

TAKING ACTION:
2007 ANNUAL REPORT OF ONTARIO'S
CHIEF ENERGY CONSERVATION OFFICER

APPENDICES

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Appendix 1

Ontario Power Authority 2007 Conservation Program Descriptions

Mass Market Programs – Residential and Small Commercial Sectors

The Great Refrigerator Roundup Program runs from June to December 2007. The Ontario Power Authority retained third parties to deliver the program on its behalf. The program is designed to remove older, inefficient operating fridges or freezers free of charge from the participant's home. Ancillary appliances (such as freezers and window air conditioners) will be picked up, provided that there is a qualifying operating fridge or freezer present. Appliances that are picked up are permanently decommissioned and disposed of in an environmentally sound manner. Eligible appliances include those in single-family homes, townhouses, duplexes, triplexes and four-plexes in residences or businesses. Ontario Power Authority research determined that no financial incentive was necessary to induce program participation.

Local distribution companies that have volunteered to participate in the program play a role in the marketing and promotion of this program to their customers. The objective of the program is to remove at least 40,000 inefficient refrigerators across Ontario and to remove ancillary appliances (at least 1,500 freezers and 6,000 window air conditioners). Savings have been initially forecast at 49 gigawatt-hours with an associated demand reduction of 11 megawatts by the end of December 2007.

The Every Kilowatt Counts Program was delivered province-wide in two phases for 2007: spring (April to June) and fall (September to November). The program works to procure energy savings through education and incentives, and by building consumers' capability to manage consumption. At the start of each program phase, households in Ontario received an Every Kilowatt Counts Program brochure by mail, containing energy conservation information and coupons for discounts on energy-saving products, redeemable at participating retailers.

The spring program was officially launched in April 2007 at the Home Show in Toronto; the fall program is currently in market. More than 4.5 million brochures were distributed for both campaigns to Ontario households, representing 99.5 percent direct-mail coverage. Eighty-one local distribution companies and Every Kilowatt Counts Program representatives visited more than 1,900 participating retail stores to install point-of-purchase program material and/or to train staff on the program.

Two-thirds of Ontario households purchased at least one product promoted by the program and 25 percent had redeemed a coupon. Preliminary results indicate that more than twice the expected numbers of products have been purchased with more than double the targeted number of coupons redeemed.

The Cool Savings Rebate Program is offered to Ontario residents with existing central heating and cooling systems. Central air conditioning can account for half of a residential consumer's electricity bill. The program focuses on the estimated two million existing central air conditioning units in Ontario that are either inefficient or in need of replacement.

The program offers rebates for residents who replace an existing central air conditioning system with one that:

- is an ENERGY STAR®-qualified air conditioning system (\$350), or
- exceeds the ENERGY STAR® standard for central air conditioning and also install a replacement furnace (mid-efficiency or better) equipped with a fully variable speed electronically commutated motor (\$750).

The program also offers rebates to residents who replace their existing furnace with one that is:

- mid-efficiency equipped with an electronically commutated motor (\$100), or
- high-efficiency equipped with an electronically commutated motor (\$250).

Residential consumers can receive a rebate of \$50 as well for the purchase and installation of a programmable thermostat.

The peaksaver™ Program¹ is a demand response program that runs from June 2007 to December 2010. The program is designed to reduce load from central air conditioning units and/or hot water heaters of participating customers. Local distribution companies have volunteered to deliver this program on behalf of the Ontario Power Authority. Residential and small commercial customers (less than 50 kilowatts total demand) are eligible to participate. Customer participation is voluntary, and participants receive a one-time \$25 incentive.

Participants receive, free of charge, the installation of load control thermostats or switches to control their central air conditioning, hot water heater or both. These devices are automatically controlled by demand aggregators during demand response events. The objective of the program is to combine the savings from 46,000 residential and small commercial central air conditioning and electric hot water heaters to achieve the equivalent of 26 megawatts of summer-peaking demand reduction by December 2007.

¹ TM of Toronto Hydro Corporation. Used under license .

The Summer Savings Program ran in summer 2007. It is designed to reduce residential electricity consumption during the program season (between July 1, 2007, and August 31, 2007) by providing eligible residential customers with a 10 percent credit on their fall 2007 electricity bill. To obtain the credit, customers must achieve a 10 percent weather-normalized reduction in electricity consumption during the 2007 program season compared to their consumption during the same period in 2006.

Local distribution companies across Ontario delivered the program on behalf of the Ontario Power Authority to their eligible residential customers. The objective of the program was to cause at least 20 percent of Ontario's residential electricity customers to reduce electricity consumption in their homes compared to the previous year's consumption. The program is forecast to achieve a two percent reduction in residential electricity consumption during the program season.

The Energy Efficiency and Conservation Measures for Aboriginal Communities Program will be available to First Nations communities across Ontario. The program was launched at a two-day gathering (Mana-cha-toon Wash-ti-ni-gun – Conserve the Light) in Thunder Bay in May 2008. The launch event also served as a platform for education about electricity conservation for First Nations.

The program provides participants with energy conservation kits that consist of compact fluorescent light bulbs, faucet aerators and other devices that will result in immediate reductions in energy use. The kits were delivered to all 23,000 on-reserve homes in more than 115 communities in the summer of 2007. The program will also continue to educate on the importance of electricity conservation and will work to build this theme into the aboriginal education curriculum.

Business Market Programs – Larger Commercial, Industrial and Low-income Sectors

The Electricity Retrofit Incentive Program runs from August to December 2007. The program offers incentives for retrofits to eligible general service customers of local electricity distribution utilities. There are prescriptive measures relating to energy-efficient lighting, air conditioning, transformers, motors and agribusiness equipment, as well as the opportunity to do a custom energy-efficiency solution.

The program is being delivered by local distribution companies that have volunteered to administer the program on behalf of the Ontario Power Authority in their service territories. The program aims to achieve province-wide energy savings of more than 12 gigawatt-hours and demand savings of four megawatts by the end of 2007.

The Electricity Conservation on Ontario Farms Program is in addition to the agribusiness component of the Electricity Retrofit Incentive Program. It encourages farmers to participate in specific conservation initiatives and is based on three principles:

- electricity matters are integral to good farm management
- electricity savings are available no matter how you farm
- electricity has revenue opportunities that can complement your farm.

The focus of this program for 2007 is to increase the participation of farmers in existing conservation and income opportunities, such as the Electricity Retrofit Incentive Program and the Ontario Power Authority's Standard Offer Program.

The Building Owners and Managers Association Toronto Conservation and Demand Management Program was launched in the spring of 2007. It is expected to reduce the City of Toronto's electricity demand by 150 megawatts over three years. The program is promoted through the Building Owners and Managers Association Toronto membership (owners and allies). Non-members are also eligible to participate. The program provides eligible participants with funds to defray the capital costs of demand-reducing and energy-savings initiatives in their buildings. The program includes, but is not limited to:

- lighting upgrades and controls
- equipment replacement (e.g., chillers, fans, pumps)
- heating, vacuuming and air conditioning re-design (e.g., free cooling or ice storage)
- variable speed drives
- building envelope
- building automation systems
- tenant sub-metering
- deep lake water cooling
- natural gas-fired generators.

The **Better Buildings Partnership** and **Better Buildings New Construction Program** are two unique programs run by the City of Toronto. The Better Buildings Partnership implements energy-efficiency and building-renewal retrofits in industrial, commercial, institutional and multi-residential buildings. The Better Buildings New Construction Program offers design assistance and financial incentives to increase the energy efficiency of new commercial, industrial, institutional or multi-unit residential buildings.

The Toronto Hydro Programs are available to commercial, office, retail, private institution, hotel and multi-use properties under 25,000 square feet as well as residential and industrial properties.

Low-income and Social Housing Programs

The Affordable Housing Energy Efficiency Program will be implemented in phases. Phase I offers affordable housing providers up to \$850 per unit to help offset the incremental cost of purchasing ENERGY STAR®-qualified products. An education and awareness program will be delivered to affordable housing stakeholders.

The Energy Efficiency Assistance Program for Houses is a pilot program to encourage a culture of conservation throughout Ontario. It will give low-income homeowners and tenants the tools they need to make more effective energy decisions, while at the same time putting money back into the pockets of those who need it most.

The Social Housing Program is managed by the Social Housing Services Corporation as part of the Corporation's Green Light Initiative, a province-wide initiative to help social housing providers take action to reduce energy use in their buildings.

Demand Response Programs

Demand Response 1 is a voluntary peak shedding product that targets the highest valued peak hours. The program's objective is to encourage short term demand response capacity in response to the IESO Three-Hour Ahead Pre-Dispatch price signal in the electricity market. It is a 'market based' program, designed for participation by consumers who can curtail load in response to economic signals, primarily using existing equipment and processes.

Demand Response 2 is a contractual load shifting product for large customers that targets load savings during 1,000 hours of intermediate peak load days. Participants will be obligated to shift load from the peak period (business days from 8:00 a.m. to 8:00 p.m.) to the off-peak period (all other hours). Participants can select one or two of three load-shifting periods, for participation in eight or 12 months of the year.

Load shifting must occur every business day. Contracts will be for one-, three- or five-year periods. Payments are made for both capacity of demand shifted and energy saved. Failure to comply with the contract requirements of DR11 can result in set-offs against potential revenue.

Demand Response 3 is a high reliability contractual peak load shedding product that targets the 100 to 200 highest value peak hours. Participants make themselves available during scheduled hours for potential notices to reduce load. Direct participants and aggregators are eligible to participate.

The program has been organized to determine optimal participation and compensation patterns in relation to the provincial electricity system. It allows for variable compensation levels by region and also prohibits participation in some areas of Ontario.

Standard Offer Programs

The Renewable Energy Standard Offer Program is a standard offer procurement program that simplifies the participation in Ontario's electricity supply sector for small renewable energy distributed generation.

The Clean Energy Standard Offer Program will be a standard offer procurement program that simplifies the participation in Ontario's electricity supply sector for small clean energy distributed generation.

More information about the Ontario Power Authority's entire current portfolio of conservation programs is available on-line at www.everykilowattcounts.ca/.

Appendix 2

Market Transformation Tools and Initiatives

The Ontario Power Authority has adopted a strategic approach to conservation that includes three interrelated activities: capability building, resource acquisition and market transformation. All these efforts will be required to meet Ontario's long-term conservation targets and build a culture of conservation. Critical to sustaining such a cultural shift over time will be market transformation. This appendix describes tools and initiatives that will further transformation of the market to bring about lasting structural and behavioral changes to increase adoption of energy-efficient technologies and practices.

Market transformation occurs when a desired conservation product, service or practice comes to dominate the market. When this happens, the energy and capacity savings are sustained over time and do not diminish at the end of a particular program's life. Market transformation includes strategic interventions designed to change the structure or function of a market and the behaviours of market participants. The goal is to achieve the desired outcome without further market intervention. When this happens, the market will have been "transformed," and conservation simply becomes the norm.

Market transformation is a long-term strategy. It includes removing barriers to the adoption of energy-efficient products or behaviour, introducing incentives for new and emerging technologies, promoting the most efficient products, regulating higher efficiency standards for equipment and removing inefficient equipment from the market. Capability building and resource acquisition programs can also have varying degrees of market transformation elements. Other policies, including environmental policy, can further a market transformation strategy if they promote increases in energy efficiency.

Several initiatives are underway to advance market transformation for conservation in Ontario and Canada. Following is a snapshot of some of these efforts, including Ontario Power Authority activities, collaborative efforts for policy development, and legislative and regulatory tools.

Ontario Power Authority Activities

The Ontario Power Authority recognizes that market transformation is inherently part of many conservation programs delivered in Ontario. These programs serve to increase the use of energy-efficient products and services in the market. They also include components designed to educate and build awareness. All these activities help build a culture of conservation in Ontario over the long term.

The Ontario Power Authority and specifically, the Chief Energy Conservation Officer, are engaged in the ongoing process of identifying barriers to market transformation and

opportunities to overcome them. These barriers inhibit the manufacture and purchase of energy-efficient products and act as obstacles to conservation behaviour. Some examples of market barriers are:

- limited availability of energy-efficient products
- lack of consumer awareness of these products and their benefits
- resistance to new products in general
- overemphasis on first (capital) cost versus operating costs.

In each annual report, the Chief Energy Conservation Officer provides information on any government policy or legislation that results in a barrier to the development or implementation of electricity conservation measures. Updates also are provided on the progress that has been made in overcoming these barriers.

Collaborative Efforts for Policy Development

Government policies can promote the development of a culture of conservation and, in turn, facilitate market transformation. The Ontario and federal governments are active in developing policies that support market transformation, such as targets and goals for conservation and pricing regimes that encourage shifting electricity demand away from the system peak. Other groups and collaborative efforts are also engaged in energy and conservation policy development to bring about market transformation.

Encouraging Load Shifting Away from Peak Times

In support of its commitment to install smart meters throughout Ontario by 2010, the Government of Ontario launched a province-wide initiative to encourage load shifting through the installation of “smart” meters on homes and businesses across the province. In conjunction with smart meter implementation, the Ontario Energy Board has developed time-of-use electricity rates to motivate consumers to shift their usage from peak to off-peak periods.

The current time-of-use rate structure is a three-tier system with unique rates for peak, off-peak and mid-peak power. Peak period rates are about three times higher than rates for off-peak periods. The timing of the three time-of-use periods is different for the summer and winter seasons.

In 2006, the Ontario Energy Board undertook a pilot project in Ottawa to compare the three-tiered rate to two other time-sensitive rate structures – critical peak pricing and critical peak rebates.² Pilot participants shifted up to 25 percent of their usage away from critical peak hours in the summer. They also reduced overall electricity consumption by an average of six percent more than a control group not paying time-of-use prices. The Board approved five additional pilot projects to assess the effectiveness of time-of-use

² Critical peak pricing is higher pricing during peak times and reduced rates at other times. Critical peak rebates are given when peak consumption is reduced, although the rates remain the same.

prices in combination with load control devices such as smart thermostats, real-time display monitors, thermal storage and appliance controllers.

Until the Board establishes a date when all consumers with smart meters must be charged time-of-use prices, utilities have the option to implement time-of-use pricing. To date, Milton Hydro has done so, beginning in October 2005, and Chatham-Kent Hydro has as well on a smaller scale. Newmarket Hydro plans to implement time-of-use pricing with smart meters by the end of 2007.

Federal-Provincial-Territorial Energy-Efficiency Strategy

The Council of Energy Ministers is composed of energy ministers from the federal, provincial and territorial governments. At its 2006 annual meeting, the council called for the development of an energy-efficiency strategy for Canada.³ The council recognized the important role that energy efficiency plays in system reliability, energy security, economic development and environmental policy – especially regarding climate change.

The Council published a strategy document, *Moving Forward on Energy Efficiency: a Foundation for Action*, offering a menu of tools to enhance energy efficiency. The strategy includes numerous options for action on energy efficiency by sectors outside government, including professional and industry associations, retailers, financial institutions and others. Options range from energy-efficiency-related training for professionals such as engineers and architects to the expansion of green financial instruments. Many of these strategies involve elements of market transformation.

Three working groups have been tasked with developing plans for three areas: the Demand Side Management Working Group for the built environment,⁴ the Industrial Working Group for the industrial sector and the Transportation Working Group for the transportation sector. These groups, whose members include representatives from government, utilities, industry and academia, provide advice to the Assistant Deputy Ministers' Advisory Committee on Energy Efficiency. The Ontario Power Authority co-chairs the Demand Side Management Working Group.

Energy Efficiency Working Group

The Energy Efficiency Working Group, established in 2006, is responsible for developing a long-term, integrated view on energy sustainability and informing the Energy Sector Sustainability Table created by Environment Canada. The group brings together diverse perspectives on energy efficiency, including academic, government policy, conservation program implementation, non-governmental organizations and business. It will prepare a foundation paper aimed at enhancing policy makers' understanding of energy use and energy efficiency, providing insights to guide

³ The plan is available at www.nrcan.gc.ca.

⁴ As defined in the strategy, the built environment includes all buildings, housing, infrastructures, fixed equipment and communities.

governments in developing efficiency policy. This work is expected to be complete by the end of 2007. The Ontario Power Authority is represented on both the Environment Canada Table and the working group.

Canadian Lighting Industry Collaborative and Strategic Lighting Initiative Committee

The Canadian Lighting Industry Collaborative was formed in 2002 to serve as a sounding board for program design, technology assessment and policy design. Co-chaired by Natural Resources Canada and industry, its goal is to facilitate transformation of lighting markets toward more energy-efficient technologies by building partnerships, generating new ideas and managing lighting initiatives in all sectors.

Also working toward market transformation for lighting is the Strategic Lighting Initiative Committee. This committee was established in 2005 as a subcommittee of the Demand Side Management Working Group and involves the Canadian Electricity Association, Natural Resources Canada and provincial government representatives. Its objective is to oversee the work necessary to transform the incandescent lighting market to high-efficiency lighting alternatives by the year 2015.

The work of these two groups helps to inform policies related to energy-efficient lighting and contributes to new regulations to improve building codes. They are currently consulting to assist the Ontario and federal governments in meeting their goals to phase out energy-inefficient light bulbs.

Standby Power Advisory Committee

Natural Resources Canada's Standby Power Advisory Committee, launched in June 2007, represents a broad cross-section of stakeholders. Co-chaired by government and industry, the committee's members include utility companies, industry, provincial governments and environmental organizations. The committee proposes a vision of all products consuming power in standby mode using no more than one watt by 2012.

Residential electricity demand has been rising because the number of household appliances has been increasing rapidly. These electricity-consuming devices include televisions, answering machines, computers and office peripherals, battery chargers, DVDs and other consumer electronics.⁵ By 2010, consumer electronics are expected to account for the majority of electricity used in the domestic sector and will overtake the consumption of cold appliances and lighting. Furthermore, by 2020, entertainment, computers and gadgets will account for close to half of electricity used in the home.⁶

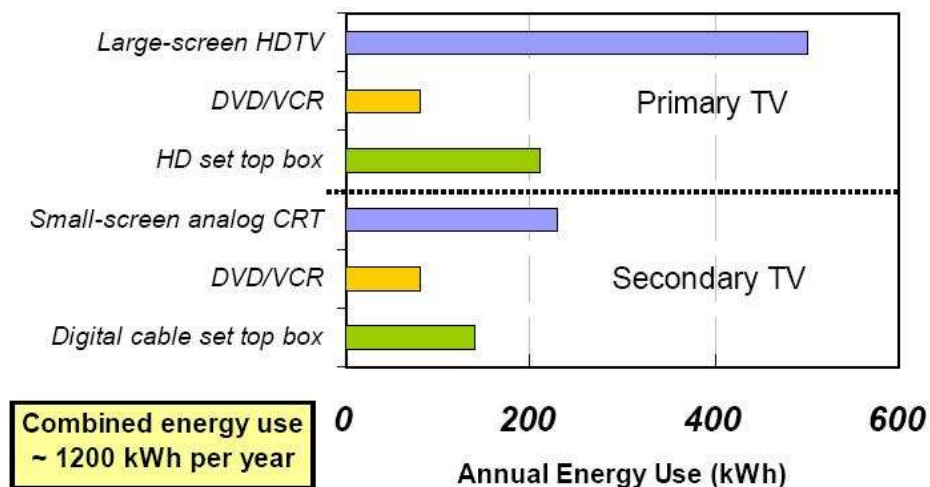
⁵ Ontario's Integrated Power System Plan: Discussion Paper 2: Load Forecast, Ontario Power Authority, September 7, 2006.

⁶ *The Ampere Strikes Back - How Consumer Electronics Are Taking Over the World*, Energy Savings Trust, United Kingdom, July 2007, at: www.energysavingstrust.org.uk/uploads/documents/aboutest/TheAmpereStrikesBack%2024thJuly07.pdf, p. 3.

Part of this growth is due to “standby power,” which is the electricity that products draw even when they are not in active use. Standby power is used by clocks, timers and remote instant-on features. Not only do many products use electricity when in standby mode, these products are multiplying in typical households. For example, a household may purchase a new television and keep the old television in another room.

As a result, the total amount of electricity used to feed standby power is increasing. An average Canadian home could have 25 or more products using standby power – accounting for as much as 10 percent of its annual electricity consumption.⁷ In fact, the total annual power consumption of two television sets and associated set-top boxes and DVD players could equal 1,200 kilowatt-hours, or the equivalent consumption of two refrigerators. The breakdown in energy consumption of television sets and associated electronics is illustrated in Figure 2.1.

Figure 2.1: Household Entertainment Electronics Energy Use



Source: *Televisions – Active Mode Energy Use and Opportunities for Energy Savings*, Natural Resources Defense Council Issue Paper, March 2005, at: www.nrdc.org/air/energy/energyeff/tv.pdf.

A major study of the standby power consumption of consumer electronic products available in Canadian stores is expected to be completed by the end of 2007. Funding provided by the Ontario Power Authority is supporting the development of a series of minimum energy performance standards through the Canadian Standards Association. These will incorporate international methods for testing the standby power consumption of consumer products into several Canadian standards.

⁷ Backgrounder, Canada’s Action on Standby Power.
www.nrcan.gc.ca/media/newsreleases/2007/200767a_e.htm

Appliance Leadership Energy Efficiency Committee

The Appliance Leadership Energy Efficiency Committee seeks to promote market transformation for residential appliances through a variety of programs and tools, including new minimum energy performance standard regulations and outreach to industry associations. Created in the summer of 2007, current members include representatives of several utilities and Natural Resources Canada. The Ontario Power Authority is a founding member of this committee. The committee has identified a number of priorities for increasing minimum energy performance standards in regulations, including residential refrigerators, freezers, dishwashers, clothes washers, dehumidifiers and room air conditioners.

The Canadian Appliance Manufacturers Association takes the position that, if all consumers had ENERGY STAR-qualified appliances, significant progress would be made in saving energy and reducing greenhouse gas emissions. The association estimates that converting the 58.8 million major appliances currently used in Canadian homes to ENERGY STAR-qualified models would reduce their total energy use by 39 percent.⁸

Demand Side Management Working Group Subcommittee on Building and Housing Energy Labeling

In 2006, the Subcommittee on Building and Housing Energy Labeling was formed by the Demand Side Management Working Group to assess energy labeling programs from other jurisdictions and explore the potential for introducing a voluntary building label in Canada. A representative of the Ontario Power Authority serves on the multi-stakeholder subcommittee.

There is considerable interest in the use of energy labeling as a benchmarking and regulatory tool to identify energy-efficient designs and retrofits in commercial and institutional buildings. Energy labels have been implemented successfully in several European Union and other countries that provide key energy-use information for a range of interested stakeholders. A building and housing label would identify and display energy consumption, energy intensity or related parameter(s) for commercial, institutional, multi-unit residential and government buildings.

In addition to reviewing energy labeling systems from the European Union and North America, the subcommittee is holding stakeholder consultations on sample Canadian energy label prototypes and conducting surveys on building energy labeling with sector professionals. Several building energy labeling pilot projects are currently being developed across Canada to test proposed working assumptions and administrative processes.

⁸ 2004 *Major Appliance Industry Trends & Forecast*, Canadian Appliance Manufacturers Association, 2004, p. 18.

Legislative and Regulatory Tools

Minimum Energy Performance Standards

Minimum energy performance standards establish the minimum acceptable level of efficiency for equipment or processes. There has been considerable focus in 2007 on such standards both locally and internationally. The key legislative tools for minimum energy performance standards affecting Ontario are the Ontario *Energy Efficiency Act*, the federal *Energy Efficiency Act* and Ontario's Building Code.

The provincial *Energy Efficiency Act*, administered by the Ministry of Energy, sets minimum energy performance standards for various gas, oil and electrical products, such as residential appliances; heating, ventilation and air conditioning equipment; and other commercial and industrial equipment. Retailers may only sell or lease new products that meet the designated standards and carry appropriate verification labels. Minimum efficiency levels also eliminate the least energy-efficient products from the marketplace. Amendments to the Act are made periodically, and regulations reference minimum energy-performance standards that are developed by the Canadian Standards Association. For more information regarding the Act, refer to Appendix 4.

Lighting Efficiency

In April 2007, the Ontario government announced a commitment to setting minimum energy performance standards for lighting that would result in the phase-out of energy-inefficient incandescent light bulbs by 2012. This was soon followed by the federal government's announcement of a similar commitment through regulations under the federal *Energy Efficiency Act*.

The Ontario Ministry of Energy is working with the federal Office of Energy Efficiency to develop new minimum energy performance standards for all lamps and draft regulations to promote a broad market transformation strategy for lighting in the province. As a demonstration of leadership, the Ontario government announced that it will only purchase energy-efficient light bulbs for its buildings.

"The Conservation Bureau strongly supports a transition to more efficient lighting. We believe that the use of more energy-efficient products will be encouraged through a variety of support mechanisms, including consumer education, labelling and incentives in the short term, with regulations playing an important role in the longer term."

- Peter Love, Chief Energy Conservation Officer, February 26, 2007, Statement by the Conservation Bureau for the International Energy Agency Workshop, "CFL Quality and Strategies to Phase-out Incandescent Lamps," February 26, 2007.

Amendments to the Federal Energy Efficiency Act Regulations

The Office of Energy Efficiency at Natural Resources Canada has developed a set of planned amendments to energy-efficiency regulations under the *Energy Efficiency Act* that will address about 20 currently unregulated products and tighten existing requirements for 10 products. Many of the proposed timelines for the next three amendments of the federal *Energy Efficiency Act* regulations are tentatively based on effective dates and minimum energy performance standards in the *United States Energy Policy Act of 2005* and subsequent American legislation.

The proposed timing and content of each Canadian amendment are set out in Table 2.1 below. More precise minimum efficiency levels and effective dates for these products will be determined by further research and consultation to be carried out during the federal regulatory process.

Table 2.1: Proposed Amendments to the Federal *Energy Efficiency Act*

Amendment 10 proposed for 2007	Amendment 11 proposed for 2008	Amendment 12 proposed for 2010
• Labelling lighting products • Wine coolers • Dehumidifiers • Commercial clothes washers • Residential dishwashers • Ceiling fans with light kit • Residential furnaces • Unit heaters • Ice cube makers • Torchiere lamps to compact fluorescent lights • Traffic and pedestrian signals	• Line voltage thermostats • Pre-rinse spray valves • BR R 20 lamps • Digital television adaptors • External power supplies • Standby power (consumer electronics) • Low-voltage dry-type distribution transformers • Commercial refrigerators	• Residential hot tubs/spas • Residential refrigerators • Freezers • Standby power • Battery chargers • Cable and satellite set-top boxes • Mercury vapour ballasts • Labelling of gas water heaters • High intensity discharge (HID) ballasts • Large and very large commercial air conditioners • Liquid immersed and medium voltage transformers • Packaged terminal air conditioners and heat pumps • Commercial boilers

Source: Natural Resources Canada

Amendments to Ontario's Building Code

Ontario, in its building code, is a leader in North America for its minimum energy-efficiency standards. Amendments to the code in 2006 included provisions for energy

efficiency in building design and construction. The code also contains provisions promoting the use of green technologies such as solar photovoltaic systems, gas-fired emergency generators that can contribute to the power grid, active solar hot water systems, wastewater heat recovery systems and motion sensors for lighting. The code also clarifies that wind turbines are subject to its requirements.

Renovations and retrofit programs remain relatively untouched by the code. A number of incentive and information programs in the market are stimulating improvements in this area; however, further exploration is needed to determine the types of legal and policy tools that could drive this initiative.

To facilitate the changes to the code planned for 2009 and 2012, the Ministry of Municipal Affairs and Housing is undertaking a number of activities. These include:

- developing a training course relating to code provisions on energy-efficiency requirements in buildings and houses
- retaining a consultant to work with the Ontario Home Builders' Association to develop a best practices manual on installing full-height basement insulation
- working with the Ontario Building Officials' Association on a four-phase project focusing on residential construction
- nominating members for a new code committee to review next-generation code amendments.

Future Model National Energy Code of Canada Amendments

The federal government has launched a process to amend the Model National Energy Code of Canada for Buildings. Lasted updated in 1997, the code sets out cost-effective minimum requirements for energy efficiency in new buildings. It applies to all buildings, other than houses of three storeys or less, and to additions of more than 10 meters squared to such buildings. Ontario's Ministry of Municipal Affairs and Housing is involved in the amendment process.

The next update of the code is scheduled for release in 2011. The code will be published for the first time in an objective-based format and will offer new information to facilitate the evaluation of innovative products and systems. The first step in compiling the objective-based material for the updated code will be the analysis of all the provisions in the 1997 code. In the fall of 2007, a new standing committee will be created by the Canadian Commission on Building and Fire Codes to carry out the technical work needed to update the technical provisions of the 1997 code.

In Canada, building regulation is the responsibility of provincial and territorial governments. The Model National Energy Code of Canada for Buildings is in the form of a model code to permit adoption by the appropriate authority. To date, no province or territory has adopted the code, but a few have used some of its requirements in their building codes.

Energy Conservation Leadership Act

The *Energy Conservation Leadership Act, 2006*, empowers the government to pass regulations requiring ministries, agencies and public sector organizations to prepare energy conservation strategies on a regular basis and report on energy consumption, proposed conservation measures and progress. The Chief Energy Conservation Officer's 2006 annual report included a recommendation to develop meaningful regulations under the Act, address barriers to conservation and promote leadership in energy conservation by the broader public sector. The Ontario government continues to consult actively with key players in municipalities, schools, universities and hospitals on this issue. It also has been working with government building owners and experts to develop a better understanding of what would be needed in a regulation to require municipalities, schools, universities and hospitals to post energy conservation plans.

Federal Regulatory Framework for Air Emissions

In the spring of 2007, the federal government released a Regulatory Framework for Air Emissions. This plan sets out intensity-based emissions caps for carbon, sulphur oxides and nitrous oxides for large final emitters and electricity generators. The framework proposes 2006 carbon dioxide levels as the baseline against which success is measured and establishes a trading mechanism, offset rules and an emerging technology fund for enabling emissions reductions. Sector-specific regulations are expected to be developed, with draft regulations to be published starting in the spring of 2008.

Aggressive energy conservation is one means by which large final emitters and electricity generators can achieve sustained greenhouse gas and air emission reductions. Mechanisms such as an emerging technology fund could promote market transformation in the long term.

Appendix 3

Technology Development Fund Project Descriptions

The following are descriptions of the projects funded by the Technology Development Fund in the second round of funding in 2007. No projects were approved during the first round of funding in the 2007 fiscal year.

Title	Description	Proponent	Funding
Nanowire-based Solar Cells	Traditional solar cells are based on costly, thin-film semiconductor technology and offer good efficiency at a price – alternatives such as plastic-based cells are considerably cheaper but currently offer a fraction of the performance. This proposal, written in close consultation with Canadian Solar Inc., is concerned with using nanostructures to enhance the efficiency of plastic solar cells while maintaining the attractive cost advantages. The nanostructures of interest are nanowires that can offer an efficient energy-absorbing medium as well as electron transport media, two of the critical factors in improving plastic cell performance.	Harry Ruda, University of Toronto	\$100,000
Mechanical Pulping	To ensure the long-term competitiveness of the Canadian mechanical pulping industry, the University of British Columbia has developed a five-year, two million dollar, multi-disciplinary research program. The goal is to reduce electrical energy consumption in mechanical pulping by 20 percent through scientific discovery and the development of new technology, while maintaining or improving product quality and production.	Dr. James Olsen	\$100,000
Variable-Speed Drive Performance Testing	This project is to perform a benchmark study to establish a common test protocol for determination of efficiency for variable-frequency drives. The proposed test procedure will form the basis of a new standard, CSA C838: Variable Frequency Drives. The project is part of a coordinated strategy on these drives.	LTE Hydro Quebec	\$25,300
Maestro Demand Response Resource Pilot Project	This project involves the development of a prototype of a low-cost, easily deployable, operations-free set of controllers that reduce peak demand across a set of discretionary loads. This will be followed by field trial deployment, installation in the field and a data analysis of results.	Mark Kerbel, REGEN Energy	\$25,000

Appendix 4

Ontario Power Authority 2008 Conservation Program Descriptions

The Ontario Power Authority has a number of conservation program proposals for implementation in the 2008 fiscal year. Program design considerations are under active development at the time of this report. In addition to the new programs, several of the programs that have been designed and delivered in the 2007 fiscal year are likely to continue in 2008. Some 2007 programs may be rolled into the new 2008 programs. The programs proposed for 2008 are described in the following sections. New programs are categorized differently than current programs. Specifically, the business market programs are further broken down into commercial/institutional and industrial programs.

2008 Mass Market Programs

The general characteristics of these programs are described in Table 5.2 of the 2007 annual report of the Chief Energy Conservation Officer. Because of the timing of the release of the report, the new programs are described in general. Information regarding the specific design elements of these programs will be posted to the Ontario Power Authority's website as soon as they are available.

2008 Commercial/Institutional Market Programs

A High Performance New Construction Program is being developed to provide assistance for incorporating conservation measures into the design, construction and operation of new and substantially renovated buildings. Under the program, new commercial and/or institutional buildings are intended to exceed the Model National Energy Code for Buildings with graduated incentive levels for higher energy performance.

Highlights of this program include technical assistance to help evaluate energy-efficiency measures, support for charrettes and modeling simulations on incorporating new and emerging energy-efficient technologies, incentive funding to offset the additional costs associated with the purchase and installation of approved equipment, third-party commissioning services, and measurement and verification services.

A Commercial Direct Install Program is being developed as a turn-key retrofit program to include a pre-defined set of energy-efficiency measures focusing on more efficient lighting and heating, vacuuming and air conditioning equipment for the small commercial sector (below 50 kilowatts average monthly demand).

This program will reach targeted local business areas and brings the implementation capability to the point of sale with teams of installers. It will be supported by local electricity distribution companies with their community involvement and related communications capabilities.

A new **Large Commercial Buildings Program** will promote retrofits in large commercial, institutional and multi-family buildings in Toronto (more than 25,000 square feet). Authorized under the government's Toronto directive to improve energy efficiency and implement fuel switching in areas such as central plant systems, lighting systems, building envelope, tenant sub-metering, motors, emergency generators, fuel switching and deep lake water cooling. This program will include the Building Owners and Managers Association Toronto Conservation and Demand Management Program described in the 2007 conservation programs.

A **Multi-family Buildings Program** is under development to address building retrofits for improving energy efficiency and implementing fuel switching in multi-family residential buildings. This program will be combined with educational initiatives for tenants as well as building operators. Separate design elements will be included for socially assisted housing. Some elements of the Ontario Power Authority's current programs for low-income and social housing may be rolled into this new program.

A **Fuel Switching Program** targeted at the commercial sector will acquire resources relating to fuel choices for end uses that can contribute to coincident peak electricity demand reduction.

A **Building Re-commissioning Program** targeted at building operators will encourage thorough reviews of operating characteristics of large buildings, maintenance of optimal equipment use and setup, and properly calibrated equipment.

A new **Institutional Sector Program** is being developed to address the unique needs of institutional markets. The program will build on the work done by various organizations in this sector that have been partly funded by the Conservation Fund.

2008 Industrial Market Programs

A suite of **Industrial Process and Technology Programs** will be proposed to improve energy efficiency in the industrial sector, targeting both large and small/medium participants. Individual programs will provide evaluation and optimization to encourage increased efficiency for particular end uses, such as driven loads, compressed air, lighting and refrigeration and cooling. In the longer term, elements of business cultural change will be addressed. This program suite may include operational energy analysis, energy management resource support, monitoring and targeting/sub-metering, procedural/cultural/operating and maintenance improvement, and custom innovation projects.

Appendix 5

Federal and Ontario Energy Efficiency Acts

Minimum Energy Performance Standards in Canada

Regulations enacted under energy-efficiency legislation establish standards for the energy used by a wide range of products. These laws have the objective of eliminating the least energy-efficient products from the marketplace. A provincial *Energy Efficiency Act* was implemented in Ontario in 1988, and a similar act was passed by the federal government in 1992. The federal *Energy Efficiency Act* allows Canada to create and enforce energy performance and labelling regulations for products that are imported into Canada or shipped across provincial or territorial borders. Ontario's *Energy Efficiency Act* allows the province to restrict the sale of products that are manufactured, sold or leased inside the province. The federal Act was last amended in November 2006, and the Ontario Act was last amended in July 2005.

The federal and provincial Acts regulate a wide spectrum of products including major household appliances, water heaters, heating and air-conditioning equipment, power transformers, electric motors and lighting products. If a minimum energy-efficiency level is designated for a particular product, that standard continues to apply even if the product is incorporated into a larger unit or machine that is not regulated. To date, nine federal amendments have established minimum efficiency levels for product categories that consume an estimated 80 percent of the energy used in the residential sector and 50 percent of the energy used in the commercial and institutional sectors.

Historically, Canadian and Ontario minimum energy performance standards have followed the effective dates and minimum efficiency levels imposed by the U.S. Department of Energy. Most regulations applying in Ontario have adopted the same minimum efficiency level within months of the effective date that resulted from the Department of Energy's rulemaking process. When differences exist between Canadian and Ontario regulations, manufacturers and distributors typically look to the federal regulation for information on effective dates and minimum energy performance standards.⁹

Rationale for Mandatory Minimum Energy Performance Standards

There are a number of direct and indirect benefits to implementing mandatory minimum energy performance standards for products bought or sold in the marketplace. Mandatory minimum standards ensure that consumers buy the most energy-efficient products. The Collaborative Labelling and Appliance Standards Program has indicated that when

⁹ Table A-4. Comparison of Test Procedures in Canada, Mexico, and the United States, at <http://oee.mcan.gc.ca/NAenergyefficiency/IV.cfm>.

mandatory standards are well-designed and implemented, their advantages can include substantial energy savings. In addition, they:

- are cost-effective at limiting energy demand growth without limiting economic growth
- require behavioural changes in a relatively few number of manufacturers rather than the entire consuming public
- treat all manufacturers, distributors, and retailers equally on a level playing field
- result in energy savings that are easy to quantify and readily verified.

In Canada, standards are developed by a diverse set of stakeholders. The process includes extensive consultations with utilities, affected industries, consumer groups and environmental organizations as well as other governments. Regulations under the federal *Energy Efficiency Act* refer to national consensus performance standards developed by certified standards-writing organizations (e.g., the Canadian Standards Association), which include the use of specific testing procedures to determine a product's energy performance.

Recognized standards-writing organizations, certified by the Standards Council of Canada, act as agents to develop test standards. These performance standards are developed using technical committees consisting of manufacturers, utilities, retailers, consumer groups and government representatives. The minimum efficiency levels determined by performance standards are set by a consensus process that allows for thorough negotiation and resolution of issues identified by interested groups. Standards are determined by a voting procedure, and all negative ballots are resolved before the standards are published. When published, these standards become the basis of regulations.

Consultations on Minimum Energy Performance Standards

In Canada, the federal government consults in parallel with its program to provide the majority of funding for the development of minimum energy performance standards. Consultation on products is accomplished through three mechanisms: technical subcommittees of the Canadian Standards Association, bulletins that are distributed to interested stakeholders and workshops when significant technical issues must be addressed.

Written comments are received through consultations (e.g., bulletins and workshops) and analyses (e.g., economic and environmental impacts), which assist in determining the mandatory performance standards and labelling requirements. Any amendments to regulations that are proposed are pre-published in the *Canada Gazette* upon the approval of a Cabinet committee. A 75-day period follows for receiving public comments. Depending on the nature of the comments received, the proposal may be modified, after which it must be approved by a Cabinet committee, published in the *Canada Gazette* for the final time and implemented.

Regulations are regularly amended to strengthen the minimum energy performance requirements for prescribed products, based on the systematic review of standards to incorporate higher minimum efficiency levels and new technological developments.

In the United States, the Department of Energy can determine minimum energy performance standards only after a prescribed process of research and consultation demonstrates that the levels are technically feasible and cost-effective. Performance standards are periodically reviewed by the Department of Energy and higher levels are set if justified through analysis.

An engineering analysis can quantify the cost of energy-saving technologies. Economic analyses look at historical and projected costs and benefits to consumers, manufacturers, utility companies and the nation. Environmental impacts, including reduced air emissions and use of chlorofluorocarbons, also are analyzed.

Compliance and Enforcement of Minimum Energy Performance Standards

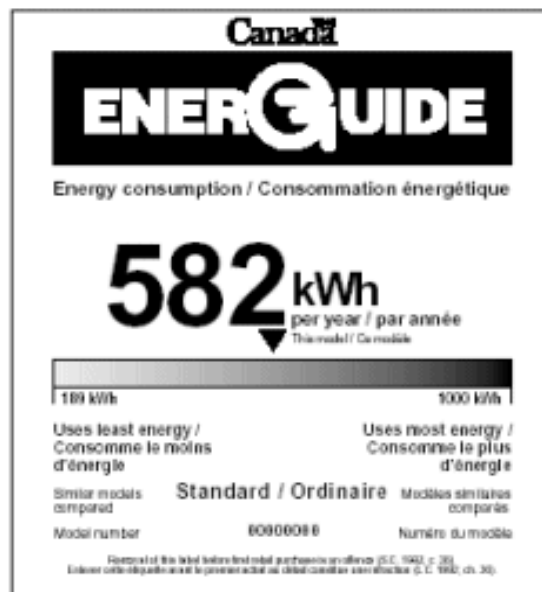
In Canada, federal energy-efficiency regulations outline the responsibilities of dealers importing into Canada or shipping across provincial boundaries any prescribed energy-using product. Before importing or shipping products between provinces, dealers must ensure that an energy-efficiency report for the product has been filed with Natural Resources Canada. The data in the report are used to verify compliance with any minimum energy performance standards and to develop energy labels and directories of labeled products.

In Ontario, provisions in the *Energy Efficiency Act* allow for penalties of up to \$25,000 for non-compliance involving mislabelled products or those that did not meet the minimum efficiency levels. Both the Ontario and federal governments rely on and emphasize self-monitoring, reporting, voluntary compliance and collaboration.

Third-party verification is done through testing services of certification organizations accredited by the Standards Council of Canada. Natural Resources Canada also conducts product testing on a compliance-driven basis. Challenges by which performance claims can be questioned by competing suppliers exist in all federal verification programs.

All regulated energy-using products imported into Canada or shipped between provinces must carry an energy-efficiency verification mark from a certification organization accredited by the Standards Council of Canada. The mark, which must be placed on the outside of the product, indicates that the energy performance of the product has been verified. The label shows the energy consumption in kilowatt- hours per year derived from the standard tests. It also shows:

- a bar scale comparing the model's energy consumption to other models on the market that are in the same product group
- the energy consumption of the most and least energy-efficient models on the market that are in the same product group
- the product group type and size category (e.g., cooling capacity category in the case of room air conditioners) and
- the model number.



The energy-efficiency regulations specify the exact format, size, shape and colour of the EnerGuide label (as shown) and how it is to be placed on the product. Information on all labelled appliances is collected in two EnerGuide directories, one for appliances and another for heating, ventilation and air conditioning equipment. The EnerGuide program is supported by web-based information sites and retailer liaison and training programs.

A mandatory labelling program also operates in the United States. Program design, implementation and compliance are administered by the Federal Trade Commission. The labels use annual energy use (in kilowatt-hours) as the main comparative indicator. The rating system shows energy, operating cost and the lowest and highest energy used for similar products. Energy-efficiency ratios (e.g., seasonal energy efficiency ratio or SEER) are used for climate-control appliances, for which energy consumption varies by region and seasons.

Endorsement Labelling

Through Natural Resources Canada, Canada is a partner nation in the International Energy Star Program, which recognizes and promotes the criteria and logo established under the Energy Star scheme. In 2001, Canada officially introduced ENERGY STAR®, when an agreement was signed with the United States' Environmental Protection Agency and the Department of Energy. Canada was the fifth country to join the ENERGY STAR program with Australia, New Zealand, Japan and Taiwan. The European Union has adopted ENERGY STAR for office equipment.

Qualifying products that have an EnerGuide label may also have the ENERGY STAR logo on the same label. The Environmental Protection Agency and Department of Energy are responsible for developing the endorsement criteria, and Natural Resources Canada is consulted when developing new specifications.



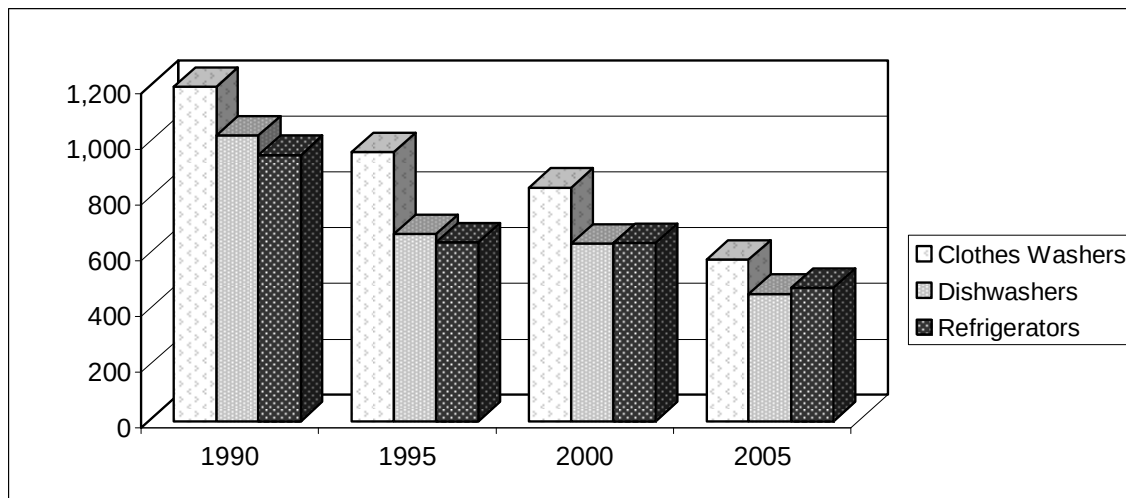
ENERGY STAR is a voluntary program that establishes high efficiency criteria and levels for select products for the residential and commercial sectors. Manufacturers must meet the admissibility criteria and performance levels endorsed by ENERGY STAR. For appliances and heating and cooling products, the ENERGY STAR criteria are based on the same standard as those required under energy-efficiency regulations.

Under the ENERGY STAR program, labels show different information depending on the type of equipment. For office equipment and household electronic equipment, the ENERGY STAR label indicates that the model has certain power management capabilities and that the manufacturer has undertaken to supply the product with those capabilities “enabled.” For other types of equipment, the label indicates that the product is among the most efficient of its type, either because it is in the top percentile of the range on the market or because it exceeds the minimum energy performance standard by a specified margin. The amount by which an appliance must exceed the minimum energy performance standard differs for each product and depends on available technology in each product category.

The Canadian Appliance Manufacturers Association has estimated that if all major appliances were replaced with ENERGY STAR-qualified appliances, the annual provincial energy consumption would drop by 7.5 terawatt-hours. This amount of energy is approximately equal to the annual energy consumption of all the households in Hamilton, London, Kitchener, Sudbury and Thunder Bay combined.

Over the last 20 years, there has been a steady downward trend in energy use from several residential appliances resulting from minimum energy efficiency levels. For example, Figure 5.1 shows that the average household refrigerator now uses 60 percent of the energy used by a comparable unit purchased in 1990. Downward trends are also evident for clothes washers and dishwashers. More work needs to be done, however, as the total number of household appliances continues to increase. In response, the Ontario Power Authority has developed programs such as the Great Refrigerator Roundup to reduce the number of appliances in households.

Figure 5.1. Trends in Residential Appliance Use with Minimum Energy Efficiency Standards

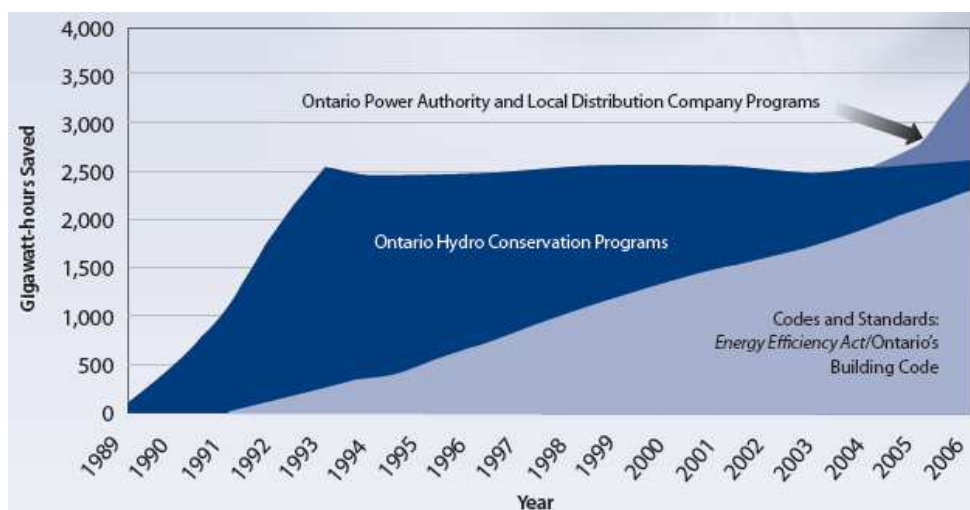


Source: *Energy Consumption of Major Household Appliances Shipped in Canada – Trends for 1990-2004*, Natural Resources Canada, 2006

Performance of Minimum Energy Performance Standards to Date

The historical energy savings displayed in Figure 5.2 are intended for illustrative purposes only. The following section describes the methodology used to arrive at the estimates for the energy savings illustrated in the figure.

Figure 5.2. History of Conservation Success in Ontario



Source: Ontario Power Authority

Ontario Hydro Conservation Programs

Ontario Hydro historical information is derived from *1993 Net Load Impact of Energy Management Programs* (PE&F 94-03), dated May 1994. The energy savings are estimated by converting the reported demand reductions (in megawatts) using a uniform load factor of 0.3. Savings from load shifting are not included in the figure. Savings from energy-efficiency initiatives are assumed to decline to zero after 15 years. This timeline for the diminishing of program impacts is consistent with methodologies used in other jurisdictions. Fuel substitution savings are assumed to decline to zero after five years. These energy-savings estimates are summarized in Table 5.1.

Table 5.1. Summary of Assumed Energy Savings from Ontario Hydro Conservation Programs

Type of Measure	Ontario Hydro Estimates				Ontario Power Authority Estimates		
	1989	1990	1991	1992	1997	2002	2007
EE Improvements (reported)	30	150	300	520	Savings to diminish to zero within 15 years (California estimate)		
Portion Attributed to Provincial Savings (MW)	30	150	300	520	491	268	45
Load Shifting (reported)	65	115	145	180			
Portion Attributed to Provincial Savings (MW)	0	0	0	0	0	0	0
Fuel Substitution (reported)	0	0	8	11	Savings to diminish to zero within five years (Ontario Hydro estimate)		
Portion Attributed to Provincial Savings (MW)	0	0	8	11	2	0	0
Total Attributed to Provincial Savings (MW)	30	150	308	531	493	268	45
Total Equivalent Energy Savings 0.3MW/GWh (GWh)	100	500	1,027	1,770	1,644	893	149

Source: Ontario Hydro estimates are derived from *1993 Net Load Impact of Energy Management Programs* (PE&F 94-03), May 1994.

Codes and Standards – Ontario’s Building Code and Energy Efficiency Act

Savings from codes and standards include estimates of energy savings from Ontario’s *Energy Efficiency Act* and *Building Code*. Savings from energy-efficiency standards are derived from Natural Resources Canada’s Office of Energy Efficiency estimates for savings from the federal *Energy Efficiency Act*. The federal government makes individual and cumulative forecasts about products referenced in regulations. This information is made available through the Regulatory Impact Analysis Statement, which is annexed to the published regulation in the *Canada Gazette*. These figures are only available in petajoules (PJ) and are summarized in Table 5.2.

Products	Energy Savings by 2010 (PJ)
Residential Appliances	117.2
Lamps (fluorescent/incandescent)	11.6
Motors	16.3
Commercial Heating, Ventilation and Air Conditioning	6.4
Refrigerators	4.92
Ballasts, Room Air Conditioners, Parabolic Aluminized Reflector Lamps	3.96
Clothes Washers, Domestic Hot Water, Exit Signs, Chillers	16.2
Air Conditioners, Commercial Refrigeration	1.57
Total	178.15

Source: Natural Resources Canada

An Ontario Power Authority analysis estimated that the provincial savings for the same period shown in Table 5.2 would be approximately 45 percent of the Office of Energy Efficiency's total estimate for Canada. This equates to an estimated savings of approximately 2,000 gigawatt-hours for 2006.

Electricity use for space heating has grown by five percent since 1990, even as the market share for electric heat declined from 13 to 11 percent. Savings from the Building Code are derived from the energy-efficiency provisions in amendments to the code in the 1990s and are estimated at 15 percent for an average annual heating load of 30,000 kilowatt-hours. These savings are summarized on a three-year basis in Table 5.3.

Table 5.3. Total Estimated Savings from Codes

Products	1994	1997	2000	2003	2006
Housing Starts	41,600	50,000	67,400	80,900	67,800
Estimated Number of Homes Using Electric Heat	5,400	6,250	8,088	9,300	7,460
Total Estimated Savings (GWh)	24	106	208	330	448

Source: Ontario Power Authority

Ontario Power Authority and Local Distribution Programs

Estimated savings of 858 gigawatt-hours for 2006 are derived from values contained in the 2006 annual report of the Chief Energy Conservation Officer and the supplement to the 2006 annual report.

Jurisdictional Issues in Setting Minimum Energy Performance Standards

In the United States, actions to reduce the growth of energy consumption started at the State level when California enacted appliance efficiency regulations in 1976. New York, Massachusetts, Florida and Kansas followed suit with similar regulations in the early to mid-1980s. The United States Congress then passed the National Appliance Energy Conservation Act in 1987. This legislation, in effect, superseded any State regulation for products that fell under the federal Act.

The Department of Energy is required to update and develop test procedures and standards in accordance with new technologies where higher standards are economically justifiable. Test procedures are typically maintained by industry associations and incorporated by reference into the regulations (or Rule) set by the Department of Energy. The Department of Energy Rulemaking process minimum efficiency levels that are technically feasible and economically justified and includes these minimum level in the Final Rule. When the Department of Energy did not meet the specified deadlines for standards updates, individual States began developing energy performance standards for additional products. The federal government then passed the Energy Policy Act of 2005, which set new standards for 16 products and directed the Department of Energy to set standards for five additional products.

In January 2006, the Department of Energy released a five-year schedule for addressing new standards for 23 appliances that were backlogged. As a result, many standards previously adopted at the State level now once again became subject to federal rules. Several States petitioned the Department of Energy for exemption from the federal standards for products regulated at the State level. This demonstrates how action by individual States has put pressure on manufacturers and the Department of Energy to update minimum energy performance standards.¹⁰

In Canada, the situation is different than in the United States.. While the federal Energy Efficiency Act does set minimum standards, the provinces still have the authority to regulate minimum energy-efficiency levels to a higher standard than those referenced in federal regulations. While issues relating to energy and natural resources fall under the jurisdiction of the provinces, the Federal government has the authority to regulate trade across national and provincial boundaries. Provinces with an Energy Efficiency Act can only regulate the sale and lease of products within their borders, but have the added freedom to regulate additional products and to higher minimum efficiency levels.

¹⁰ The State Energy Efficiency Scorecard for 2006, June 2007, at: www.ase.org/uploaded_files/e-EFFICIENCY_News/state_report_card.pdf.

Appendix 6

Stakeholder Consultations on Conservation Barriers

The Chief Energy Conservation Officer's mandate includes reporting on any government policy or legislation that results in a barrier to electricity conservation and load management measures. In satisfying this mandate, dialogue with stakeholders on barriers are a part of the Chief Energy Conservation Officer's ongoing activities. Consultations in 2007 included sessions with commercial interval meter customers and other stakeholders. Ontario Power Authority staff also attended a session held by the Ontario Energy Board on barriers to energy efficiency.

In addition to external consultations, dialogue with Ontario Power Authority conservation program staff in summer 2007 sought to obtain a cross-section of opinions on some of the most prominent barriers to conservation activities. Insight from internal staff is valuable because these individuals are working through the practical consequences of various policy and market factors that affect conservation programs. Their expertise has helped to guide the Chief Energy Conservation Officer's recommended actions and further consultations with stakeholders on barriers to conservation. More internal and external consultations is planned for late 2007 and 2008.

Ontario Power Authority Consultation with Interval Meter Stakeholders

In July 2007, the Chief Energy Conservation Officer met with a number of commercial interval meter customers. These customers pay for their electricity consumption on an hourly basis, based on the Hourly Ontario Energy Price. The participants from this sector volunteered to work with the Chief Energy Conservation Officer to identify efficiency barriers and possible solutions to help the Ontario electricity market.¹¹

While a number of barriers were identified during this consultation, stakeholders advised the Chief Energy Conservation Officer that their core business is their top priority and that energy efficiency is just one of a number of factors that they must consider. Many businesses cannot keep up with the changes that are occurring in the electricity market and expressed that they are confused, not only about the increasing number of stakeholders and organizations in the electricity sector, but also about how to access conservation information and resources.

The Chief Energy Conservation Officer was advised that the greatest impediment to energy efficiency is the absence of information. Real-time electricity use and price information is not readily available, and there are few energy managers, plans or tools to assess the opportunities for energy efficiency. Utility statements are confusing or do not

¹¹ *Energy Efficiency Barriers in Ontario*, Energy@Work, November 2007.

include the information needed to achieve greater efficiency or to facilitate more responsible use of electricity.

Any approach to addressing the numerous barriers must put the customer first. This will maximize a triple bottom line of economic prosperity, environmental performance and social responsibility, and provide a clear return on investment.

Ontario Energy Board Consultation, July 2007

In July 2007, the Ontario Energy Board held a session on conservation issues.¹² Board staff outlined the current status of conservation in the province, how this was achieved and what can be expected in the future from a regulatory standpoint. Attendees then were asked a series of general questions about the evaluation process, customer access to programs, time horizons for funding, etc. The purpose of the discussion was not to provide answers but rather to determine areas that need to be examined moving forward.

Key messages relating to legal and policy barriers and opportunities included:

- from a customer perspective, a simple, one-window access to program information is needed
- from a program administrator perspective, long-term contracts and/or program funding commitment is needed
- bills must be used to communicate the financial benefits of conservation as well as the environmental benefits, such as the inclusion of a report on pollutant reductions
- policy development and planning efforts must take the rebound effect seriously
- planning and evaluation tools and methods must be clear and rigorous.

¹² *Board Staff Report: Stakeholder Consultations on Conservation and Demand Management, Ontario Energy Board, EB-2007-0097, July 27, 2007 at: www.oeb.gov.on.ca/documents/cases/EB-2007-0097/staff_report_on_consult_reg_barriers_20070727.pdf.*