conservation

There are a number of evaluation processes that have been established to ensure electricity conservation programs and activities are being carried out in accordance with government policy goals and targets. The Chief Energy Conservation Officer and the Ontario Energy Board carry out formal evaluation. More broad-based assessments are done through market assessment reviews commissioned by the Conservation Bureau as well as through the activities of the Conservation Action Team.

The *Energy Restructuring Act* established these requirements of the Conservation Bureau:

- Develop province-wide conservation programs that are delivered on a provincial basis and/or develop fundamental program elements that can be tailored for local delivery
- Lead the educating and informing of consumers on the benefits and techniques for conservation
- Assess the technical, economic and market potential for conservation in Ontario, which can serve as the basis for informing targets, priorities and program design at the provincial and local levels
- Develop the methodology for assessing the cost and benefits of conservation measures and maintain a catalogue of conservation measures, their average costs and benefits for use by local distribution companies and others
- Develop the system for monitoring and evaluating conservation impacts and report on Ontario's progress in achieving its conservation targets and what further action is required

In establishing the office of Chief Energy Conservation Officer (CECO), the government clearly outlined that one of the key responsibilities for the CECO would be to evaluate the province's progress on conservation. The CECO prepares and makes public an annual report (see attachment 8 – 2005 Annual Report) to fulfill this obligation.

The report includes:

- Details about the Conservation Bureau's activities during 2005
- Information on the Conservation Bureau's proposals to promote electricity conservation and demand management procure reductions in electricity demand, and facilitate the provision of services relating to energy conservation and demand management in 2006

- A review of the Ontario Government's progress in meeting its conservation and demand management goals
- Information on government policies or legislation that result in barriers to the implementation of electricity conservation measures

Of particular interest, the report evaluated the government's target of reducing electricity consumption by 10% by 2007 and notes that the target requires the government to reduce its annual consumption by 62 million kWhs. It evaluates the government's four point plan (see Housekeeping) as well as evaluates the initiatives taken so far by the government in achieving this goal. The report also makes additional recommendations concerning the government's 10% goal:

- The 62 million kWh should be assessed by adding specific savings of individual initiatives
- The provincial government measure and report actual electricity consumption in all its buildings
- Conservation plans be posted by the various ministries

Concerning the reduction in projected peak electricity demand by 5% by 2007, which is a reduction of 1,350 megawatts, the CECO report recommends that the government base its target on a peak demand that is weather adjusted. The report also makes recommendation on how the provincial government can make better energy policy and conservation, such as:

- Continuing to make public consultation concerning conservation goals
- The government, the Conservation Bureau, the Ontario Energy Board and other various partners meet to establish working groups to review CDM programs delivery and funding
- The Conservation Action Team continue playing a monitoring role within the government

In addition to this evaluation by the Chief Energy Conservation Officer, the Ontario Energy Board reviews individual LDC spending on conservation and requires LDCs to file quarterly and annual reports to demonstrate progress in implementing their conservation initiatives. The first set of annual reports were due on March 31, 2006 but will not be available in time for this report due to the auditing and error checking process. LDCs will be required to provide comprehensive program details including dollars spent and savings achieved (see attachment 4 – template and various attachments of key LDC reports received in time for this submission).

Finally, the Conservation Action Team was established in January 2004 with a mandate to seek out the best conservation ideas and practices and promote conservation through

outreach to energy sector stakeholders and the citizens of Ontario. The Team was to assist in the creation of a conservation culture in Ontario and make demand management a cornerstone of Ontario's long-term energy policy framework.

Based on its findings, the Conservation Action Team evaluated the opportunities for conservation and proposed 30 recommendations to help create a conservation culture. The Team consulted widely, meeting with over 300 groups and individuals who represented several sectors, leading-edge technologies and a wide range of interests in energy. The Team received presentations from a range of stakeholders which including: associations that advocate for conservation and renewable energy, groups who represent building and water works operators, the agricultural community, small business, large energy-intensive industries, schools and post-secondary institutions, companies marketing new technologies, economic consulting firms, LDCs, municipal departments, local chambers of commerce and energy service companies.

Conservation Bureau – Market Assessment Studies

The Conservation Bureau has commissioned a number of market assessment studies to evaluate the potential for conservation in various market segments. One of the more comprehensive reviews was undertaken by Coffey, Fisch & Associates Inc. to conduct a review of the energy conservation landscape in the province of Ontario.

The review encompassed all sectors as defined by the OPA and addresses the following key categories: Information, Programs and Incentives. The findings are the result of: document reviews, web-based research, questionnaires / surveys and personal interviews. The report analyzes and evaluates the residential, commercial / institutional and industrial / agricultural sectors.

Based on the research conducted by the consultants through the various channels, the report observes that that the culture of conservation is expanding in Ontario in government as well as the private sector. The report also cites the numerous initiatives taken by the government to raise the profile of conservation demand management, specifically through government policy, legislation and regulations.

The table below summarizes the issues as identified in the assessment and also provides some strategic options for consideration.

Additional market assessment studies were carried out for various market segments and can be found on the Conservation Bureau's website.

ISSUES	CHALLENGES	STRATEGIC OPTIONS
Information Quality and Consistency	<ul style="list-style-type: none"> • Many sources • Too much information • Information too simplistic • Reinventing the wheel? 	<ul style="list-style-type: none"> • Centralized control • Endorse information • Trusted authority • Quality assurance • Partner with NRCan • Establish cross Canada committee
Information Dissemination	<ul style="list-style-type: none"> • Many channels • Web links are extremely varied 	<ul style="list-style-type: none"> • Let it be • Coordinate major market participants
Program Development	<ul style="list-style-type: none"> • Limited capacity to develop programs within LDCs • One size does not fit all 	<ul style="list-style-type: none"> • Develop province wide programs • Provide plug and play programs • Endorse best practices
Programs Delivery	<ul style="list-style-type: none"> • LDCs do not have the necessary resources/capability • Some LDCs do not have CDM • OPA does not have adequate resources for delivery 	<ul style="list-style-type: none"> • Deliver programs directly • Identify best channels for programs • Support implementation • Fund delivery • Focus on programs that are beyond LDCs
Programs Sustainability	<ul style="list-style-type: none"> • Long term commitment to conservation 	<ul style="list-style-type: none"> • Legislate change • Moral suasion • Celebrate/reward local initiatives
Results	<ul style="list-style-type: none"> • LDCs focus on projects with highest TRC - What about projects difficult to measure? • Culture Change: Awareness to action 	<ul style="list-style-type: none"> • Fund innovation and new technologies • Keep focus on TRC • Reward actions
Role of OPA	<ul style="list-style-type: none"> • Provide leadership in planning and coordination of measures for electricity conservation and load management • Develop, coordinate and stimulate electricity conservation and demand management 	<ul style="list-style-type: none"> • Umbrella for all consumers in the province • Mandate expectations of LDCs • Target underserved communities • Identify potential for savings by program • Develop province wide programs • Provide funding envelopes for specific initiatives • Establish networks and linkages • Tap into existing programs • Province wide tracking system • Technology review • Share Best Practices

Evaluation of natural gas conservation

The Ontario Energy Board (OEB) regulates gas distribution in Ontario. The gas distribution landscape is dominated by two main franchises: Union Gas and Enbridge Gas Distribution that together deliver over 95% of the gas consumed in Ontario. The OEB established the framework for gas Demand Supply Management (DSM) programs

through its decisions in Energy Board Order 169 (EBO-169 III) of July 23, 1993. In summary, EBO-169 provides a regulatory framework and financial incentives to design and implement DSM programs. The decision provided for the following actions and plans:

- Gas distributors were instructed to establish a portfolio of DSM programs after consultation and stakeholdering.
- DSM options considered must be evaluated using a least cost method, which includes all internal and external costs (Total Resource Cost, or TRC).
- Capital and operating costs of the DSM programs will be equivalent to other costs and recovered through rates approved by the OEB.
- The OEB will seek additional formal authority and legislative change to further pursue DSM if and when required.

Adjustments to the original framework took place over the years through a number of Board Orders and Settlements. Noteworthy, the OEB enabled the franchises to recover lost revenue due to successful DSM through the Lost Revenue Adjustment Mechanism (LRAM), provided ways for the franchises to fund DSM programs above the budgeted amounts, and provided additional incentives to pursue DSM related results.

DSM programs delivered by the gas utilities in Ontario are recognized as best in class and have received numerous DSM awards in the recent past, including:

- the Platts Environmental Practice of the Year Award in 2001,
- the GLOBE Corporate Competitiveness Award for Environmental Excellence in 2003,
- the Natural Resources Canada Energy Star® Utility of the Year Award in 2003,
- the 2004 Canadian Energy Efficiency Alliance Energy Company Best Practices Award for the DSM Steam Saver program,
- the 2004 Canadian Energy Efficiency Alliance Energy Company Best Practices Award for the DSM Construction Heater program, and
- the City of Toronto 2006 Green Toronto Awards in the energy conservation category.

Encouraged by the successes achieved in the past decade, and fitting into the culture of conservation that the Ministry of Energy promotes, the OEB called for a full revision of the DSM context for gas utilities. It is currently holding a new series of DSM hearings,

leading to new orders dealing with the operation, evaluation and auditing of DSM plans starting January 1, 2007.