EB-2010-0184

IN THE MATTER OF the *Ontario Energy Board Act, 1998* S.O. 1998, c. 15 (Schedule B) (the "**OEB Act**");

AND IN THE MATTER OF a motion by the Consumers Council of Canada in relation to section 26.1 of the *Ontario Energy Board Act, 1998* and Ontario Regulation 66/10

MATERIALS USED IN CROSS EXAMINATION BY UNION GAS

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Green Energy Act, 2009

S.O. 2009, CHAPTER 12
SCHEDULE A

Consolidation Period: From September 9, 2009 to the e-Laws currency date.

No Amendments.

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Preamble

The Government of Ontario is committed to fostering the growth of renewable energy projects, which use cleaner sources of energy, and to removing barriers to and promoting opportunities for renewable energy projects and to promoting a green economy.

The Government of Ontario is committed to ensuring that the Government of Ontario and the broader public sector, including government-funded institutions, conserve energy and use energy efficiently in conducting their affairs.

The Government of Ontario is committed to promoting and expanding energy conservation by all Ontarians and to encouraging all Ontarians to use energy efficiently.

PART I
INTERPRETATION AND GENERAL APPLICATION

Definitions and interpretation

Definitions

1. (1) In this Act,

"distribution system" has the same meaning as in the *Electricity Act, 1998*; ("réseau de distribution")

"generation facility" has the same meaning as in the *Electricity Act, 1998*; ("installation de production")

"Minister" means the Minister of Energy and Infrastructure or any other member of the Executive Council to whom responsibility for the administration of this Act is assigned or transferred under the *Executive Council Act*; ("ministre")

"Ministry" means the ministry of the Minister; ("ministère")

"prescribed" means prescribed by a regulation made under this Act; ("prescrit")

"public agency" means a ministry of the Government of Ontario or an entity, including a municipality, or class of entities that is prescribed as a public agency; ("organisme public")

"regulation" means a regulation made under this Act; ("règlement")

"renewable energy generation facility" has the same meaning as in the *Electricity Act, 1998*; ("installation de production d'énergie renouvelable")

"renewable energy project" means the construction, installation, use, operation, changing or retiring of a renewable energy generation facility; ("projet d'énergie renouvelable")

"renewable energy source" means an energy source that is renewed by natural processes and includes wind, water, biomass, biogas, biofuel, solar energy, geothermal energy, tidal forces and such other energy sources as may be prescribed by the regulations, but only if the energy source satisfies such criteria as may be prescribed by the regulations for that energy source; ("source d'énergie renouvelable")

"renewable energy testing facility" means devices or structures to be used to gather information about natural conditions at the location of the structures or devices and related infrastructure and that meet such criteria as may be prescribed by the regulations; ("installation d'évaluation du potentiel en énergie renouvelable")

"renewable energy testing project" means the construction, installation, use, operation, changing or retiring of a renewable energy testing facility; ("projet d'évaluation du potentiel en énergie renouvelable")

"transmission system" has the same meaning as in the *Electricity Act, 1998*. ("réseau de

transport") 2009, c. 12, Sched. A, s. 1 (1).

Interpretation

(2) This Act shall be interpreted in a manner that is consistent with section 35 of the *Constitution Act, 1982* and with the duty to consult aboriginal peoples. 2009, c. 12, Sched. A, s. 1 (2).

Administration, community consultation

2. This Act shall be administered in a manner that promotes community consultation. 2009, c. 12, Sched. A, s. 2.

Note: Section 3 comes into force on a day to be named by proclamation of the Lieutenant Governor. See: 2009, c. 12, Sched. A, s. 19.

Mandatory home efficiency disclosure

3. (1) A person making an offer to purchase an interest in real property has the right to receive from the person offering to sell the property such information, reports or ratings as are prescribed,

(a) relating to energy consumption and efficiency with respect to a prescribed residence on the property or a class of prescribed residences on the property; and

(b) in such circumstances and at such times as are prescribed and in such manner as is prescribed. 2009, c. 12, Sched. A, s. 3 (1).

Provision before accepting offer

(2) The person offering to sell the property shall, in accordance with subsection (1), provide the information, reports or ratings to the person making the offer to purchase before accepting that person's offer. 2009, c. 12, Sched. A, s. 3 (2).

Waiver

(3) Subsections (1) and (2) do not apply where the person making the offer waives, in writing, the provision and receipt of the information, reports or ratings. 2009, c. 12, Sched. A, s. 3 (3).

Agent

(4) A person acting as an agent on behalf of the person offering to sell shall inform that person promptly of any request for the information, reports or ratings. 2009, c. 12, Sched. A, s. 3 (4).

Same

(5) Subsection (4) applies only to agents acting for or in anticipation of receiving valuable consideration with respect to the offer to sell. 2009, c. 12, Sched. A, s. 3 (5).

Make available

(6) In this section, the obligation to provide information, reports or ratings is satisfied where the person offering to sell makes the information, reports or ratings reasonably available to the person making the offer to purchase. 2009, c. 12, Sched. A, s. 3 (6).

PART II
DESIGNATED GOODS, SERVICES AND TECHNOLOGIES AND RENEWABLE ENERGY PROJECTS AND ENERGY CONSERVATION IN THE PUBLIC SECTOR

Permissive designation of goods, services and technologies

4. (1) The Lieutenant Governor in Council may, by regulation, designate goods, services and technologies in order to promote energy conservation. 2009, c. 12, Sched. A, s. 4 (1).

Effect of designation

(2) A person is permitted to use designated goods, services and technologies in such circumstances as may be prescribed, despite any restriction imposed at law that would otherwise prevent or restrict their use, including a restriction established by a municipal by-law, a condominium by-law, an encumbrance on real property or an agreement. 2009, c. 12, Sched. A, s. 4 (2).

Same

(3) A restriction imposed at law that would otherwise prevent or restrict the use of designated goods, services or technologies is inoperative to the extent that it would otherwise prevent or restrict the use. 2009, c. 12, Sched. A, s. 4 (3).

Exception

(4) Subsections (2) and (3) do not apply with respect to a restriction imposed by an Act or regulation. 2009, c. 12, Sched. A, s. 4 (4).

Permissive designation of renewable energy projects, etc.

5. (1) The Lieutenant Governor in Council may, by regulation, designate renewable energy projects, renewable energy sources or renewable energy testing projects for the following purposes:

1. To assist in the removal of barriers to and to promote opportunities for the use of renewable energy sources.
2. To promote access to transmission systems and distribution systems for proponents of renewable energy projects. 2009, c. 12, Sched. A, s. 5 (1).

Effect of designation

(2) A person is permitted to engage in activities with respect to a designated renewable energy project, a designated renewable energy source or a designated renewable energy testing project in such circumstances as may be prescribed, despite any restriction imposed at law that would otherwise prevent or restrict the activity, including a restriction established by a municipal by-law, a condominium by-law, an encumbrance on real property or an agreement. 2009, c. 12, Sched. A, s. 5 (2).

Same

(3) A restriction imposed at law that would otherwise prevent or restrict an activity with respect to a designated renewable energy project, a designated renewable energy source or a designated renewable energy testing project is inoperative to the extent that it would otherwise prevent or restrict the activity. 2009, c. 12, Sched. A, s. 5 (3).

Exception

(4) Subsections (2) and (3) do not apply,

(a) with respect to a restriction imposed by an Act or regulation; or

(b) with respect to prescribed by-laws, instruments or other restrictions or prescribed classes of by-laws, instruments or other restrictions. 2009, c. 12, Sched. A, s. 5 (4).

Energy conservation and demand management plans

Public agencies

6. (1) The Lieutenant Governor in Council may, by regulation, require public agencies to prepare an energy conservation and demand management plan. 2009, c. 12, Sched. A, s. 6 (1).

Prescribed consumers

(2) The Lieutenant Governor in Council may, by regulation, require prescribed consumers to prepare an energy conservation and demand management plan. 2009, c. 12, Sched. A, s. 6 (2).

Same, regulations

(3) The regulations may provide that the plan required under subsection (1) or (2) cover such period as is prescribed and may be required at such intervals as are prescribed and may require that the plan be filed with the Ministry. 2009, c. 12, Sched. A, s. 6 (3).

Specified targets and standards, public agencies

(4) The Lieutenant Governor in Council may, by regulation, require a public agency to achieve prescribed targets and meet prescribed energy and environmental standards, including standards for energy conservation and demand management. 2009, c. 12, Sched. A, s. 6 (4).

Contents, public agencies

(5) For the purposes of subsection (1), the plan must be prepared in accordance with the requirements, as may be prescribed, and must include the following information:

1. A summary of annual energy consumption for each of the public agency's operations.
2. A description and a forecast of the expected results of current and proposed activities and measures to conserve the energy consumed by the public agency's operations and to otherwise reduce the amount of energy consumed by the public agency, including by employing such energy conservation and demand management methods as may be prescribed.
3. A summary of the progress and achievements in energy conservation and other reductions described in paragraph 2 since the previous plan.
4. Such additional information as may be prescribed. 2009, c. 12, Sched. A, s. 6 (5).

Contents, prescribed consumers

(6) For the purposes of subsection (2), the plan must be prepared in accordance with such requirements as may be prescribed. 2009, c. 12, Sched. A, s. 6 (6).

Publication

(7) The public agency shall publish the plan in accordance with such requirements as may be prescribed. 2009, c. 12, Sched. A, s. 6 (7).

Implementation

(8) The public agency or prescribed consumer shall implement the plan and shall do so in accordance with such requirements as may be prescribed. 2009, c. 12, Sched. A, s. 6 (8).

Joint plans, public agencies

7. (1) Two or more public agencies may prepare a joint energy conservation and demand management plan and may publish and implement it jointly. 2009, c. 12, Sched. A, s. 7 (1).

Effect

(2) If the joint plan satisfies the requirements established under section 6, the public agencies are not required to prepare, publish and implement separate energy conservation and demand management plans for the same period. 2009, c. 12, Sched. A, s. 7 (2).

Duty to consider energy conservation, etc.
When acquiring goods and services

8. (1) The Lieutenant Governor in Council may, by regulation, require public agencies to consider energy conservation and energy efficiency in their acquisition of goods and services and to comply with such requirements as may be prescribed for that purpose. 2009, c. 12, Sched. A, s. 8 (1).

When making capital investments

(2) The Lieutenant Governor in Council may, by regulation, require public agencies to consider energy conservation and energy efficiency when making capital investments and to comply with such requirements as may be prescribed for that purpose. 2009, c. 12, Sched. A, s. 8 (2).

Transactions, arrangements or agreements to promote conservation, etc.

9. The Minister may enter into such transactions, arrangements or agreements as are necessary to promote energy conservation and energy efficiency and the transactions, arrangements or agreements must conform to such requirements as may be prescribed. 2009, c. 12, Sched. A, s. 9.

Government facilities, guiding principles

10. (1) In constructing, acquiring, operating and managing government facilities, the Government of Ontario shall be guided by the following principles:

1. Clear and transparent reporting of energy use and of the amount of greenhouse gas emissions associated with government facilities.
2. Planning and designing government facilities to ensure the efficient use of energy.
3. Making environmentally and financially responsible investments in government facilities.
4. Using renewable energy sources to provide energy for government facilities. 2009, c. 12, Sched. A, s. 10 (1).

Directives

(2) The Minister may, with the approval of the Lieutenant Governor in Council, issue directives,

(a) requiring the ministries responsible for the government facilities that the Minister specifies in the directive to report on energy consumption and greenhouse gas emissions associated with the facilities to the Minister at such time and in such manner as may be provided for in the directive;

(b) establishing energy and environmental standards which must be met as minimum standards for new construction or major renovations for government facilities; and

(c) specifying such other requirements relating to energy conservation, energy efficiency and the adoption of renewable energy technologies as the Minister considers appropriate. 2009, c. 12, Sched. A, s. 10 (2).

Same

(3) In a directive, the Minister may,

(a) designate or specify the government facilities or class of government facilities to which the directive applies and may specify which part of a directive applies to which

facility or class of facilities;

(b) specify the content of the report on energy consumption and greenhouse gas emissions; and

(c) specify the time in which a ministry must provide the report. 2009, c. 12, Sched. A, s. 10 (3).

Publication

(4) Part III of the *Legislation Act, 2006* does not apply to a directive, but the Minister shall ensure that directives are published in *The Ontario Gazette*. 2009, c. 12, Sched. A, s. 10 (4).

Definition

(5) In this section,

"government facilities" means government owned or occupied buildings, properties and facilities or such classes of buildings, properties and facilities as the Minister may by directive designate. 2009, c. 12, Sched. A, s. 10 (5).

Renewable Energy Facilitation Office

11. (1) There shall be created, within the Ministry, an office to be known in English as the Renewable Energy Facilitation Office and in French as Bureau de facilitation en matière d'énergie renouvelable. 2009, c. 12, Sched. A, s. 11 (1).

Objects of the Office

(2) The following are the objects of the Office:

1. To facilitate the development of renewable energy projects.
2. To work with proponents of renewable energy projects and other ministries to foster the development of renewable energy projects across Ontario and to assist proponents with satisfying the requirements of associated approval processes and procedures, including providing proponents with information in respect of interactions with local communities.
3. To work with proponents of renewable energy projects to alert them to potential requirements imposed by the Government of Canada. 2009, c. 12, Sched. A, s. 11 (2).

Renewable Energy Facilitator

(3) The Office shall be supervised by a person employed in the Ministry and designated as the Renewable Energy Facilitator. 2009, c. 12, Sched. A, s. 11 (3).

Facilitator's authority to collect information

12. (1) The Renewable Energy Facilitator is authorized to collect, directly or indirectly, and share information about the proponent of a renewable energy project, the proponent's project and the process or processes associated with the approval by any ministry of the project. 2009, c. 12, Sched. A, s. 12 (1).

Records maintained in confidence

(2) The Renewable Energy Facilitator, or a person employed in the Renewable Energy Facilitation Office, shall maintain in confidence,

(a) a record or information relating to a renewable energy project of a proponent that has been supplied to the Facilitator by the proponent or that has been obtained by the

Facilitator from another institution, person or entity; and

(b) a record or information maintained in the Renewable Energy Facilitation Office that would reveal a record or information relating to a renewable energy project of a proponent that has been supplied to the Facilitator by the proponent or another person or entity. 2009, c. 12, Sched. A, s. 12 (2).

Exception

(3) Despite subsection (2), the Renewable Energy Facilitator, or a person employed in the Renewable Energy Facilitation Office, may disclose a record or information,

(a) where the proponent to whom the record or information relates consents to its disclosure;

(b) where the disclosure is necessary to achieve the objects of the Office;

(c) to counsel or to an advisor to the Renewable Energy Facilitation Office;

(d) for the purpose of complying with an Act of the Legislature or an Act of Parliament;

(e) as authorized under the *Regulatory Modernization Act, 2007*;

(f) where disclosure is to an institution or a law enforcement agency in Canada to aid a law enforcement investigation; or

(g) where disclosure is further to an order of a tribunal. 2009, c. 12, Sched. A, s. 12 (3).

Information deemed to have been supplied in confidence

(4) A record or information to which subsection (2) applies is deemed, for the purposes of section 17 of the *Freedom of Information and Protection of Privacy Act*, to have been supplied by the proponent in confidence to the Renewable Energy Facilitation Office. 2009, c. 12, Sched. A, s. 12 (4).

Record or information deemed to be supplied in confidence

(5) A record or information to which subsection (2) applies that the Renewable Energy Facilitator or a person employed in the Renewable Energy Facilitation Office supplies to a person employed in the Ministry or to another institution is deemed, for the purposes of section 17 of the *Freedom of Information and Protection of Privacy Act*, to have been supplied by the proponent in confidence to that person or institution. 2009, c. 12, Sched. A, s. 12 (5).

Definition

(6) In this section,

"institution" has the same meaning as in the *Freedom of Information and Protection of Privacy Act* and the *Municipal Freedom of Information and Protection of Privacy Act*. 2009, c. 12, Sched. A, s. 12 (6).

Testimony

13. Neither the Renewable Energy Facilitator nor any person employed in the Renewable Energy Facilitation Office or the Ministry shall be required to give evidence in a civil proceeding with respect to information obtained in the course of fulfilling the objects of the Office. 2009, c. 12, Sched. A, s. 13.

PART III
ENERGY EFFICIENCY AND EFFICIENT USE OF WATER

Application

14. This Part applies to prescribed appliances and products. 2009, c. 12, Sched. A, s. 14.

Appliances and products, efficiency standards

15. (1) No person shall offer for sale, sell or lease an appliance or product to which this Part applies unless,

(a) the appliance or product meets the prescribed efficiency standard or requirement with respect to the appliance or product; and

(b) a prescribed label or other prescribed marking that confirms compliance with prescribed efficiency standards or requirements in respect of the appliance or product is affixed to the appliance or product or provided with the appliance or product in the prescribed manner and under the prescribed circumstances. 2009, c. 12, Sched. A, s. 15 (1).

Labels

(2) No person shall affix to or provide with an appliance or product to which this Part applies a prescribed label or other prescribed marking unless the appliance or product meets the prescribed efficiency standard or requirement with respect to the appliance or product. 2009, c. 12, Sched. A, s. 15 (2).

Application of subs. (1)

(3) Subsection (1) does not apply to,

(a) an appliance or product that is manufactured on or before a prescribed date and that is sold or leased on or before a prescribed date; or

(b) a person who is not in the business of offering for sale, selling or leasing appliances or products to which this Part applies. 2009, c. 12, Sched. A, s. 15 (3).

PART IV
REGULATIONS

Regulations

16. (1) The Lieutenant Governor in Council may make regulations prescribing anything that is required or permitted to be prescribed or that is required or permitted to be done in accordance with the regulations or as provided in the regulations. 2009, c. 12, Sched. A, s. 16 (1).

Examples

(2) As examples of matters about which the Lieutenant Governor in Council may make regulations, the Lieutenant Governor in Council may make regulations:

(a) governing renewable energy testing facilities in relation to,

(i) planning, design, siting, buffer zones, notification and consultation, establishment, insurance, facilities, staffing, operation, maintenance, monitoring, record-keeping and improvement, and

(ii) the discontinuance of the operation of any part of the renewable energy testing facility;

(b) governing the location of renewable energy testing facilities, including prohibiting or regulating the construction, installation, use, operation or changing of renewable

energy testing facilities in parts of Ontario;

(c) prescribing appliances and products to which Part III applies;

(d) prescribing energy efficiency standards or requirements or water efficiency standards or requirements for the appliances or products prescribed under clause (c);

(e) regulating the installation, testing, maintenance and repair of appliances and products to which Part III applies;

(f) designating persons or organizations to test appliances and products to which Part III applies;

(g) for the purposes of Part III, providing for the placing of a prescribed label or mark on or with appliances and products that conform to the prescribed standards;

(h) prescribing the contents of labels or marks that may be placed on or with appliances and products to which Part III applies;

(i) for the purposes of Part III, prescribing fees to be paid to designated persons or organizations for the testing or labelling of appliances and products and prescribing by whom the fees shall be paid;

(j) providing for information to be reported by persons who manufacture, offer for sale, sell or lease appliances or products to which Part III applies, including the frequency, time and manner for reporting;

(k) governing the keeping of information, records and documents by persons who manufacture, offer for sale, sell or lease appliances or products to which Part III applies. 2009, c. 12, Sched. A, s. 16 (2).

Incorporation of documents

(3) A regulation under this Act that incorporates another document by reference may provide that the reference to the document include amendments made to the document from time to time after the regulation is made. 2009, c. 12, Sched. A, s. 16 (3).

Defining words or expressions

(4) A regulation under this Act may define any word or expression used in this Act that is not defined in this Act. 2009, c. 12, Sched. A, s. 16 (4).

Classes of persons, etc.

(5) A regulation may create different classes of persons, entities, appliances or products and may establish different entitlements for, or relating to, each class or impose different requirements, conditions or restrictions on, or relating to, each class. 2009, c. 12, Sched. A, s. 16 (5).

Exemptions, etc.

(6) A regulation may exempt a class or a person, entity, appliance or product from a specified requirement imposed by this Act or a regulation or provide that a specified provision of this Act or a regulation does not apply to the class, person, entity, appliance or product and may prescribe conditions for the exemption. 2009, c. 12, Sched. A, s. 16 (6).

Regulations, transition

17. The Lieutenant Governor in Council may make regulations governing transitional matters that, in the opinion of the Lieutenant Governor in Council, are necessary or desirable to

facilitate the implementation of this Act. 2009, c. 12, Sched. A, s. 17.

18. Omitted (amends, repeals or revokes other legislation). 2009, c. 12, s. 18.

19. Omitted (provides for coming into force of provisions of this Act). 2009, c. 12, s. 19.

20. Omitted (enacts short title of this Act). 2009, c. 12, s. 20.

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Personal: Residential

Grant Table for ecoENERGY Retrofit – Homes

IMPORTANT NOTICE

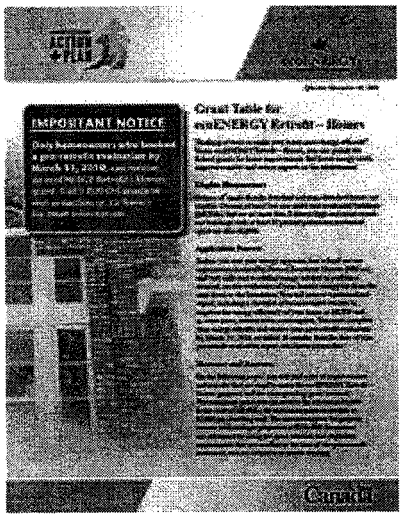
Only homeowners who booked a pre-retrofit evaluation by March 31, 2010, can receive an ecoENERGY Retrofit – Homes grant.

Thinking of ways to make your home more energy-efficient? Under ecoENERGY Retrofit – Homes, you can qualify for federal grants for home improvements that lower energy costs, improve comfort and reduce impacts on the environment.

Eligible Homeowners

Owners of single-family homes, detached, semi-detached and homes are eligible. Owners of most low-rise multi-unit residential buildings (MURBs) that are no more than 3 storeys high and some mixed-use buildings with at least 50 percent permanent residential space are also eligible.

Application Process



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Before you start your energy upgrades, hire a local service organization licensed by Natural Resources Canada (NRCan), and they will send a certified energy advisor to perform a detailed, on-site evaluation of your home's energy use from the attic down to the foundation. You will receive a personalized report, including a checklist of recommended retrofits to improve the energy efficiency of your home or MURB and, in some cases, reduce water consumption. You must complete your energy retrofits and receive your post-retrofit evaluation by March 31, 2011, or within 18 months from the date of your pre-retrofit evaluation report, whichever comes first.

Measures and Amounts:

On the following pages, you will find a list of improvements and retrofits that are eligible under the ecoENERGY Retrofit – Homes program and the corresponding grant amounts. The maximum grant you can receive for a home is $5,000. In the case of MURBs, the maximum grant receivable is $5,000 per dwelling unit. The maximum grant for property owners with multiple properties is $500,000. Incentives are calculated using the grant amounts and eligibility requirements that are in effect at the time of the post-retrofit evaluation, and are subject to available funding.

When replacing ANY of the equipment listed in this brochure, the new equipment must have an

efficiency rating higher than that of the original equipment. The second system must be of the same type and efficiency.

Note: New installations are not eligible in cases where improvements listed state "Replace." Natural Resources Canada (NRCan) reserves the right to revise the grant amounts. The payment of grants is subject to the availability of funds. NRCan does not endorse the services of any contractor or any specific product and accepts no liability in the selection of materials, products, contractors or performance or workmanship.

Eligible Improvements / Retrofits

HEATING SYSTEM	Grant Amounts		
	Single-Family Home		MURB
	1st system	2nd system	
Replace your heating system with:			
• an ENERGY STAR® qualified gas furnace that has a 92.0% annual fuel utilization efficiency (AFUE) or higher	$375	$190	Same as single-family home
• an ENERGY STAR qualified gas furnace that has a 92.0 percent AFUE or higher and a brushless DC motor	$625	$315	
• an ENERGY STAR qualified gas furnace or oil furnace that has a 94.0 percent AFUE or higher and a brushless DC motor	$650	$350	
• an ENERGY STAR qualified gas furnace or oil furnace that has a 94.0 percent AFUE or higher and a brushless DC motor (when installing a condensing furnace for the first time)	$790	$400	
• an ENERGY STAR qualified condensing gas boiler that has a 90.0 percent AFUE or higher	$750	$375	
• an ENERGY STAR qualified oil boiler that has an 85.0 percent AFUE or higher	$750	$375	
• an ENERGY STAR qualified oil furnace that has an 85.0 percent AFUE or higher	$375	$190	
• an ENERGY STAR qualified oil furnace that has an 85.0 percent AFUE or higher and a brushless DC motor	$625	$315	
In the case of mobile homes (only) • where a zero-clearance furnace is being replaced, an ENERGY STAR qualified zero-clearance gas furnace that has a 90.0 percent AFUE or higher	$375	N/A	
Install an earth-energy system (ground or water source) that is compliant with CAN/CSA-C448 and certified by the Canadian GeoExchange Coalition (http://www.geo-exchange.ca/) – applies to a new system or a complete replacement.	$4,375	N/A	
Replace a heat pump unit of an existing earth-energy system (ground or water source). The system must be compliant with CAN/CSA-C448 and certified by the Canadian GeoExchange Coalition (http://www.geo-exchange.ca/). (*per equipment replaced)	$1,750	N/A	*1,750
Replace your existing space and domestic water heating equipment with an integrated mechanical system (IMS)	$1,625	N/A	*1,625

that has an overall thermal performance factor of 0.90 or higher. The system must be compliant with the CSA P.10-07 standard and meet or exceed the standard's *premium* performance requirements. (*per equipment replaced)			
Replace your wood-burning appliance with a model that meets either CSA-B415.1-M92 or the U.S. Environmental Protection Agency (EPA) (40 CFR Part 60) wood-burning appliance standard; an indoor wood pellet-burning appliance (includes stoves, furnaces and boilers that burn corn, grain or cherry pits); or a masonry heater. (*per equipment replaced)	$375	$190	*$375
Replace your solid fuel-fired outdoor boiler with a model that meets CAN/CSA-B415.1 or the U.S. EPA Outdoor Wood-fired Hydronic Heater (OWHH Method 28) Program, Phase 1 or 2. The capacity of the new boiler must be equal to or smaller than the capacity of the boiler being replaced.	$375	N/A	$375 (per building)
Install a minimum of 5 electronic thermostats for electric baseboard heaters. Electric baseboard heating must be the primary space heating system. (*for each set of 5 electronic thermostats)	$40/5	N/A	*$40
Install an ENERGY STAR qualified air-source heat pump for both heating and cooling that has a seasonal energy efficiency ratio (SEER) of 14.5 or higher and a minimum heating capacity of 12 000 Btu/hour. See "Important Information about Air-Source Heat Pumps and Central Air Conditioners." (*per equipment installed)	$500	N/A	*$500

N/A = Not applicable

Important Information about Air-Source Heat Pumps and Central Air Conditioners

In the case of **air-source heat pumps and central air conditioners**, a manufacturer's new ENERGY STAR qualified matched condenser coil (outdoor unit comprising a condenser coil, compressor and cooling fan) and indoor evaporator coil (typically located with the furnace) must have a SEER of 14.5 or higher. Under no circumstances will the replacement of only one of these coils entitle the homeowner to a grant, just as components that are not certified by the manufacturer as being matched (i.e. tested together) will not be accepted. Currently, some manufacturers match their low SEER air conditioner/air-source heat pump coil packages with one of their brushless DC motor-equipped furnaces (i.e. blowers) as a method to reduce the power consumption requirement for ENERGY STAR compliance and labelling. However, this arrangement is accepted under the ecoENERGY Retrofit – Homes program.

To be ENERGY STAR qualified in Canada, in addition to the minimum requirement of SEER 14.5, **air-source heat pumps** must also have a minimum heating seasonal performance factor (HSPF) of 7.1 for Region V, which is more reflective of the Canadian climate.

If the heat pump is only rated for Region IV, which is used in the United States, it must have a minimum HSPF of 8.2.

Mini-split (ductless) air-source heat pumps must have at least one head per floor, excluding the basement, to qualify for a grant.

In the case of **mini-split (ductless) air conditioners** that do not have at least one head per floor, excluding the basement, each head will be considered a room air conditioner and the grant amount will be reflected as such.

When having your new central air conditioner or air-source heat pump installed, ask the contractor to indicate on your invoice the manufacturer's name (not the model name) of the condenser coil and the model numbers of both the new condenser and evaporator coils. The Air-Conditioning and Refrigeration Institute (AHRI, also known as ARI) reference number must also be referenced on the invoice. The energy advisor will request to see this information when performing the post-retrofit evaluation of your home.

Eligible Improvements / Retrofits

	Grant Amounts		
	Single-Family Home		MURB
COOLING SYSTEM [Replacement Only]	**1st system**	**2nd system**	
Replace your central air-conditioning system with an ENERGY STAR qualified system that has a SEER of 14.5 or higher (complete system replacement, including indoor coil and outdoor components). See "Important Information about Air-Source Heat Pumps and Central Air Conditioners."	$250	N/A	$250 (per building)
Replace your window air conditioner(s) with an ENERGY STAR qualified unit(s). See "Important Information about Air-Source Heat Pumps and Central Air Conditioners."	$25 (per unit replaced; maximum of 5 units)	N/A	$25 (maximum of 2 units per dwelling unit)
VENTILATION SYSTEM (New installation or replacement)			
Install a ventilation system that is certified by the Home Ventilating Institute (HVI) as a heat- or energy-recovery ventilator. The HVI Product Directory is available at hvi.org. (*per equipment installed)	$375	N/A	* $375
DOMESTIC HOT WATER EQUIPMENT			
Install a solar domestic hot water system that includes solar collectors that meet the CAN/CSA F378.87 standard **AND** that provides a minimum energy contribution of 6 gigajoules per year (GJ/yr). For additional details regarding specific eligibility requirements, and for lists of eligible collectors and certified systems, visit the solar domestic hot water systems Web page.	$1,250	N/A	Refer to the Web link to the left
Replace your domestic hot water heater with an ENERGY STAR qualified instantaneous, gas-fired water heater that has an energy factor (EF) of 0.82 or higher and is on the related list of eligible domestic hot water equipment. (*per equipment replaced)	$315	N/A	* $315
Replace your domestic hot water heater with an ENERGY STAR qualified instantaneous, condensing gas-fired water heater that has an EF of 0.90 or higher and is on the related list of eligible domestic	$375	N/A	* $375

hot water equipment. (*per equipment replaced)			
Replace your domestic hot water heater with a condensing gas storage-type water heater that has a thermal efficiency of 94 percent or higher and is on the ecoENERGY Retrofit – Homes list of eligible domestic hot water heaters (refer to the Web site indicated at the end of this brochure). (*per equipment replaced)	$375	N/A	* $375
Install a drain-water heat recovery (DWHR) system. Grants are based on the efficiency of the system determined by an independent testing facility. Visit the eligible domestic hot water equipment Web page for a link to the list of eligible systems and their efficiencies. (*per equipment installed)			
• efficiency between 30.0 and 41.9 percent	$95	N/A	* $95
• efficiency of 42.0 percent or higher	$165	N/A	* $165

BUILDING ENVELOPE

When adding insulation to the building envelope, pay special attention to the type and the placement of vapour barriers per local building codes. For a multi-unit residential building, the grant for insulation is multiplied by the MURB MULTIPLIER shown on page 7.

CEILING INSULATION

A minimum of 20 percent of the total ceiling area must be insulated to qualify. When the roof has more than one type (i.e. attic, cathedral ceiling, flat roof), all applicable grants are pro-rated based on the ceiling area that is insulated. The **maximum grant** for any combination of attic, cathedral ceiling and flat roof is $750. Grants listed reflect 100 percent of the ceiling area being of one roof type.

	Starting Point		
Increase the insulation value of	**R-12 and less**	**Greater than R-12 and up to R-25**	**Greater than R-25 and up to R-35**
• your attic to achieve a total minimum insulation value of RSI 7 (R-40)	$500	$250	N/A
• your attic to achieve a total minimum insulation value of RSI 8.8 (R-50)	$750	$375	$125
• your flat roof and/or cathedral ceiling to achieve a total minimum insulation value of RSI 5 (R-28)	$750	$250	N/A
Add a minimum insulation value of RSI 1.8 (R-10) to your uninsulated flat roof and/or cathedral ceiling and qualify for a grant of $500.			

EXTERIOR WALL INSULATION

	Minimum Additional Insulation		
	Percent area	R-3.8 to R-9	Greater than R-9
A minimum of 20 percent of the total exterior wall area must be insulated to qualify. The grant is based on the percentage of wall area that is insulated and does not include walls between individual units. See "Important Note about Semi-Detached and Row Houses."	20%	$225	$375
	40%	$450	$750
	60%	$675	$1,125
	80%	$900	$1,500
	100%	$1,125	$1,875

EXPOSED FLOOR INSULATION (overhangs and floors above an unheated space, excluding crawl spaces)

Insulate your entire exposed floor and increase its insulation value by a minimum of RSI 3.5 (R-20). A minimum floor area of 14 square metres (150 square feet) must be insulated to qualify.	$190

FOUNDATION INSULATION

When both a basement and crawl space are present, all applicable grants are pro-rated to a maximum of $1,250 based on the total wall area that is insulated.

BASEMENT INSULATION

	Minimum Additional Insulation		
	Percent area	R-10 to R-23	Greater than R-23
A minimum of 20 percent of the foundation's wall area (including basement and crawl space walls, when applicable) must be insulated to qualify. The grant is based on the percentage of wall area that is insulated and does not include walls between individual units. See "Important Note about Semi-Detached and Row Houses."	20%	$125	$250
	40%	$250	$500
	60%	$375	$750
	80%	$500	$1,000
	100%	$625	$1,250

BASEMENT HEADER INSULATION

	Minimum Additional Insulation
	R-20
Seal and insulate your entire basement header area, increasing its insulation value by a minimum of RSI 3.5 (R-20)	$125

CRAWL SPACE INSULATION

	Minimum Additional Insulation	
	R-10 to R-23	**Greater than R-23**
Insulate 100 percent of the crawl space's total exterior wall area, including the header area. See "Important Note about Semi-Detached and Row Houses." **Or**	$500	$1,000
Insulate 100 percent of the floor above the crawl space to increase its insulation value by a minimum of RSI 4.2 (R-24).	N/A	$250

IMPORTANT NOTE ABOUT SEMI-DETACHED AND ROW HOUSES

In the case of a semi-detached or row house that is an end unit, the grant amount for the insulation of exterior walls, basement or crawl space walls is 75 percent of the amounts shown. In the case of a row house that is a middle unit, the grant amount is 50 percent of the amounts shown.

AIR SEALING

	Single-Family Home	
Perform air sealing to improve the air-tightness of your home to achieve the air change rate indicated in your ecoENERGY Retrofit – Homes report.	$190	
BONUS: If you reach 10 or 20 percent better than the target included in your report, you can obtain an additional grant.	10% 20%	$120 $240

MURB Multiplier

MURB Multiplier (for insulation and air sealing grants)
The appropriate multiplier must be applied to the grant level identified based on the nature of the work done.

Visit the Questions and Answers section of the program Web site for a detailed description of eligible MURBs.

Number of dwellings	2-3	4-6	7-9	10-12	13-16	17+
Multiplier	1.0	1.5	2.0	2.5	3.0	4.0

DOORS/WINDOWS/SKYLIGHTS (heated space only)

	Single-Family Home	MURB
Replace windows and skylights with models that are ENERGY STAR qualified for your climate zone. (*per unit replaced)	*$40	*$40
Grants for windows and skylights are based on the number of rough openings (RO) in which		

windows or skylights were replaced between the pre- and post-retrofit evaluations. Each RO is counted as one window or skylight. An RO is defined as the structurally stable opening created by the builder for the installation of the window unit (i.e. framing and glazing) or skylight. (Note that a bay window, which may be made up of several windows, is regarded as one RO.)		
Replace your exterior door(s) with an ENERGY STAR qualified model (s) for you climate zone. (*per unit replaced)	*$40	*$40
To be eligible for a grant, proof of ENERGY STAR qualification of windows, doors and skylights is required, such as the presence of an ENERGY STAR label on all of the replacement windows, doors or skylights indicating they are ENERGY STAR qualified for the house's climate zone. If the labels are removed by the installer, you should request them as proof, or request a copy of an invoice indicating • the brand/product name • the NRCan model reference number or the manufacturer's model code • the climate zone for which the windows, doors or skylights are qualified		

WATER CONSERVATION

	Single-Family Home	MURB
Replace your toilet with a low-flush or dual-flush toilet rated at 6 litres per flush or less that meets the Los Angeles Supplementary Purchase Specification (SPS) and has a flush performance of 350 grams or more. (*per unit replaced) A product list is available on the Veritec Consulting Inc. Web site at www.veritec.ca. Click "Reports" and select "ecoENERGY Eligible."	*$65 (maximum of 4 units per home)	*$65 (maximum of 2 units per dwelling unit)

Important Notes

1. Natural Resources Canada reserves the right to revise the information contained in this document, including the grant amounts and the eligibility requirements, without notice. The payment of grants is also subject to the availability of funds. Refer to the Web site indicated below for the most up-to-date information, or contact your local licensed service organization.
2. All upgrades or renovations must meet local codes and by-laws. Before undertaking upgrades or renovations, find out about the appropriate products and installation techniques to ensure that your home's building envelope and indoor air quality will not be compromised.
3. Read carefully the recommendations found in your ecoENERGY Retrofit – Homes report for more information.
4. Renovations that are part of an addition made to a property following the pre-retrofit evaluation are not eligible for a retrofit grant and may reduce the grant amount for the improvement done on the existing portion of the house. Consult your energy advisor.
5. Insulation value in RSI equals the R insulation value divided by 5.678.
6. For more information on ENERGY STAR qualified products, visit http://oee.nrcan.gc.ca/residential/business/manufacturers/qualified-products.cfm?attr=4. The ENERGY STAR name and the ENERGY STAR symbol are registered trademarks of the United States Environmental Protection Agency and are used with permission.

For more information on the program or how to book an appointment with an energy advisor certified by NRCan, visit ecoaction.gc.ca/homes, call 1-800-O-CANADA (1-800-622-6232). TTY: 1-800-926-9105, or contact us.

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Next: Find service organizations

Date Modified: 2010-10-25

Natural Resources Canada Ressources naturelles Canada Canada

NRCan > OEE > Frequently-Asked Questions | ecoENERGY Retrofit – Homes

Personal: Residential

Frequently-Asked Questions (FAQ) about ecoENERGY Retrofit – Homes

These frequently asked questions (FAQs) answer most general inquiries regarding the ecoENERGY Retrofit – Homes grant program. To find specific terms on this page, type **Ctrl+F** for PCs and **Command-F** for Macs.

General

- What is the ecoENERGY Retrofit – Homes program?
- What are the steps after scheduling my pre-retrofit evaluation?
- How do I apply for regional programs?
- How much of a grant will I receive and how much energy will I save if I complete the recommended retrofits?
- What is the last possible date I can have my post-retrofit evaluation, and will there still be federal funds available at that time?
- What if I cannot afford the renovations?
- Can I apply for both the Home Renovation Tax Credit (HRTC) and the ecoENERGY Retrofit – Homes grant?

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- Why are bookings no longer being accepted into the program?
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- Can I do the work myself and receive a grant?
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- Is there a cost for the post-retrofit evaluation?
- How do I schedule my post-retrofit evaluation if I want to use a different energy advisor or if the service organization who performed my pre-retrofit evaluation is no longer in business?
- What if I have trouble arranging for the energy advisor to return to my rural area?
- Do I have to make any preparations before the energy advisor visits my home?

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- How long does it take to receive my cheque?
- What do I do if I disagree with the amount that I received?
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- What do I do if I suspect my federal cheque is missing?
- How do I check the status of my cheque from partner organizations?

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- What do I do if my 18-month deadline is approaching and I need more time?
- Can I request re-entry or an extension if I am outside the 18 month deadline?
- What do I do if I believe that I was wrongfully denied re-entry or an extension?
- Can homeowners who already received an ecoENERGY Retrofit grant apply again for a second grant?

Becoming an Energy Advisor or Service Organization

- How do I become an energy advisor?
- Can I start my own service organization?

Inquiries and Contact Information

- What if I have a question or complaint about my evaluation?
- What if I have a general question, or questions about my grant status or cheque breakdown?

General

What is the ecoENERGY Retrofit – Homes program?

The ecoENERGY Retrofit – Homes program provides financial assistance to encourage owners of existing low-rise properties make smart energy retrofit decisions that will result in significant

energy savings, more comfortable living spaces and a cleaner environment. Natural Resources Canada's (NRCan's) Office of Energy Efficiency (OEE) administers the program and provides the grants, but local service organizations across the country deliver the program to homeowners.

Launched on April 1, 2007, the program stopped accepting bookings for pre-retrofit evaluations on March 31, 2010is scheduled to end on March 31, 2011. To date, approximately 1 in 20 homeowners in Canada have participated in the program.

What are the steps after scheduling my pre-retrofit evaluation?

Only homeowners who booked a pre-retrofit evaluation by March 31, 2010 are eligible to participate in the ecoENERGY Retrofit – Homes program with a certified energy advisor. The advisor performs an energy evaluation on your home, from the basement to the attic, including a blower door test to measure air tightness and to help locate air leakage sites. Approximately two weeks after your evaluation, you should receive a homeowners report with a list of recommended measures and an EnerGuide rating label.

Select your improvements and implement your energy upgrades, leaving time to ensure you complete your post-retrofit evaluation with a licensed service organization within 18 months of the date of the report or by March 31, 2011 (whichever comes first). NRCan recommends that you keep all receipts, and in the case of in-wall insulations, it is a good practice to take photos during installation.

During the post-retrofit evaluation, the energy advisor visits your home again and completes a new blower door test. The advisor completes a grant application form on your behalf and presents it to you for review and signature. The energy advisor then prepares and sends the electronic house file to the service organization who submits the electronic and paper files to NRCan.

NRCan processes the application and, under normal circumstances, most homeowners receive a cheque within 90 days following the date of the post-retrofit evaluation, but this is not a fixed deadline and delays are possible for a number of reasons.

How do I apply for regional programs?

Although NRCan is no longer accepting participants, many provinces, territories, municipalities and energy utilities offer complementary programs which provide grants, rebates and other types of financial incentives based on the results of your ecoENERGY Retrofit post-retrofit evaluation. Even if you are not eligible for a grant from NRCan, you still may be able to participate in these regional programs.

In some cases, NRCan transfers data to these regional programs after approving your federal grant, while other regional programs require you to apply separately. At the time of your post-retrofit evaluation, your energy advisor can advise you about complementary funding, but they are only trained on the delivery of the federal grant and may not have all details about all local programs.

How much of a grant will I receive and how much energy will I save if I complete the recommended retrofits?

The average federal grant for a single property is approximately $1,300. The maximum grant available for one home is $5000 or %000 per dwelling unit in a multi-unit residential building. Property owners of multiple residential buildings are eligible for up to $500,000 over the life of the program ending March 31, 2011.

As a result of their renovations, participants have reduced their energy consumption by over 20 percent and reduced greenhouse gas emissions by approximately 3 tonnes per house.

What is the last possible date I can have my post-retrofit evaluation, and will there still be federal funds available at that time?

Participating homeowners (who booked a pre-retrofit evaluation before March 31, 2010) have 18 months from the date of their homeowner report or until March 31, 2011 (whichever comes first) to complete their retrofits and have their post-retrofit evaluation. Evaluations taking place after March 31, 2011, will not be eligible for a federal grant. Simply booking an evaluation appointment by the deadline is not sufficient. There can be no mechanisms for exceptions or extensions for any reason as NRCan's financial authority to incur grant liabilities under current programming ends on that date. You should schedule your post-retrofit evaluation at the earliest possible date since it may be difficult to book an appointment as the program nears the end date. By ending pre-retrofit evaluation bookings on March 31, 2010, the program aims to ensure that all eligible homeowners who previously entered the program by scheduling or completing a pre-retrofit evaluation will still have the opportunity to apply for and receive a grant. However, as explained in the *Grant Table*, the payment of grants is subject to available funding.

What if I cannot afford the renovations?

If you have not yet started your renovations, low-income homeowners may apply for the Homeowner Residential Rehabilitation Assistance Program (Homeowner RRAP) from the Canada Mortgage and Housing Corporation (CMHC) instead of through ecoENERGY Retrofit – Homes. Based on your income, house value and postal code, you could be eligible to receive financial assistance for upcoming necessary repairs. For more information, visit call 1-800-668-2642 or visit the CMHC Web site.

Can I apply for both the Home Renovation Tax Credit (HRTC) and the ecoENERGY Retrofit – Homes grant?

If you are participating in the ecoENERGY Retrofit – Homes program and you purchased materials and perform work between January 28, 2009, and January 31, 2010, you may claim the 15 percent Home Renovation Tax Credit (HRTC) from the Government of Canada on your 2009 tax returns in addition to as part of Canada's Economic Action Plan. You can call 1-800-959-8281 for more details or visit the Canada Revenue Agency's Web site for more information about the HRTC.

March 31, 2010 Announcement

Can I still enter the program?

No. Effective March 31, 2010, the program is not accepting new bookings for pre-retrofit evaluations.

There are three steps in the program: a pre-retrofit evaluation, the retrofit and the post-retrofit evaluation. While the pre-retrofit assessment phase of this program is now complete, the Government will continue to process applications from homeowners who have scheduled or completed a pre-retrofit evaluation and who will be undertaking energy efficiency improvements on their homes and apply for a grant before March 31, 2011.

Most provinces and territories have developed their own energy efficiency programs for homes, and

the Government of Canada will continue to process applications for those complementary programs.

Will the complementary programs offered by the provinces and territories remain in place?

Most provinces and territories have developed their own energy efficiency programs for homes, and the Government of Canada will continue to process applications for those complementary programs.

Why are bookings no longer being accepted into the program?

In the Speech from the Throne, the Government of Canada committed to reviewing its energy-efficiency and emissions-reductions programs to ensure they continue to be an effective and efficient use of Canadian tax dollars.

This demonstrates prudent management and will aim to ensure that all eligible homeowners who previously entered the program have the opportunity to apply for a grant.

By ending pre-retrofit evaluation bookings now, the program is confident that all eligible homeowners who previously entered the program by scheduling or completing a pre-retrofit evaluation will still have the opportunity to apply for and receive a grant.

I have already booked a pre-retrofit. Will I still be able to go ahead?

Yes. Homeowners who have pre-retrofit evaluations already scheduled remain eligible to apply to the program. However, homeowners are reminded that they are required to complete their renovations and follow-up with a post-retrofit evaluation and submit their application by March 31, 2011.

I have already had an energy evaluation. What is the deadline for applying for a grant? Is my grant guaranteed?

The deadline for applying for a grant is 18 months from the time of the pre-retrofit evaluation or March 31, 2011, whichever comes first. Homeowners who have completed the eligible work under the ecoENERGY Retrofit – Homes program within their 18-month period or before March 31, 2011, (whichever comes first) are eligible for a grant. However, it is suggested that you complete your energy upgrades well in advance of the deadline in order to allow enough time for your post-retrofit evaluation.

I am an energy advisor – how long will the program be operating?

Under its existing budget, the program will continue to operate until March 31, 2011. The Government will continue to pay grants to homeowners already in the program, who will be undertaking energy efficiency improvement work on their homes and can apply for their grant up to March 31, 2011.

In addition, most provinces and territories have developed their own energy efficiency programs for homes, and the Government of Canada will continue to process applications for those complementary programs.

The Government of Canada continues to encourage homeowners to have home energy evaluations so that they can identify best opportunities for energy efficiency improvements, improve their home's energy performance and receive an EnerGuide rating label.

The Government has launched the development of its next-generation EnerGuide Rating System, which underpins the home energy evaluations in Canada, including those of the ecoENERGY program, provincial and territorial programs, and initiatives by other stakeholders.

Eligible Homeowners and Properties

Am I still eligible for a grant if the type of property changed?

A property needs to meet the program eligibility criteria at the time of both the pre-retrofit and post retrofit evaluations. The ecoENERGY Retrofit – Homes program offers grants to owners of low-rise residential properties defined under Parts 2 and 9 of the National Building Code of Canada. These include single detached and attached homes (e.g. row housing, duplexes and triplexes), small multi-unit residential buildings; mobile homes on a permanent foundation and permanently-moored floating homes.

Which multi-unit residential buildings (MURBs) require an evaluation by a MURB-certified advisor?

The program considers side-by-side semi-detached units with their own entrances, attics and basements as single-family homes, and not as MURBs.

Most low-rise multi-unit residential buildings (MURBs) and mixed-use buildings are eligible for the grant if there are three stories or less, the footprint is less than 600 square meters, there are a maximum of 20 units, at least 50% of the floor space is used for residential purposes, and there is no specialized commercial equipment. Since the energy advisor needs to evaluate the structure from the basement to the attic, all units must participate in the pre-retrofit assessment by an energy advisor who has been certified to evaluate MURBs. Depending on the number of outside doors, you may need multiple and simultaneous blower door tests.

For a list of service organizations (SO's) with MURB-certified energy advisors, enter your postal code using the search tool and look for those listed with an asterisk (*). In some areas of the country, there are not yet any MURB-certified energy advisors. NRCan has offered MURB training to all SO's, and the number of MURB-certified advisors should increase in the coming months. Since certification can happen more quickly than Web updates, you may wish to contact all SO's on the list, even if there is no asterisk.

What if I added rooms or re-built my home after the pre-retrofit evaluation?

The ecoENERGY Retrofit – Homes program does not apply to new construction, and if you have added additions or re-built your home, this is considered new construction and will not be eligible. Non-energy renovations such as roofs and foundations are not eligible.

Eligible Measures

What measures or technologies are eligible, and how do I

choose?

The homeowner report you receive in the weeks after your pre-retrofit evaluation lists recommendations from the energy advisor that visited your home, however, you can choose to implement any measures which are listed in the program's *Grant Table*.

NRCan does not approve or endorse any specific product, or the services of any contractor, and accepts no liability in the selection of materials, products or contractors, and their performance or workmanship. Homeowners are responsible for comparing products and contractors, making the final choice and ensuring that all upgrades and renovations meet building codes, by-laws and regulations. Before undertaking upgrades or renovations, find out about the appropriate products and installation techniques to ensure that your home's building envelope and indoor air quality will not be compromised. It is also important that you carefully consult the *Grant Table* to ensure that all your measure are eligible before you start the work.

Are my retrofits still eligible if the *Grant Table* changed since my pre-retrofit evaluation?

Yes. NRCan revised the Grant Table several times since 2007 and ENERGY STAR ratings for certain products have changed over time. If a measure is no longer eligible, you can still apply for the grant for the amount advertised at the time of your pre-retrofit evaluation. If NRCan increased a grant amount before your post-retrofit evaluation, you can apply for the higher amount.

Which types of domestic hot water equipment are eligible?

There are five types of domestic hot water equipment that are eligible for ecoENERGY Retrofit – Homes grants. This includes certain models of solar domestic hot water systems, instantaneous gas-fired water heaters, instantaneous condensing gas-fired water heaters, condensing gas storage-type water heaters and drain-water heat recovery (DWHR) systems. For specific requirements and related lists of eligible models, refer to Eligible Domestic Hot Water Equipment Web page. Domestic hot water equipment that is used for both space heating and water heating may be eligible.

Which earth energy systems are eligible?

Earth energy systems (such as geothermal systems or ground- or water-source heat pump) must meet the **appropriate Canadian Standards Association (CSA) standards** and be individually certified by the Canadian GeoExchange Coalition. GCA-accedited professionals must drill, design and install each system. The CSA revised its standards to include direct expansion (DX) systems as of October 20, 2009. For more information on earth energy systems including a current list of accredited installers, designers, and drillers, contact the Canadian GeoExchange Coalition or call 514-807-7559.

Which windows, doors and skylights are eligible?

Visit the ENERGY STAR Web site before purchasing any new windows, doors or skylights, to ensure that they are qualified for their climate zone. As proof of ENERGY STAR qualification, homeowners must provide the ENERGY STAR label or a copy of an invoice indicating the brand/product name, and the NRCan model reference number or the manufacturer's model code, as well as the climate zone for which the windows, doors or skylights are qualified.

One unit of window is defined as one rough opening in the wall. A large window consisting of multiple panels of glass is counted as one opening in the wall, regardless of how large the window is, or how many windows is required to fill the rough opening. For example, NRCan considers a

typical bay or bow window as one rough opening or one window.

Technical specifications for ENERGY STAR qualified windows, doors and skylights (fenestration products) became more stringent as of October 1, 2010, and there is now mandatory labelling of all such products in Canada. NRCan and the OEE encourage all program participants to purchase fenestration products that meet the new requirements. However, fenestration products that meet the old ENERGY STAR requirements will remain eligible for a grant until March 31, 2011, regardless of the time of purchase, installation or post-retrofit evaluation. Visit the ENERGY STAR® Qualifications for Fenestration Products Web page which explains the changes in requirements and will direct users to the various eligibility lists.

Are heating systems and hot water systems eligible in emergency situations?

If your furnace or hot-water heater was red-tagged or could not be repaired during the heating season of October 15, 2009 until March 30, 2010, you could proceed with the replacement before the pre-retrofit evaluation under certain conditions. For example, the property owner needed to call a service organization within five calendar days of the system replacement (no later than March 31, 2010) to schedule a pre-retrofit assessment, and the assessment must take place within 30 days of the new heating system installation. In addition, new gas-fired furnaces must have an efficiency of 94% or better and oil-fired furnaces MUST have an efficiency of 85% or better which is higher than what is required for non-emergency systems. Ask your service organization about other requirements for this special situation.

Can I do the work myself and receive a grant?

Yes. In these cases, it is important that you keep a copy of the invoices for the materials you purchased as you may be asked to submit a copy to NRCan. Homeowners are responsible for ensuring that they obtain all necessary permits and meet all municipal and provincial requirements.

Are renovations I started before my pre-retrofit evaluation eligible?

No. Only renovations started after obtaining a pre-retrofit energy evaluation are eligible for a grant.

Post-Retrofit Evaluations

Why do I require both a pre-retrofit and post-retrofit evaluation if I'm only planning on one or two measures?

The goal of the program is not to issue rebates for single measures, but rather to act as an incentive to encourage you to invest in multiple measures you may not have otherwise considered. The post-retrofit evaluation offers you an updated energy efficiency baseline and EnerGuide rating, and combined with the pre-retrofit evaluation, ensures that the Government of Canada offers a credible, results-based program. In order to maximize your grant, refer to the homeowner report to consider other measures recommended by your energy advisor, or read the program's *Grant Table*.

Is there a cost for the post-retrofit evaluation?

Yes. Service organizations across Canada set their own prices.

How do I schedule my post-retrofit evaluation if I want to use a different energy advisor or if the service organization who performed my pre-retrofit evaluation is no longer in business?

You are not required to use the same service organization or energy advisor for your post-retrofit evaluation. You can contact your service organization and request a different energy advisor. You can also search for a different service organization. Provide the new service organization with the file number that is on your evaluation report, your name and address as it appeared on the previous report, as well as your phone number. NRCan will then supply the new service organization with your electronic file so that they have your pre-retrofit data for your post-retrofit evaluation.

What if I have trouble arranging for the energy advisor to return to my rural area?

NRCan licenses service organizations across the country to deliver the program on the government's behalf, and if their name appears when you search for a service organization using your postal code, they should be able to send an energy advisor to your home, although there may be delays or additional travel costs.

Do I have to make any preparations before the energy advisor visits my home?

In order to have your pre-retrofit or post-retrofit evaluation, your home must be considered "habitable" according to specific requirements of NRCan. The home must have no exposed walls and it should be in such a state that the energy advisor can assess the building. The energy advisor will need access to every room in the house, in addition to the attic and any crawl spaces. Be sure to clear the area around these access points before the energy advisor arrives. In addition, please make sure not to use any wood-heating appliances, such as fireplaces or wood stoves, at least 24 hours prior to the evaluation and clean the appliances before the evaluation.

Cheque Status

How long does it take to receive my cheque?

After your post-retrofit evaluation, your local service organization and their energy advisor who evaluated your home have 30 days to submit your information to NRCan. NRCan reviews files and approves, processes and mails most payments within 90 days. The 90 days is not a firm timeline, and there can be delays for a number of reasons. For example, certain types of files require a manual evaluation from NRCan technical officers. In addition, if the project includes an earth-energy system such as a a geothermal or ground source heat pump, NRCan must receive certification from the Canadian GeoExchange Coalition before processing the application which can sometimes cause delays. Please do not contact NRCan for any cheque status request if it has been less than 90 days since your post-retrofit evaluation. If it has been more than 90 days since your post-retrofit evaluation, you can contact 1-877-953-5454 (Mondays to Fridays from 8:00 am to 8:00 pm Ottawa time).

What do I do if I disagree with the amount that I received?

NRCan bases the grant amount on information provided by service organization, The energy advisor that visited your home is trained and employed by a local service organization licensed to

deliver the program in your area. If you have questions about the amount of grant monies you received, you need to contact should be the head office for the service organization. You will find the phone number in your homeowner report, on your EnerGuide label or using search feature.

What do I do if the name on the cheque is wrong?

If you received your cheque and the name is incorrect, NRCan can arrange to issue you a new cheque, but there could delays. First speak with someone at your bank that you normally deal with, and show them evidence such your application form. If the bank will not redeem it, send the original cheque, along with the stub, and a copy of your municipal tax bill to:

ecoENERGY Retrofit – Homes Program
Natural Resources Canada
1 Observatory Crescent
Ottawa, Ontario K1A 0E4

What do I do if I suspect my federal cheque is missing?

If you have received your provincial cheque but your federal portion has not arrived after two weeks contact your bank to ensure that the cheque was never redeemed by you or your spouse. You should then contact the program and include the name of the person who signed the application form at the post-retrofit evaluation, your full address and phone number, and your 10-digit file number. If the cheque has been redeemed by someone else or has not been returned, NRCan will proceed with a full investigation in conjunction with Public Works with the goal of helping you receive your grant as early as possible.

How do I verify the status of my cheque from partner organizations?

After approval of your federal grant, NRCan transfers the data to partner programs across the country. These external organizations send out their own cheques, and you should contact their offices if the cheque is delayed more than a month after you receive your cheque from the Government of Canada. To find their contact information, you can call 1-800-O-Canada (1-800-622-6232) or visit the following regional complementary programs Web page.

Program Extensions and Re-Entry

What do I do if my 18-month deadline is approaching and I need more time?

If your pre-retrofit evaluation homeowner's report was dated within the last 18 months and you require more time to complete the work or to schedule your post-retrofit evaluation, you can request additional time using the registration form. You will need your 10-digit ecoENERGY file number which can be found in your homeowner evaluation report or the ecoENERGY mini-label which should be affixed to your electrical panel. NRCan will contact you to confirm your eligibility for more time.

If you are a property owner of Aboriginal housing on a reserve that meets the eligibility criteria, the 18-month time limit is waived in the event of possible delays in getting the necessary materials to the site and in obtaining approvals.

Can I request re-entry or an extension if I am outside the 18 month deadline?

No. Energy advisors explain the deadline at the time of the pre-retrofit evaluation, and it is discussed in the homeowner report, the *Grant Table* and Web site. The 18-month deadline is meant to encourage homeowners to implement measures and start saving energy as soon as possible. It is also important since the program plans its budget based on how many homeowners plan to apply for the grant.

If you have already exceeded the 18-month deadline, the program has no mechanism for exceptions or appeals, even in the case of illness, deaths in the family, equipment delays or delays with contractors. Unfortunately, homeowners who have passed their 18-month deadline are not eligible for more time, regardless of the reason and cannot re-start the process with a new pre-retrofit evaluation. Files that are not eligible for an NRCan grant can still be processed according to the requirements of regional programs.

What do I do if I believe that I was wrongfully denied re-entry or an extension?

If you have records that you requested more time from NRCan before the 18 month deadline, contact the head office of the service organization that performed your evaluation using the phone number found on your homeowners report or EnerGuide label. They can contact NRCan on your behalf if they agree that you are still within your time limit.

Can homeowners who already received an ecoENERGY Retrofit grant apply again for a second grant?

Homeowners who already received an ecoENERGY Retrofit – Homes grant can only apply for a second grant if they or their service organization registered for re-entry by March 31, 2010. Eligible homeowners have until March 31, 2011, (subject to available funding) to complete the additional energy retrofits and have a post-retrofit evaluation. The maximum allowable funding per dwelling is $5,000. Based on existing funding levels, NRCan ended the pre-retrofit phase of the program on March 31, 2010, which means it is no longer accepting bookings for pre-retrofit evaluations and is no longer accepting new registrations for re-entry.

Becoming an Energy Advisor or Service Organization

How do I become an energy advisor?

NRCan is not responsible for hiring or providing training for energy advisors. Instead, programs such as ecoENERGY Retrofit – Homes license service organizations across the country to deliver the program on the government's behalf. If you are interested in becoming a residential energy advisor, you can contact an existing service organization to inquire if they are looking for more energy advisors. In order to be considered for an energy advisor position, you must possess and demonstrate, as a minimum, knowledge and skills in areas such as construction practices for existing low-rise housing; energy-efficient renovation practices; residential building materials; residential heating, ventilation and air conditioning systems; building science, including the principles of the "house as a system"; basic arithmetic and geometry; the use of computers, modems, the Internet and e-mail; and good client relations.

Can I start my own service organization?

There are currently no opportunities to start your own service organization to deliver the ecoENERGY Retrofit – Homes program. NRCan chooses these organizations through a Request for Proposals (RFP) process, which is a fair, competitive and transparent selection method. NRCan determines if it requires an RFP process by evaluating the capacity of existing service organizations to deliver the program in under-served areas across the country. It is too early to determine if there will be a fourth RFP before the scheduled program end date of March, 2011.

Inquiries and Contact Information

What if I have a question or complaint about my evaluation?

If you have questions or concerns, contact your service organization since it is their energy advisor who visited your home and prepared your report. If it is a technical question they cannot answer, they can contact NRCan on your behalf. You will find the phone number in your homeowner report, on your EnerGuide label or by using the search tool. If you are still not satisfied after exhausting this approach, you can make a formal complaint in writing to Natural Resources Canada detailing your concerns. Please include your full address, phone number and the 10-digit file number which you can find on your homeowner report, EnerGuide label, ecoENERGY mini-label or signed application form.

What if I have a general question, or questions about my grant status or cheque breakdown?

NRCan approves, processes and mails cheques for most applications within 90 days. If it has been less than 90 days since your post-retrofit evaluation, please do not contact NRCan yet about your cheque status. You can make inquiries by phone, by mail or using an e-mail form. For fastest response, provide your e-mail address and the 10-digit ecoENERGY file number which can be found in your homeowner evaluation report or the ecoENERGY mini-label which should be affixed to your electrical panel. Phone inquiries are handled by Service Canada through the 1-800-O-Canada toll free line, and if they cannot answer your question, they may transfer you to a live specialist from 8:00 am to 8:00 pm Ottawa time, Monday to Friday. If the specialist cannot answer your inquiry, they will forward your inquiry to a program officer on your behalf. NRCan strives to respond to all inquiries within the departmental standards of 5 business days for general inquiries and 7 business days for technical inquiries. Unfortunately, during times of high volume, this is not always possible. Almost 1 in 20 households in Canada are now participating in the program, and the Government of Canada receives over 500 inquiries every day about this popular program. We apologize for any delays you may experience. If you do not receive a response from a program officer after 2 weeks, please contact us again and we will elevate your inquiry to a program manager.

Next: Contact the program

Date Modified: 2010-11-05

Government of Canada / Gouvernement du Canada

Canada

Home > ecoENERGY > ecoENERGY for Renewable Heat

ecoENERGY

ecoENERGY for Renewable Heat

Important Notice:

NRCan understands the time pressure many project proponents are currently facing by having to delay installation of their solar thermal system until a contribution agreement has been signed by both parties. The commissioning date of December 31, 2010 remains firm, however, the requirement to have a contribution agreement in place before the start of installation is being relaxed for those applicants who do not currently (as of November 1) have one in place.

Installation of projects started before November 1, 2010 without a contribution agreement in place will not be covered by the relaxation of this condition and these projects will not be eligible for funding. Further, until a contribution agreement is signed by both parties, no commitment or obligation exists on the part of Natural Resources Canada (NRCan) to make a financial contribution to your proposed project, including the reimbursement by NRCan of any costs incurred or paid in anticipation of receiving a contribution agreement. All other ecoENERGY for Renewable Heat terms and conditions continue to apply.

A number of applications are incomplete and missing information thereby preventing their processing. Applicants have been informed about what information is missing from their application. They will have until November 30, 2010, at the latest, to provide the missing information and demonstrate to the satisfaction of NRCan that the terms and conditions of the program are satisfied, after which the file will be closed and a contribution agreement will not be entered into.

Using the power of the sun to heat buildings and water not only helps businesses lower costs, but it reduces the amount of harmful emissions produced. The ecoENERGY for Renewable Heat

Important Key Dates:

October 1, 2010 is the last date for NRCan to receive[1] a completed Application form to the Commercial Deployment Incentive program. Applications received after this date will not be accepted.

December 31, 2010:
Last date for project commissioning.

January 31, 2011:
Last date for NRCan to receive payment request forms.

March 31, 2011:
Program ends.

[1] "Receive" means received by the ecoENERGY for Renewable Heat program by mail, fax or e-mail by October 1, 2010. It is the responsibility of the applicant to ensure that the completed Application form is received by the deadline.

Please note that the Application and Payment Forms are constantly being updated.

Use the latest versions below, as failure to do so will result in processing delays.

Quick Links

Documents in this box pertain to applications received by NRCan after September 1, 2008. They are based on the Terms and Conditions of the program as of September 1, 2008.

- Terms and Conditions
- Guidance Document
- Steps to Apply
- How to have your solar collector accepted
- Incentive Rate Table
- FAQ
- Solar Air Application Form

program is a four-year, $36 million investment to:

- Increase the use of renewable thermal energy by industry, commercial businesses and institutions
- Boost the amount of renewable thermal energy created for these sectors
- Contribute to cleaner air by helping Canadian businesses use less fossil fuel-based energy for space and water heating in buildings across the country

The ecoENERGY for Renewable Heat program runs from April 1, 2007 to March 31, 2011. Incentives are offered to the industrial/commercial/institutional sector to install active energy-efficient solar air and/or water heating systems. Eligible projects must be completed and commissioned within the dates indicated in the contribution agreement with NRCan. Preliminary estimates suggest that, by 2011, the program will have supported installations in about 700 buildings.

In addition, pilot projects conducted with energy utilities, energy service companies and non-governmental organizations will explore ways of making solar water heating systems more accessible to Canadian homeowners. While the program will not be offering incentives directly to homeowners, these large-scale pilot projects are designed to install solar water heating systems into several thousand homes.

ecoENERGY for Renewable Heat will also help support the growing renewable energy market by:

- Supporting the development of industry standards and certification processes
- Promoting the inclusion of new technologies in building codes and provincial and municipal regulations
- Training system designers, technicians and installers

Are there financial incentives?
ecoENERGY for Renewable Heat will offer an incentive to industrial, commercial and institutional purchasers of solar heating systems. The anticipated Incentive amount is calculated as follows: Performance Factor x Incentive Rate x Area of Collector.

Who is eligible for incentives?
Businesses, industries and public institutions are eligible.

PDF(482 KB)
- Solar Water Application Form PDF(526 KB)
- Payment Request Forms: Solar Air Heating System PDF(452 KB) Solar Water Heating System PDF(668 KB)
- Commissioning Report PDF(431 KB)
- Schedule D
- HTML versions of program forms

New:

The responsibility for maintaining the "List of Accepted Solar Collectors" has been transferred to the Canadian Standards Association International (CSA-I) "Verification Listing of Solar Collectors Listing Service". NRCan will not be accepting new applications for the listing of collectors. Please contact Mr. Charlie Caruana (mailto:Charlie.Caruana@csa-international.org or Mr. Babu Patel (Babu.Patel@csa-international.org) to enquire about CSA-I's Verification Listing of Solar Collectors Collector Listing Service.

NOTICE:

For all organizations in Québec that fall under la Loi sur le ministère du Conseil exécutif (L.R.Q., chapitre M-30). l'Agence de l'efficacité énergétique du Québec (l'Agence) must be a party to the contribution agreement entered into by NRCan under the ecoENERGY for Renewable Heat program.

Commercial Deployment Incentive

Changes to the ecoENERGY for Renewable Heat program

Following an extensive program review and consultation with

Are there terms and conditions for eligibility?
Yes, certain terms and conditions apply.

How do I apply?
To apply, please consult the guidance document, the terms and conditions and complete the solar water application form or the solar air application form.

All signed application forms must be received by Natural Resources Canada no later than October 1, 2010, and can be sent by fax (613-943-6517), by e-mail , or by mail to the following address:

ecoENERGY for Renewable Heat
Renewable and Electrical Energy Division
Natural Resources Canada
615 Booth Street, Room 150, Ottawa,
Ontario, K1A 0E9

Want more information?

If you have questions or need additional information on the terms and conditions, please contact the ecoENERGY for Renewable Heat program by e-mail (ecoenergyrhp@nrcan.gc.ca) or by fax (613-943-6517).

To request more information on ecoACTION initiatives:

- Phone: 1 800 O-Canada (1 800 622-6232)
- TTY: 1 800 926-9105

PLEASE NOTE: ecoENERGY for Renewable Heat provides funding only for Canadian industries, businesses and institutions. If you are a homeowner interested in renewable energy technologies, please visit the following web sites.

Solar
Canadian Solar Industries Association

Canadian Renewable Energy Network (CanREN) - Solar Energy

2008 Survey of Active Solar Thermal Collectors

Geothermal
Canadian GeoExchange Coalition

stakeholders, NRCan has made changes to the Commercial Deployment Incentive under the ecoENERGY for Renewable Heat program.

These changes came into effect on September 1, 2008. More »

Additional changes came into effect on March 1, 2009. More »

Consultation Documents on Program Changes

- Methodology Report
- Response on the Methodology
- Marbek Final Report

Documents received by NRCan before August 31, 2008

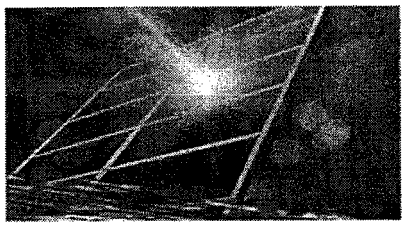
Documents in this box pertain to applications received by NRCan before August 31, 2008. They are based on the Terms and Conditions of the program to August 31, 2008

- Terms and Conditions
- Guidance Document
- List of Accepted Solar Collectors
- Payment Request Forms:
  Solar Air Heating System
  PDF (110 KB)
  Solar Water Heating System
  PDF (110 KB)
- Attestation form

NEW
NRCan's support initiative for Testing and Certification has ended and no further applications will be accepted.

Complementary Programs

- Saskatchewan
- Ontario
- British Columbia



Residential Solar Water Heating Pilot Initiative

Date Modified: 2010-11-04

ecoENERGY

ecoENERGY for Renewable Heat

Commercial Deployment Incentive Terms and Conditions (CDI-2008)

This version is effective September 1, 2008. As of this date, only the application form CDI-2008 will be accepted.

These are the Terms and Conditions under which deployment incentives will be provided for qualified solar thermal installations in the industrial, commercial, and institutional sectors.

Please note that construction on your solar project may not begin until a Contribution Agreement is signed by NRCan and the applicant. In the event that work has begun before the Contribution Agreement has been signed by both you and NRCan, the agreement will be void and the incentive will not be paid.

Applicants are encouraged to familiarize themselves with the layout of the required forms and templates and note in particular which sections require the applicant's signature.

The applicant will be entitled to payment under the ecoENERGY for Renewable Heat program if the applicant has met the terms and conditions outlined in an agreement known as a "Contribution Agreement". Natural Resources Canada (NRCan) will enter into a Contribution Agreement if it is satisfied that program requirements will be met by the applicant, and that funds allocated annually for the program are available.

Projects are funded first-come first-served based on the date of receipt of a completed application and subject to the availability of Program funds.

Information on all projects that have signed Contribution Agreements for eligible systems may be listed on NRCan's ecoENERGY for Renewable Heat program website, or made available to the public. The information may include the name of the recipient, type of system installed, location of installation, projected system output, contribution amount, and the expected or actual date of the commissioning of the system.

Only the signed Contribution Agreements between Natural Resources Canada and the applicant will form the legal basis of the rights and obligations of the parties.

All approved ecoENERGY for Renewable Heat projects are subject to audit after they are completed, as specified in Article 7 of the Contribution Agreement.

Definitions:

"**Active Solar Heating System**" means a system that uses a fan or pump to circulate a fluid through a collector;

"**Completion Date**" means the date the project is deemed completed to the satisfaction of the

Minister;

"**Commissioning Report**" means a report template as provided by NRCan, signed by a professional engineer, a certified engineering technologist, or a CanSIA solar installer who has a valid certification in Canada, stipulating that the Project meets the prescribed technical criteria, is found to be fully operational, and has been installed in accordance with the current installation code (CAN/CSA F-383 - if a water heater) and good engineering practices;

"**Contribution Agreement**" means an legally binding Agreement between HER MAJESTY THE QUEEN IN RIGHT OF CANADA, as represented by the federal Minister of Natural Resources Canada and a person, an organization or other level of government to whom a contribution is being made and who is responsible for carrying out the obligations set out in the Contribution Agreement. It is the basis on which Natural Resources Canada will assess your claims for payment.

"**Eligible Costs**" means costs identified on the application in accordance with the Program's Terms and Conditions;

"**Equipment**" means the Applicant's solar heating system, including components up to and including the interface with an auxiliary heating system, involved in solar heat collection, transport, transfer, storage, and system control, and associated items required for the operation of the system;

"**In-kind contributions**" means a non-cash input which can be given a cash value at the current market rate, and that adds measurable value to the project. Inputs may include goods and services, equipment, supplies, or other tangible resources;

"**Installed System**" means an active solar heating system that has been fully installed by the Proponent under this Project;

"**Minister**" means the Minister of Natural Resources and includes any duly authorized officers or representatives;

"**Payment Request Form**" means a completed and signed payment request form stating that the incurred project costs are true and accurate;

"**Project**" means the project described in the Contribution Agreement;

"**Refurbished equipment**" means used equipment that has been repaired or upgraded to redeploy;

"**Recycled equipment**" means used equipment that has been redeployed as is;

"**Start Date**" means the coming into force of the project when the Contribution Agreement is dually signed;

"**Remote Community**" means a community not connected to the North American electrical grid or piped natural gas network;

"**Warranty of the Authenticity of the Collector**" means a warranty signed by the manufacturer named on the Accepted Solar Collectors List under Canada's ecoEnergy for Renewable Heat Program.

1. Which organizations are eligible?

To be eligible, the applicant must be from one of the categories below:

a. Businesses and Industries: conducting business, and deploying systems in Canada;

b. Crown Corporations listed in Section 85 and Part I of Schedule III of the Financial Administration Act (FAA);

c. Public Institutions: such as schools, hospitals, municipalities, municipally owned utilities, industry associations

d. Non-profit organizations;

e. Energy Service Companies.

2. What systems qualify?

a. Active solar water and air heating systems that are installed in Canada; with

b. Collectors selected from the NRCan list of Accepted Collectors.

3. What is the incentive level?

a. The incentive is calculated as follows:

Performance Factor x **Incentive Rate** x **collector area** = **anticipated incentive amount**

- Performance Factor is the predetermined factor for the collector installed. This factor can be found on the List of Accepted Collectors. The performance factor attributed to the collector that you have selected will be valid as of the date of reception of your CDI-2008 application.
- Incentive Rate is the incentive per m^2 for each collector type. Find the collector rate on the Incentive Rate table.
- Collector Area is the total installed area in square meters. This value can be calculated from the individual areas found on the List of Accepted Collectors.

b. The maximum incentive is $80,000 per solar air installation.

c. The maximum incentive is $400,000 per solar water installation (effective March 1, 2009).

d. The corporate maximum incentive for multiple installations is $2 million.

4. Stacking Limits

The Treasury Board Policy on Transfer Payments requires potential recipients to provide a statement about other sources of funding for a project prior to approving a contribution to the total capital costs of the project. Programs are expected to take into account other sources of funds, which includes private sector contributions, including the expectation that the recipient must contribute its own funds towards eligible cost of the project. The Policy on Transfer Payments also requires that specific limits be set when considering total government assistance. Thus, if a proponent has secured significant support for the Qualifying Project from other government sources, including federal, provincial and/or municipal, the proposed Qualifying Project may be disqualified from receiving the ecoENERGY RH incentive, or its maximum eligible contribution may be reduced.

On the application, under Section C2. Additional Financial Contributions, proponents are required to declare other sources of government funding for their projects, whether it is a capital grant or an in-kind contribution.

To ensure compliance with the Policy on Transfer Payments, the total assistance from all government sources will not exceed 100 percent of the total capital costs of the project. If a project receives or will receive a capital grant or contribution from other levels of government, including where another federal agency provides a capital grant or contribution, the net present value of the ecoENERGY RH contribution will be calculated so that the total government contribution does not exceed 100 percent of capital costs.

5. What buildings qualify?

a. Commercial, industrial, and institutional buildings; and

b. Multi-unit residential buildings which have a common entrance and have either at least four above-ground storeys or a building footprint of at least 600 m^2;

c. Residential buildings located in Remote Communities in which at least 50% of the floor area of the building is used for commercial, industrial, or institutional purposes.

6. Will an environmental assessment be required?

Program administrators will review each application to determine whether or not an environmental assessment pursuant to the Canadian Environmental Assessment Act is required. If an environmental assessment is deemed necessary, the cost of the assessment will be the responsibility of the applicant.

7. How will the incentive project application be processed?

When the application is received program officers will determine:

- if the project is eligible;
- if an environmental assessment will be required;
- if all data provided is complete; and
- if the application has been signed.

Should NRCan need clarification on the data provided, you will be notified by e-mail or by

telephone. While we await your response, your file will be set aside. You will have 30 days to remit the required data before your file is closed.
When the application is accepted, NRCan will send two original copies of the Contribution Agreement to the applicant for signature. The Contribution Agreement will outline your planned project as well as our program requirements.

The applicant must sign and return both copies to NRCan within 30 days. If the signed original Contribution Agreements are not received by NRCan within 30 days of issue, the agreement will become invalid.

When NRCan receives the two signed copies, the agreement will be considered in force and the applicant will be advised by e-mail or telephone to start the project. **Construction can not start on the project until the applicant has been advised that the Contribution Agreement has been signed by NRCan.**

8. How long will I have to complete my project?

Eligible projects must be completed and commissioned within the dates indicated in the contribution agreement with NRCan.

9. How will I receive the incentive after I submit my final reports?

Once the project is completed and commissioned, the applicant must submit a payment request using the Payment Request form (Solar Air; Solar Water) provided by NRCan. The applicant must submit this payment request along with the Commissioning Report (a template is provided by NRCan) and for solar air systems, the manufacturer's warranty attesting to the authenticity of the collector.

The applicant must submit these documents within 30 days of the commissioning date. Documents received following the 30 day limit will be wait-listed for processing.

When these documents are received, reviewed, and approved by NRCan to the satisfaction of the Minister, payment of the incentive will be made.

10. Will the incentive have to be repaid?

The incentive will become repayable if all of the following apply:

a. The funding recipient is a for-profit business; and
b. The NRCan-supported solar installation is leased or rented, or it produces heat that is sold; and
c. Resulting revenues in the first five years exceed 150 percent of the total project cost.

Applicants that will receive revenues from the rental, lease or the sale of heat from equipment for which an incentive was received, must:

- Submit invoices in eligible costs to NRCan along with their Payment Request;
- report annually to NRCan all resulting gross revenues received, for 5 years following the project completion date;
- repay to NRCan any revenues in excess of 150 percent of the total project cost, up to the total amount of the NRCan contribution to the project
- make such payments within 90 days of the submission of the annual reports

As indicated in the Contribution Agreement, the applicant must keep proper accounts and records of the revenues and expenditures incurred and paid, including all original invoices,

receipts and vouchers relating to the solar installation, for a period of five years from the completion of the agreement.

11. How do I apply?

An ecoENERGY for Renewable Heat program application form must be completed, signed and sent to the program at the address below. If the application is completed by someone other than the applicant, this person must also sign the applicant form.

Only completed applications will be processed. In the event that NRCan requires clarification about the data presented in this application, the Applicant will have 30 days to respond. If the data is not remitted within 30 days the file will be closed.

12. Whom should I contact?

ecoENERGY for Renewable Heat
Renewable and Electrical Energy Division
Natural Resources Canada
615 Booth Street, Room 150
Ottawa ON K1A 0E9
Fax: 613-943-6517
E-mail: ecoenergyrhp@nrcan.gc.ca
Web site: http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/heat-chauffage/index-eng.cfm

Date Modified: 2010-10-20

Government of Canada / Gouvernement du Canada — Canada

ecoENERGY

Ontario Solar Thermal Heating Incentive (OSTHI)
A Program of the Ontario Government

What is the Ontario Solar Thermal Heating Incentive (OSTHI)?

OSTHI is an Ontario Government program that provides an incentive by way of a rebate to Ontario organizations in the commercial, industrial or institutional (ICI) sectors which install a qualifying **solar water** or **solar air** heating system.

Who funds the OSTHI?

OSTHI is funded by the Government of Ontario, Ministry of Energy, and is delivered in cooperation with Natural Resources Canada's (NRCan) federal *ecoENERGY for Renewable Heat* program. This collaboration provides a one-stop service to Ontario applicants who plan to install a qualifying solar water or solar air heating system at an eligible property.

When did the OSTHI start and when does it end?

OSTHI complements NRCan's ecoENERGY for Renewable Heat incentive and runs from June 20, 2007 to March 31, 2011.

How much is the OSTHI incentive?

- The OSTHI incentive complements the ecoENERGY for Renewable Heat incentive.

  The incentive is calculated as follows:

  Performance Factor x Incentive Rate x collector area = anticipated incentive amount

  - Performance Factor is the predetermined factor for the collector installed. This factor can be found on the List of Accepted Collectors. The performance factor attributed to the collector that you have selected will be valid as of the date of reception of your CDI-2008 application.
  - Incentive Rate is the incentive per m^2 for each collector type. Find the collector rate on the Incentive Rate table.
  - Collector Area is the total installed area in square meters. This value can be calculated from the individual areas found on the List of Accepted Collectors.

- The maximum incentive is $80,000 per solar installation. Please note that Ontario is considering changing their cap to match the federal one.

- The corporate maximum incentive for multiple installations is $2 million.

Is there any additional incentive for qualifying projects in remote communities?

- Yes. The OSTHI rebate may represent up to 40 per cent of eligible project costs to a total of $80,000 in communities defined as remote in the program terms and conditions. This additional incentive matches the incentive available from NRCan.

Who qualifies for the OSTHI incentive?

- Businesses, industries and institutions located in Ontario, which qualify for a financial incentive for the installation of a solar water or solar air heating system under the federal *ecoENERGY for Renewable Heat* program are eligible for the OSTHI program.
- To qualify for the OSTHI program, an applicant must first be approved for a Contribution Agreement under the *ecoENERGY for Renewable Heat* program. When approved by Ontario, the applicant would then enter into a Contribution Agreement with Ontario.
- OSTHI funding is conditional upon the applicant's project being approved by *ecoENERGY for Renewable Heat* to receive an incentive under the federal program, and the applicant being in compliance with the Contribution Agreement.

How do I apply to the OSTHI program?

- An applicant must submit to NRCan:
  - A signed *ecoENERGY for Renewable Heat* Application Form:

Solar Water Application Form	PDF (110 KB)
Solar Air Application Form	PDF (105 KB)

  - A signed OSTHI Consent and Release Form.
- Both federal and provincial forms must be submitted together to *ecoENERGY for Renewable Heat.*

What is the acceptance process?

- During its application review process, NRCan will inform OSTHI program administrators of the applicant's project details. In determining whether or not to fund the project, NRCan may accept or reject applicant information, or seek additional details from the applicant (see *ecoENERGY for Renewable Heat's* Terms and Conditions).
- When a project has been approved for funding, NRCan will inform OSTHI program administrators of its funding decision, and Ontario will issue its own Contribution Agreement for the OSTHI incentive. NRCan will also issue a Contribution Agreement to the applicant.

When can I proceed with project installation?

- Both NRCan and Ontario will forward an unsigned Contribution Agreement to the applicant. The applicant must sign each Contribution Agreement and return them, respectively, to NRCan and the Ministry for signature.
- The Ontario Contribution Agreement is conditional upon the execution of the NRCan Contribution Agreement, and proof of insurance for the project as required by the Ontario Contribution Agreement.
- An applicant has six months from the date of the signed NRCan Contribution Agreement to complete installation of the project.

Are there limitations on where the equipment is installed?

Yes, equipment acquired through the OSTHI program must be installed in the Ontario premises of the qualifying Ontario entity.

When do I receive my OSTHI incentive?

Once the project is commissioned and the amount payable under the *ecoENERGY for Renewable Heat* is approved by NRCan, NRCan will inform OSTHI program administrators that it is initiating payment of the rebate to the applicant under the terms of the NRCan Contribution Agreement. The OSTHI program administrators will initiate a matching rebate payment under the terms of the Ontario Contribution Agreement.

Will information from my application be kept private?

- The applicant's signed OSTHI Consent and Release Form authorizes NRCan and Ontario to share information with each other. Information will be managed in accordance with the Freedom of Information and Protection of Privacy Act in Ontario and the federal Access to Information Act and Privacy Act.
- As public funds are used to support the *ecoENERGY for Renewable Heat* and OSTHI programs, projects that have Contribution Agreements signed by all parties may be posted on NRCan's and/or Ontario Ministry web sites. Published information may include the name of the recipient, type of system installed, location of installation, projected system output, government contribution amounts and expected or actual date of commissioning of the system.

Whom can I contact with my questions?

For OSTHI:

Ministry of Energy
900 Bay Street, 4th Floor
Hearst Block
Toronto, Ontario, M7A 2E1
Toll-Free: 1-888-668-4636
E-Mail: write2us@energy.gov.on.ca
Web Site: http://www.mei.gov.on.ca/en/energy/conservation/smartmeters/?page=osthi

For Program Eligibility and Qualifying Products:

ecoENERGY for Renewable Heat
Renewable and Electrical Energy Division
Natural Resources Canada
615 Booth Street, Room 150
Ottawa, Ontario, K1A 0E9
Fax: 1-613-943-6517
E-Mail: ecoenergyrhp@nrcan.gc.ca
Web Site: http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/heat-chauffage/index-eng.cfm

Date Modified: 2010-10-20

THE INTEGRATED POWER SYSTEM PLAN FOR THE PERIOD 2008-2027

1.0 INTRODUCTION

This exhibit presents the Integrated Power System Plan (the "IPSP" or the "Plan") for the period 2008 to 2027.

2.0 OVERVIEW

The IPSP is designed to assist, through the effective management of electricity supply, transmission, capacity and demand, the achievement of the government of Ontario's goals identified in the Supply Mix Directive dated June 13, 2006 (the "Directive").

As discussed in Exhibit B-3-1, the OPA's plan to achieve the Directive's goals was developed by identifying the areas of discretion left open by the Directive and applying the OPA's planning criteria to make decisions in those areas. This resulted in an IPSP that prioritizes how Conservation and supply resources should be acquired through (i) meeting the requirements of the Directive in light of the OPA's planning criteria (the "Directive Priority"); and (ii) sequencing the installation of resources, in light of lead times and necessary transmission enhancements (the "Implementation Priority").

2.1 Directive Priority

With respect to the Directive Priority, the Directive identifies a number of goals respecting Conservation and supply resources. The IPSP ensures that these goals are met by identifying the priority order in which the resources are planned to meet the province's resource requirements with respect to capacity, electricity production, and flexibility. The IPSP is not represented by any single case or scenario but rather, it represents the ongoing capability to meet resource requirements across a range of conditions. The range of conditions described in Exhibits D-9-1 and G-1-1 illustrates the possible range of resource requirements. In planning to meet an estimated range of resource requirements, the IPSP identifies specific priorities for the near-term, but will, more generally, develop options for the mid term and explore opportunities for the longer term.

The resources identified in the Directive each make their own contribution to meeting these requirements. In summary, the Directive Priority is as follows:

1. Maximize feasible cost effective contribution from energy efficiency, demand management, fuel switching, and customer based generation ("Conservation");
2. Maximize feasible cost effective contribution from renewable sources;
3. Make up baseload requirements remaining after Steps 1 and 2 above with nuclear power;
4. Replace coal-fired generation with power from committed and planned resources. Specifically, in order to ensure that existing coal-fired facilities are replaced by 2014, gas-fired generation ("GFG") facilities are planned to be installed in the areas of Northern York Region, Kitchener-Waterloo-Cambridge-Guelph and the Greater Toronto Area ("GTA") by 2014; and
5. Restrict contribution of GFG to specific projects as required when additional Conservation and renewable resources are not feasible or cost effective.

Transmission is a facilitator and enabler of supply choices and therefore transmission considerations were integrated in all steps in the planning process. Transmission planning is particularly important in meeting the Directive's renewable goals since the accessing and delivery of potential renewable resources depends on making substantial transmission enhancements.

2.2 Implementation Priority

The Directive Priority outlined above does not necessarily represent the order in which resources will be installed. For example, in light of necessary transmission investments to enable hydroelectric resources, many hydroelectric resources will be brought on later in the Plan term. As a result, the Directive Priority is accompanied by an Implementation Priority.

The Implementation Priority should also be understood as enabling contributions from different resources as opposed to a rigid in-service schedule for specific facilities. The IPSP ensures that resources will be prioritized in an economically prudent and cost effective manner by creating opportunities for resource acquisition in the future. In other

words, it is economically prudent and cost effective to have more than one choice when it comes to acquiring a resource.

It is also important to note that the IPSP will be implemented through a number of projects, facilities and programs, some of which are within the OPA's control and some of which are not. There are a number of initiatives that the OPA is currently pursuing and plans to pursue in order to implement the IPSP in accordance with the Directive and Implementation Priorities. These initiatives are summarized at the end of this exhibit at Table 5. The specific projects, facilities, and programs that are referenced in Table 5 comprise the OPA's current view of a reasonable way to implement the IPSP. The sequence and specific projects will likely change as opportunities present themselves in the market place. Included within those projects are resources that the OPA intends to procure through the OEB-approved procurement process prior to the end of 2010. These procurements are addressed in greater detail in Exhibit D-10-1. Also included in Table 5 are resources and programs that the OPA intends to pursue under existing Directives issued by the Minister of Energy under the *Electricity Act, 1998* (the "Act").

Table 5 also includes nuclear resources that are being pursued directly by the government of Ontario. Specifically, on March 7, 2008 the government commenced a Request for Proposal that will lead to additional nuclear capacity of 2,000 MW to 3,500 MW at the Darlington nuclear site. On June16, 2008, it announced that it was committed to 6,300 MW from the Bruce site. This includes 3,040 MW of capacity from Bruce A; accordingly, the June 16, 2008 commitment is for an additional 3,260 MW of capacity from the Bruce site (either refurbished or new build). As a result, the government has now committed to between 5,260 and 6,760 MW of additional nuclear capacity. For planning purposes, the IPSP will continue to assume the same in-service dates, etc. as originally planned for nuclear facilities and non-nuclear resource decisions will continue to be planned around these assumptions. However, the specific capacity, cost, and in-service date for the recently committed facilities will be determined in accordance with the government's RFP process (with respect to the Darlington site) and related initiatives (with respect to the

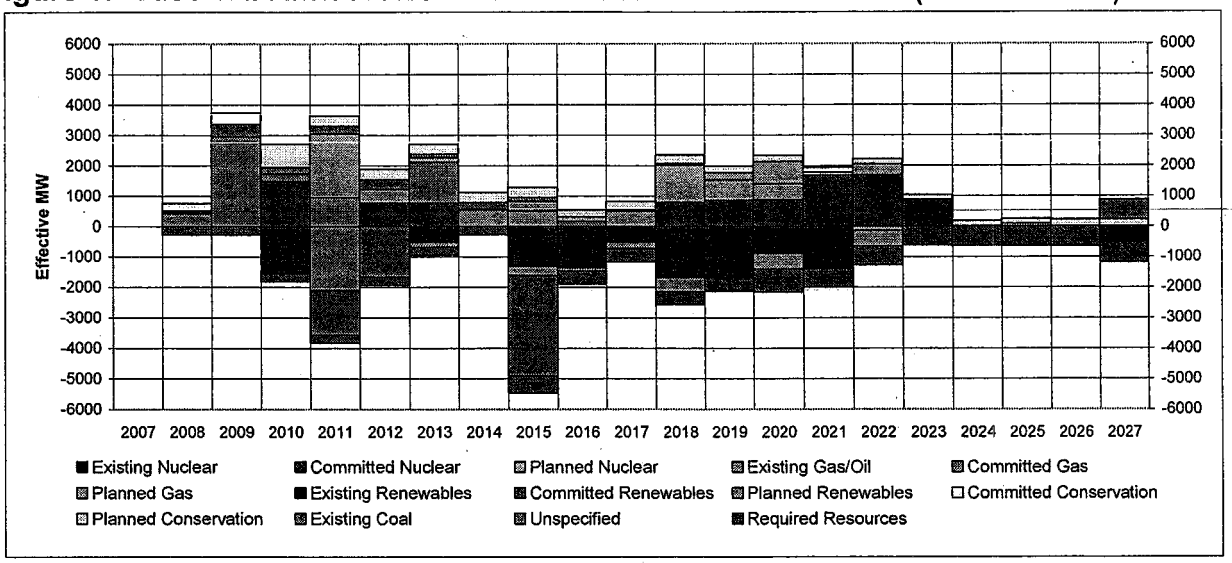
Bruce site), and not in the IPSP application. This is described in greater detail in Exhibit I-22-87.

The change in the installed capacity of resources resulting from the Directive and Implementation Priorities is illustrated in summary form in Figure 1 below. In Figure 1, which reflects Case 1A, resources are categorized as either "Existing", "Committed" or "Planned". Existing Resources are those resources that were in-service as of July 2008. Committed Resources are those resources that are either under contract to the OPA, subject to a procurement directive or being pursued by the government directly. Planned Resources are those resources that are included in the IPSP but are neither Existing nor Committed. Figure 2 reflects Case 1B.

According to the OEB's Report on the Review of the IPSP, "The economic prudence or cost effectiveness of specific generation or conservation projects that were the subject of governmental procurement or OPA procurement prescribed by Ministerial directive issued prior to the date of approval of the IPSP (for example, the OPA's York region demand response process or the existing Standard Offer Program) will not be assessed as part of the IPSP review process, even if these projects are included in the IPSP."[1] As a result, only Planned resources are being reviewed for economic prudence and cost effectiveness in this application. Existing and Committed resources are not.

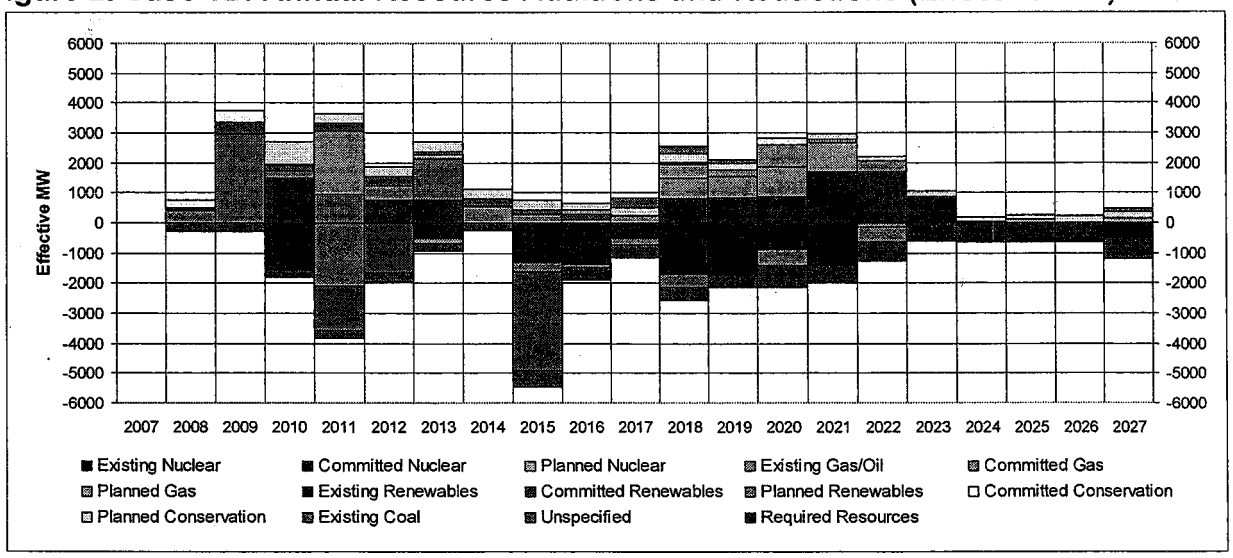
[1] Report of the Board on the Review of, and Filing Guidelines Applicable to, the Ontario Power Authority's Integrated Power System Plan and Procurement Processes, pp. 8-9.

Figure 1: Case 1A: Annual Resource Additions and Reductions (Effective MW)



Source: OPA

Figure 2: Case 1B: Annual Resource Additions and Reductions (Effective MW)



Source: OPA

The remainder of this exhibit addresses how the IPSP prioritizes and implements the contribution from the Conservation and supply resources identified in the Directive. The Conservation and supply evidence in Exhibit D has not been updated, but should be interpreted in light of these revisions.

3.0 CONSERVATION

3.1 The Directive

The Directive's Conservation goals are to reduce demand by 1,350 MW by 2010 and an additional 3,600 MW by 2025. The Directive states:

> The goal for total peak demand reduction from Conservation by 2025 is 6,300 MW. The plan should define programs and actions which aim to reduce projected peak demand by 1,350 MW by 2010, and by an additional 3,600 MW by 2025. The reductions of 1,350 MW and 3,600 MW are to be in addition to the 1,350 MW reduction set by the government as a target for achievement by 2007. The plan should assume Conservation includes continued use by the Government of vehicles such as energy efficiency standards under the Energy Efficiency Act and the Building Code, and should include load reductions from initiatives such as : geothermal heating and cooling; solar heating; fuel switching; small scale (10 MW or less) customer-based electricity generation, including small scale natural gas-fired co-generation and tri-generation, and including generation encouraged by the recently finalized net metering regulation.

Directive Priority

Conservation takes priority over supply resources in that the IPSP first applies all economic and feasible Conservation to meeting resource requirements before applying supply resources. Economic Conservation is defined as Conservation that is more cost effective than supply resources as determined by applying a Total Resource Cost ("TRC") Test. Feasible Conservation is Conservation that can be used for resource planning. In other words, the Conservation contribution can make as predictable and reliable a contribution to meeting resource requirements as the alternative supply resource.

The OPA will seek to develop and identify Conservation opportunities that exceed the Directive's 2010 and 2025 Conservation goals. However, determining whether and how this can be done requires a realistic understanding of the feasibility of achieving Conservation beyond the goals. Such an understanding can only occur as Ontario gains more experience in Conservation and in associated evaluation, measurement and verification ("EM&V") results. In addition, the OPA will monitor future policy changes such as codes and standards, price, carbon taxes and land use that underpin the potential estimate to establish the feasibility of exceeding the goal.

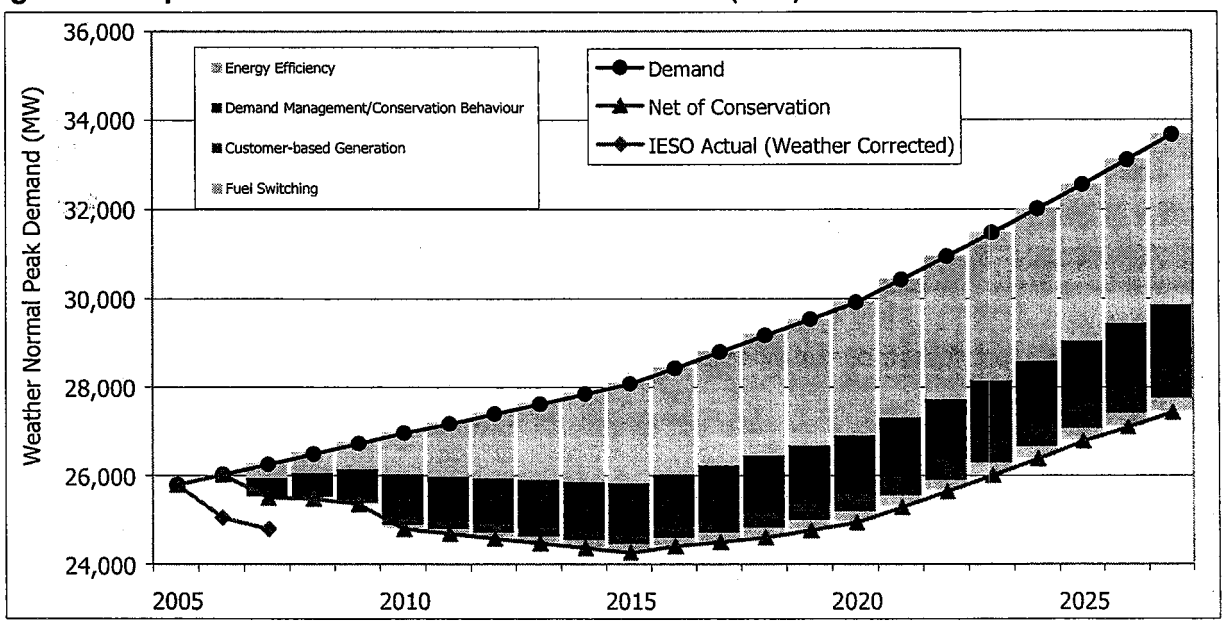
The IPSP has sufficient flexibility to develop a number of options on both the Conservation and the supply side. If experience from the 2008 to 2010 Conservation programs demonstrates that there is feasible Conservation to exceed the Directive goal, that Conservation will be compared to alternative supply resources before any commitment is made.

Implementation Priority

There are four types of Conservation identified in the Directive: efficiency, demand reduction/conservation behaviour, self-generation and fuel switching.

The contribution of each of the Conservation categories over the term of the IPSP are illustrated in Figure 3, as follows:

Figure 3: Impact of Conservation on Peak Demand (MW)



Source: OPA

The weather-corrected actual demand values for 2006 and 2007 are provided in Figure 3 above. These demand values are approximately 700 MW less than the 2006 and 2007 IPSP demand estimates, net of Conservation.

At this point, it is not possible to provide an explanation for the difference with any level of certainty. Two factors contribute to the reduced demand estimates: reduction in the level of demand due to economic factors, and the contribution of Conservation savings.

With respect to the reduction of demand due to economic factors, 2006 and 2007 saw a significant downturn in the health of Ontario's manufacturing sector. The 2005 Ontario Budget called for GDP growth rates of 2.8% and 3.4% for 2006 and 2007, respectively. The more recent 2008 Ontario Budget indicated much more modest growth of 2.1% occurred for each year. The extent and permanency of this downturn and the future prospects for these industries are still uncertain. If the downturn is a long term one, it would have a downward pressure on the Reference forecast.

However, in the longer term, downward pressure may be countered by the upward pressure that may result from a greater presence of manufacturing of different types of industrial products or other energy intensive activities, such as hybrid plug-in electric vehicles and other non-fossil fuel alternatives such as heat pumps. The last two years has seen mounting activity and interest in non-fossil-fueled technologies.

With respect to the contribution of Conservation, although it is possible that Conservation in excess of what was planned for has been obtained, verified Conservation estimates are not available. It is therefore not possible to determine what this contribution may have been at this time.

This is a time of great uncertainty with significant forces affecting the demand forecast. The current ambiguity in determining the explanation for current demand levels affects long-term estimates as well. This shows the need to plan to a range or band of forecasts, and not to focus on a single set of numbers. The OPA will be monitoring over the next few years activities related to the above factors and will adjust its planning assumptions when more clarity is gained.

The programs through which the OPA currently intends to implement the 2010 Conservation goals are set out in Table 1, below:

Table 1: Committed Conservation Resources 2008 – 2010

	PROGRAM TARGETS			CONSERVATION CATEGORIES			
Program	**Target (MW)**	**Free Rider Rate (%)**	**Net Demand Reduction (MW)**	**Energy Efficiency (MW)**	**Demand Management (MW)**	**Fuel Switching (MW)**	**Customer-based Generation (MW)**
New Construction Program	45	30	32	32			
Existing Buildings Retrofit	242	30	169	169			
Low Income & Aboriginal	16	30	11	11			
Demand Response	105	30	74		74		
Total Mass Market Programs	**408**	**30**	**286**	**212**	**74**		
New Construction Program	55	30	39	39			
Existing Building Retrofit	492	30	344	274		70	
Socially Assisted Housing	29	30	20	20			
Total Commercial/Institution Market Programs	**576**	**30**	**403**	**333**		**70**	
Industrial Markets							
Industrial Programs	113	30	79	79			
Demand Response Programs	451	30	316		316		
Total Industrial Market Programs	**564**	**30**	**395**	**79**	**316**		
Customer-based Generation							
Customer-based Generation Programs	211	30	**148**				148
Total OPA Resource Acquisition Programs	**1,759**	**30**	**1,231**	**625**	**390**	**70**	**148**
Other Influenced CDM							
Smart Meters	**176**	**0**	**176**				
Total Conservation & Demand Management[2]	**1,940**		**1,410**	**620**	**390**	**70**	**150**

Source: OPA (Exhibit D-4-1, Table 20)

All of the programs to meet the 2010 goals will be carried out in accordance with directives issued by the Minister of Energy. As a result, they will not be carried out in accordance with the procurement process for which the OPA is seeking OEB approval. The mix of programs will likely change as better opportunities present themselves.

[2] Totals have been rounded to nearest 10 MW.

4.0 RENEWABLE SUPPLY

4.1 The Directive

The Directive's goal is for a 2010 target for renewable supply of 10,402 MW and a goal of approximately 15,700 MW for 2025. It states:

> Increase Ontario's use of renewable energy such as hydroelectric, wind, solar and biomass for electrical generation. The plan should assist the government in meeting its target for 2010 of increasing the installed capacity of new renewable energy resources by 2,700 MW from the 2003 base and increase the total capacity of renewable energy sources used in Ontario to 15,700 MW by 2025.

Directive Priority

Renewable supply is second in priority to Conservation. After accounting for the feasible and economic contribution of Conservation, the IPSP applies the feasible and economic contribution from renewable supply. The OPA's approach to determine the feasible and economic contribution of renewable supply is as follows:

- All feasible hydroelectric resources are included on the basis that hydroelectricity is the most economic of the renewable resources;
- Bioenergy, wind (small sites) and solar resources were included generally on the basis of the expected response to standard offer procurement programs; and
- Large wind sites were used to provide the remaining resources needed to meet the goal. The sites were included on the basis of lowest "all-inclusive unit cost" (in which the cost of associated transmission is included).

The total capacity of the assumed planned resources meets the Directive's renewable goals. Unlike the plan for Conservation goals, the IPSP does not seek to exceed the Directive's goals for renewable resources. This is because the incremental renewable resource would be large wind projects. These projects would not be cost effective when compared to the supply resources included in the Plan that would be displaced.

Implementation Priority

There are two key elements to implementing the renewable goals: the acquisition of renewable supply and the transmission enhancements that are necessary to facilitate the supply.

With respect to supply, the 2010 Directive goal of 10,402 MW of renewable resources will be implemented through acquiring all renewable resources that may be feasibly implemented by that time.

The mix of renewable resources that currently make up the most attractive opportunities is illustrated in Table 2:

Table 2: Meeting the 2010 Renewable Resources Goal (Installed Capacity in MW)

	MW	
Hydroelectric in 2003	7,636	
Bioenergy in 2003	66	
The 2003 Base		**7,702**
Hydroelectric added since 2003[3]	108	
Wind added since 2003	501	
Bioenergy added since 2003	26	
Total Resources Added Since 2003		**634**
Existing Hydroelectric	7,744	
Existing Wind	501	
Existing Bioenergy	92	
Existing Resources		**8,336**
RES Hydroelectric[4]	104	
RES Wind	789	
CHP 1 Biomass	63	
Total RES and CHP1		**956**
SOP Solar	355	
SOP Hydroelectric	60	
SOP Wind	716	
SOP Bioenergy	46	
Total SOP[5]		**1,178**
Total Committed Resources		**2,134**
Quebec Interconnection		**1,250**
TOTAL RESOURCE INCREASE		**4,019**
REQUIRED RESOURCE INCREASE		**2,700**

Source: OPA

[3] Includes resources added since 2003 (6 MW) minus the Beck frequency changer (50 MW) which was removed from service.

[4] Includes Hydroelectric Supply Agreement with OPG in-service by 2010 (41 MW) plus RES 3 (40 MW) and Umbata Falls (23 MW).

[5] Includes RESOP contracts as of July 2008. The in-service dates for renewable resources procured under the standard offer program reflect the contractual in-service dates. The OPA acknowledges that there is considerable uncertainty with respect to actual in-service dates.

The 2025 Directive goal of 15,700 MW of renewable resources will be implemented in order of feasibility in light of transmission availability. The mix of renewable resources that currently make up the most attractive opportunities is set out in Table 3:

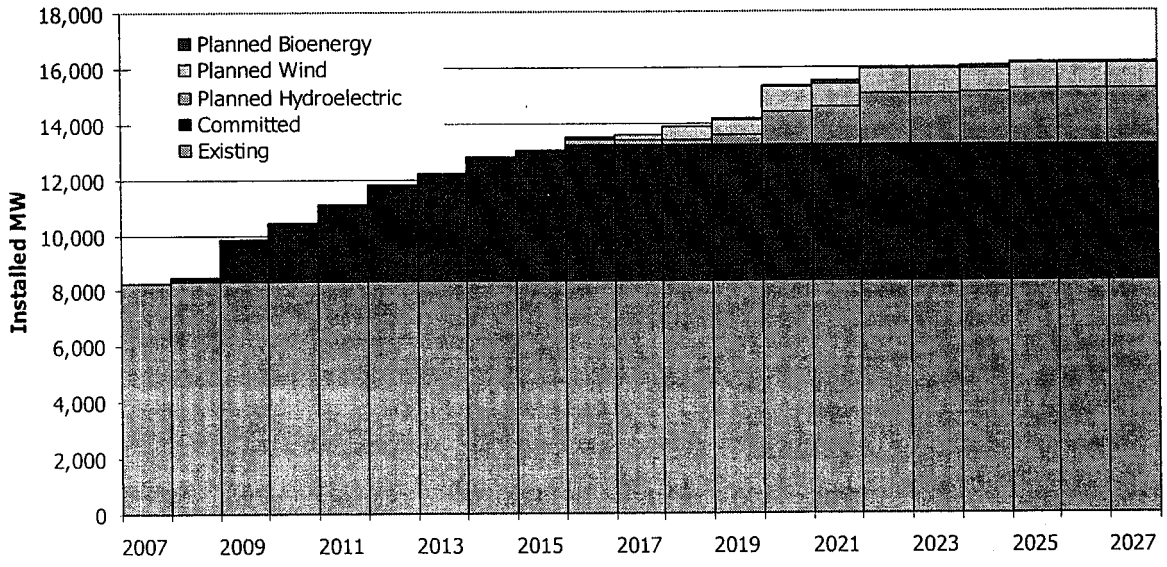
Table 3: Meeting the 2025 Renewable Resources Goal – Existing, Committed and Planned Resources (Resources Used in Ontario - Installed MW)

	MW
Hydroelectric	
Existing	7,744
Committed	1,033
Planned	1,991
Total Hydroelectric	**10,768**
Wind	
Existing	501
Committed	2,889
Planned	862
Total Wind	**4,251**
Bioenergy	
Existing	92
Committed	497
Planned	68
Total Bioenergy	**656**
Solar	
Existing	-
Committed	488
Total Solar	**488**
Total Renewable Resources	**16,164**

Source: OPA

The implementation schedule for planned renewable resources is set out in Figure 4:

Figure 4: Planned Renewable Resources (Installed MW)



Source: OPA

The detailed break-down of the existing, committed and planned renewable resource mix is set out at Tables 9, 27, 28, 30, 31 and 33 of Exhibit D-5-1[6].

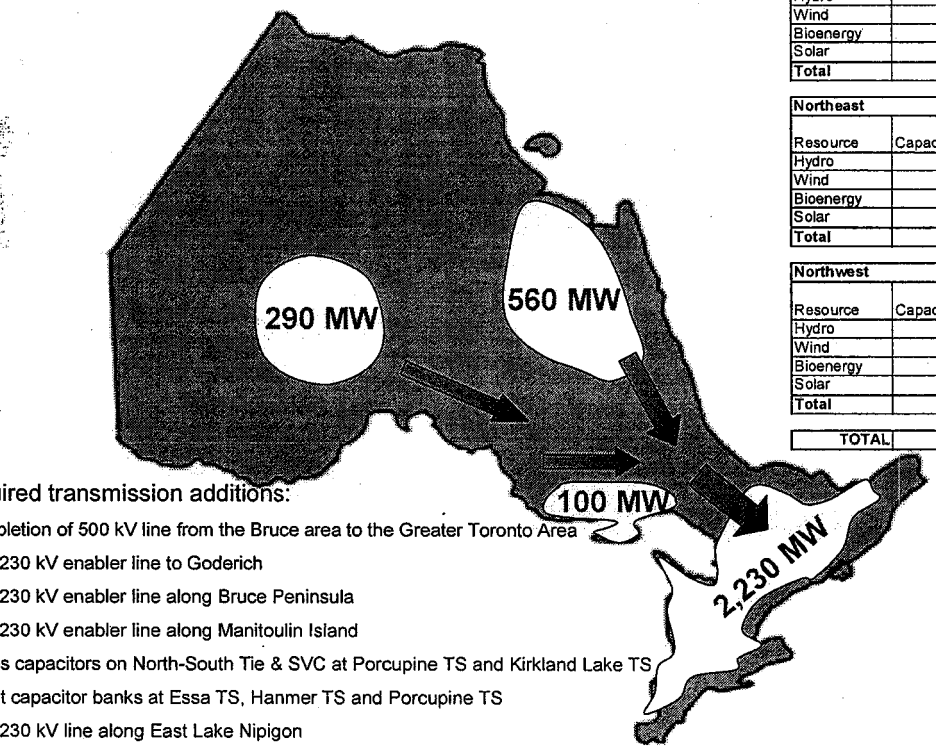
That mix will likely change as better opportunities present themselves and as progress with the implementation of transmission enhancements and enabler lines becomes clearer. All of the renewable resources to be procured by 2010 will be procured in accordance with Directives from the Minister of Energy. As a result, they will not be carried out in accordance with the procurement process for which the OPA is seeking OEB approval.

The staging of the committed and planned renewables is closely linked to the development of enabling transmission reinforcement. Development is planned to occur in three stages, as presented in Figures 5, 6 and 7 as follows:

[6] These tables have not been updated to reflect the resource mix shown in Figure 4.

- Stage 1 adds about 3,200 MW of renewables resources over the period 2010 to 2015;
- Stage 2 increases planned renewables by 1,100 MW to a cumulative total of about 4,300 MW, over the period 2016 to 2019; and
- Stage 3 further increases planned renewables by 2,000 MW to a cumulative total of about 6,300 MW, in 2020 and beyond.

Figure 5: Planned Development of Renewable Resources – Stage 1



Committed and Planned Developments:

South	
Resource	Capacity (MW)
Hydro	120
Wind	1,700
Bioenergy	150
Solar	260
Total	**2,230**

Northeast	
Resource	Capacity (MW)
Hydro	560
Wind	0
Bioenergy	60
Solar	40
Total	**660**

Northwest	
Resource	Capacity (MW)
Hydro	190
Wind	80
Bioenergy	20
Solar	0
Total	**290**

TOTAL	3,180

Required transmission additions:

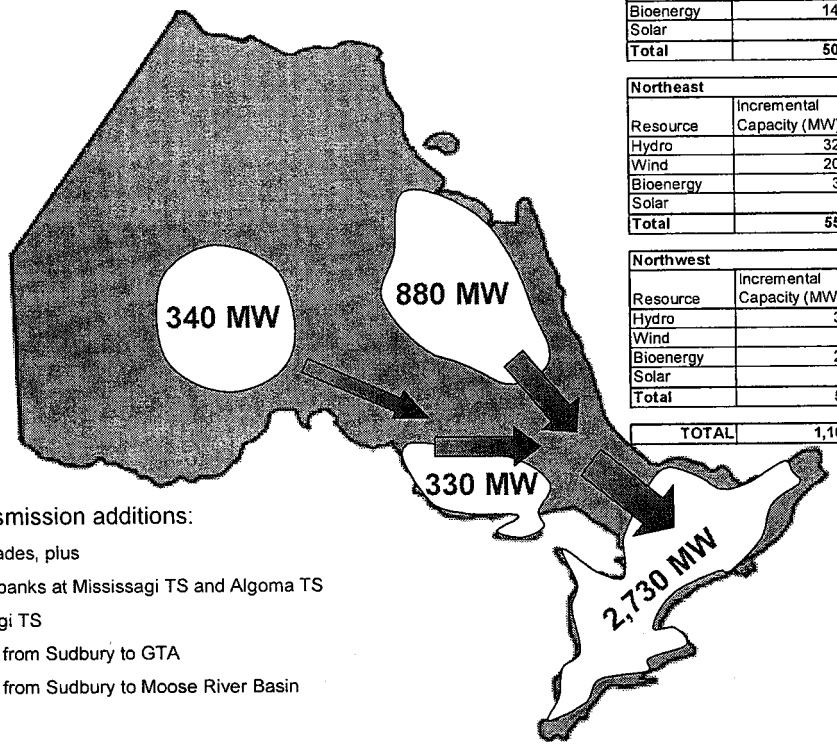
- Completion of 500 kV line from the Bruce area to the Greater Toronto Area
- New 230 kV enabler line to Goderich
- New 230 kV enabler line along Bruce Peninsula
- New 230 kV enabler line along Manitoulin Island
- Series capacitors on North-South Tie & SVC at Porcupine TS and Kirkland Lake TS
- Shunt capacitor banks at Essa TS, Hanmer TS and Porcupine TS
- New 230 kV line along East Lake Nipigon

Source: OPA

Figure 6: Planned Development of Renewable Resources – Stage 2

Stage 2 – 2016-2019

Total: 4,280 MW of Renewable Generation



Required transmission additions:

- All Stage 1 upgrades, plus
- Shunt capacitor banks at Mississagi TS and Algoma TS
- SVC at Mississagi TS
- New 500 kV line from Sudbury to GTA
- New 500 kV line from Sudbury to Moose River Basin

Planned Developments, in addition to Stage 1:

South		
Resource	Incremental Capacity (MW)	Cumulative Capacity (MW)
Hydro	0	120
Wind	360	2,060
Bioenergy	140	290
Solar	0	260
Total	**500**	**2,730**

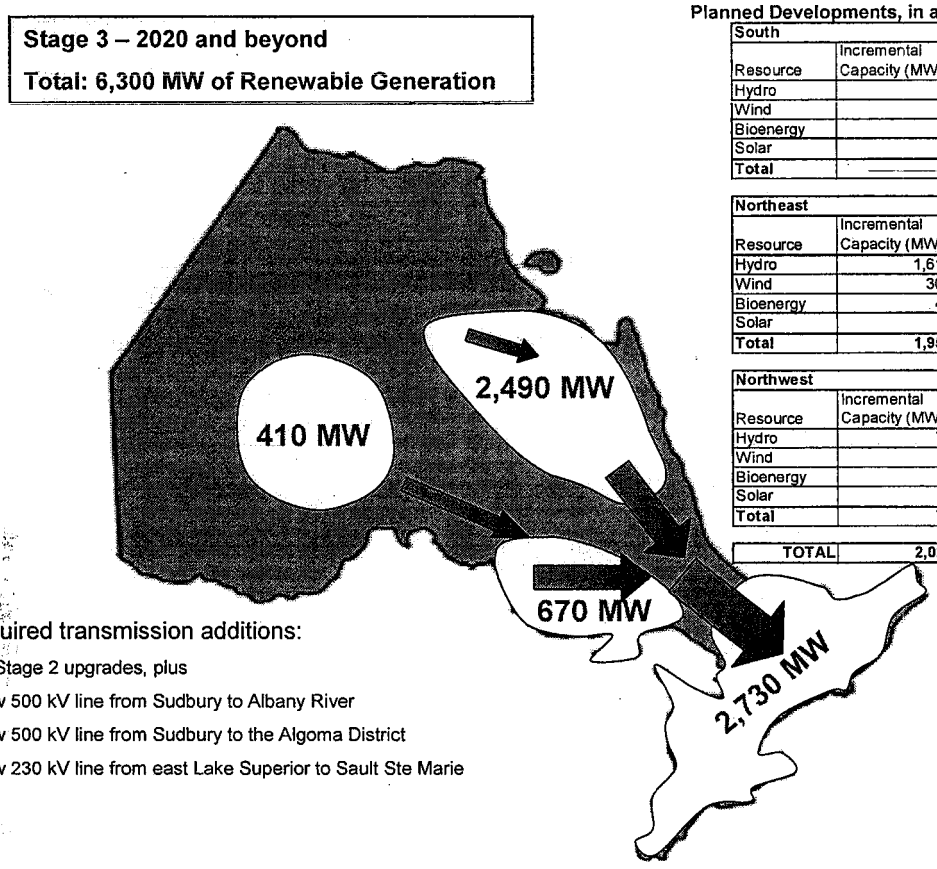
Northeast		
Resource	Incremental Capacity (MW)	Cumulative Capacity (MW)
Hydro	320	880
Wind	200	200
Bioenergy	30	90
Solar	0	40
Total	**550**	**1,210**

Northwest		
Resource	Incremental Capacity (MW)	Cumulative Capacity (MW)
Hydro	30	220
Wind	0	80
Bioenergy	20	40
Solar	0	0
Total	**50**	**340**

TOTAL	**1,100**	**4,280**

Source: OPA

Figure 7: Planned Development of Renewable Resources – Stage 3



Planned Developments, in addition to Stage 2:

South		
Resource	Incremental Capacity (MW)	Cumulative Capacity (MW)
Hydro	0	120
Wind	0	2,060
Bioenergy	0	290
Solar	0	260
Total	**0**	**2,730**

Northeast		
Resource	Incremental Capacity (MW)	Cumulative Capacity (MW)
Hydro	1,610	2,490
Wind	300	500
Bioenergy	40	130
Solar	0	40
Total	**1,950**	**3,160**

Northwest		
Resource	Incremental Capacity (MW)	Cumulative Capacity (MW)
Hydro	70	290
Wind	0	80
Bioenergy	0	40
Solar	0	0
Total	**70**	**410**

TOTAL	**2,020**	**6,300**

Source: OPA

Certain transmission development work will need to be initiated shortly to make the necessary transmission enhancements to meet the foregoing timetable. The specific transmission development work that is needed, the dates by which the development work must be commenced, and the estimated costs of the development work are addressed in the evidence relating to the applicable transmission projects.

5.0 NUCLEAR FOR BASELOAD

5.1 The Directive

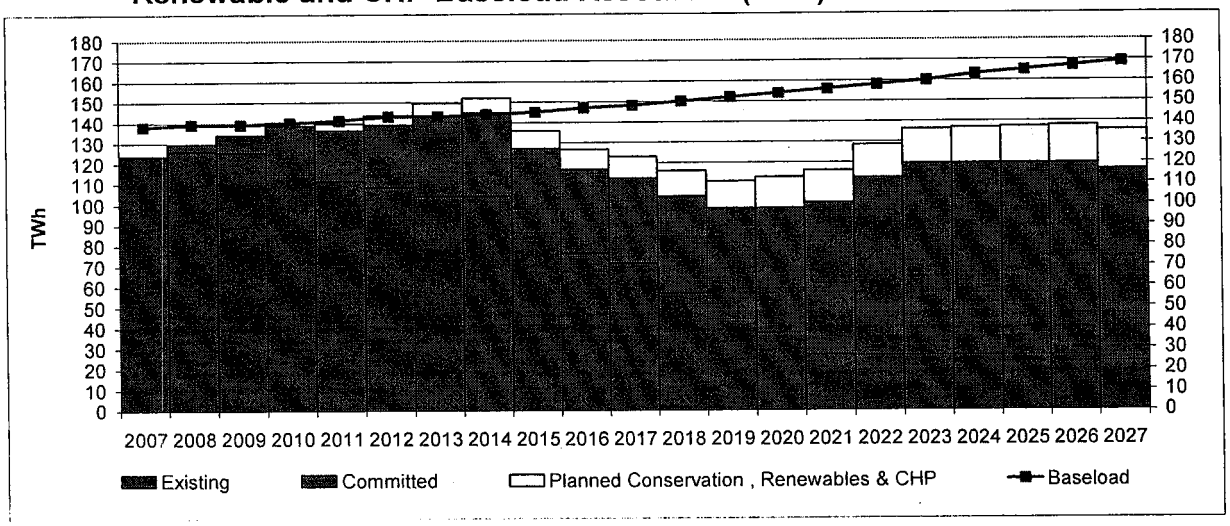
The Directive provides that the IPSP plan for nuclear power to meet baseload requirements but limit the installed in-service capacity to 14,000 MW. The Directive States:

> Plan for nuclear capacity to meet base load electricity requirements but limit the installed in-service capacity of nuclear power over the life of the plan to 14,000 MW.

Directive Priority

The Directive priority is to first apply the feasible and economic contributions of Conservation and renewable supply to meet base-load requirements. After this contribution is taken into account, there is a gap. This gap is illustrated in Figure 8, which demonstrates the contribution of existing and committed resources as well as planned Conservation and renewable resources to meet baseload resource requirements.

Figure 8: Existing and Committed Baseload Resources + Planned Conservation, Renewable and CHP Baseload Resources (TWh)



Source: OPA

As illustrated in Figure 8, after the contributions from existing and committed supply, planned Conservation and renewable resources are taken into account, there remains a baseload requirement of approximately 35 TWh. That baseload requirement may be met

by one of two candidates: nuclear power and combined cycle gas turbine generation ("CCGT"). In light of the OPA's planning criteria as addressed in Exhibit D-6-1, and the OPA's analysis in Exhibit D-3-1 Attachment 1, nuclear power is demonstrated to be the superior of those two candidates. The IPSP therefore plans for nuclear power to meet the remaining baseload requirements.

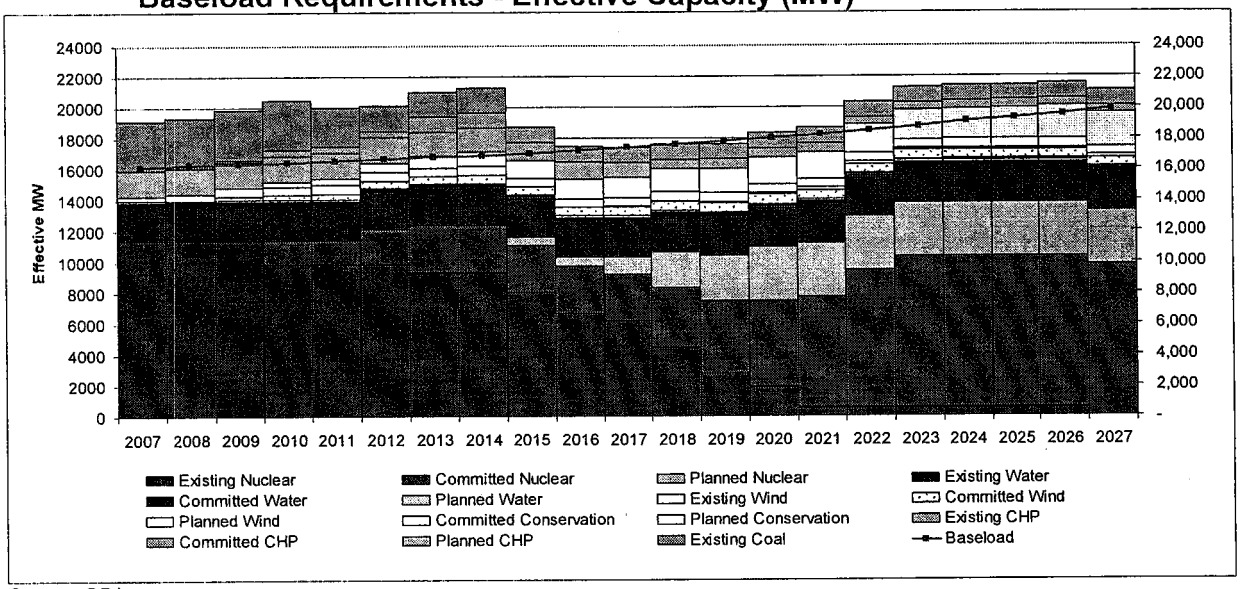
Implementation Priority

As indicated in the discussion respecting Directive Priority, nuclear power is preferable to CCGT for meeting baseload requirements. From an implementation perspective, the issue is whether the requirement for new nuclear resources should be met through refurbishment of existing nuclear plants ("refurbishment") or through building new plants ("new build"). Subject to economic viability, refurbishment is an attractive option for the following reasons:

- Compared to the new build option, refurbishment provides a shorter lead-time advantage as a result of unit refurbishment outages of two years or less;
- Refurbishment utilizes existing generation sites and transmission infrastructure thereby minimizing the associated environmental footprint;
- Local and surrounding community support for the continued operation of the Pickering, Bruce and Darlington generating stations is strong; and
- Experience from past and current refurbishment projects, both domestically and internationally, is leveraged on an on-going basis. This could result in improved project cost and schedules.

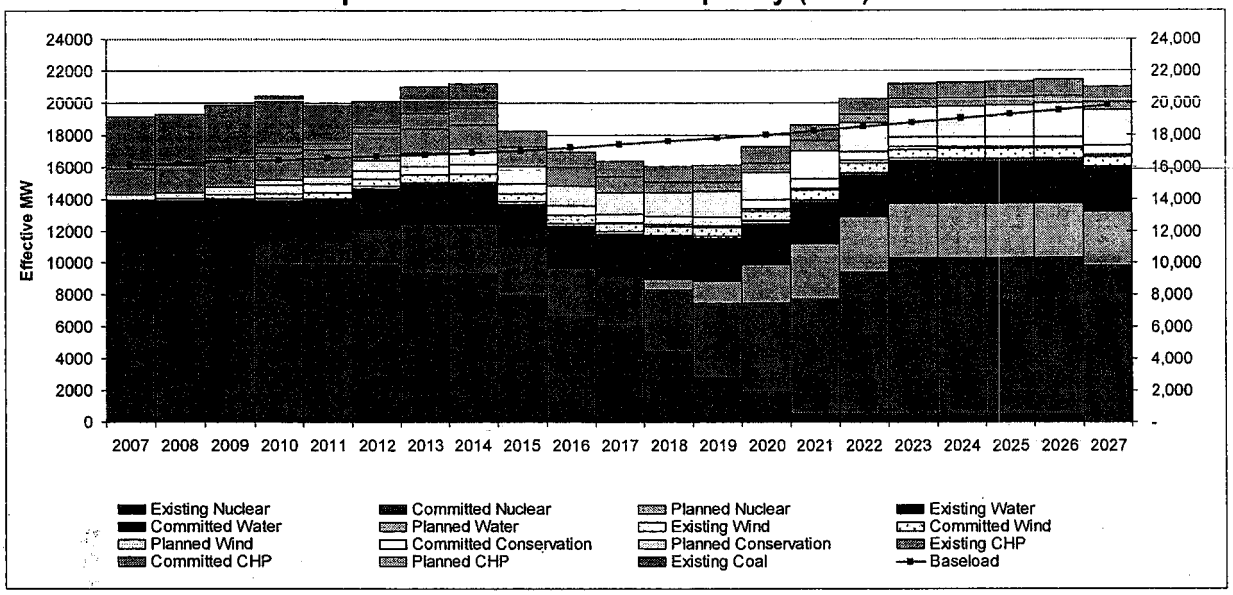
The most immediate implementation decision respecting refurbishment is with respect to Pickering B. The IPSP has built in the flexibility to address either scenario. If OPG decides to refurbish Pickering B, then the IPSP assumes that the associated capacity of 2,064 MW will be installed by 2018. This constitutes Case 1A under the IPSP. If OPG decides not to refurbish Pickering B, then the Plan assumes that the associated capacity of 2,064 MW will be replaced at a later time by new nuclear resources. This constitutes Case 1B under the IPSP. These cases are illustrated in Figure 9 and Figure 10, respectively, as follows:

Figure 9: Case 1A (with Pickering B Refurbishment): Resources to meet Baseload Requirements - Effective Capacity (MW)



Source: OPA

Figure 10: Case 1B (No Pickering B Refurbishment): Resources to meet Baseload Requirements – Effective Capacity (MW)



Source: OPA

To enable the retirement or the refurbishment of Pickering B, a new Oshawa transformer station may need to be built and brought into service by 2015. The details of this project, including the necessary transmission development work, are addressed in Exhibit E-4-1.

The OPA does not intend to procure any nuclear supply by the end of 2010.

6.0 COAL REPLACEMENT

6.1 The Directive

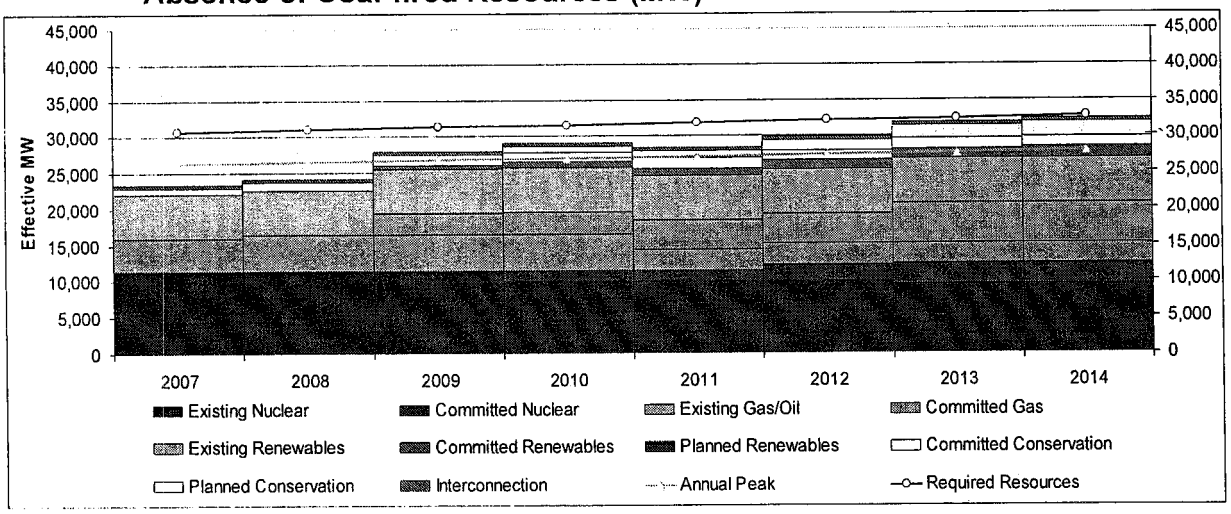
The Directive provides that the IPSP should plan for the replacement of coal-fired generation in the earliest practical time frame. It states:

> Plan for coal-fired generation in Ontario to be replaced by cleaner sources in the earliest practical time frame that ensures adequate generating capacity and electric system reliability in Ontario. The OPA should work closely with the IESO to propose a schedule for the replacement of coal-fired generation, taking into account feasible in-service dates for replacement generation and necessary transmission infrastructure.

Directive Priority

The Directive priority is to first apply the feasible and economic contributions of Conservation and renewable supply to replace coal-fired generation. Figure 11, below, demonstrates the contribution of existing and committed resources as well as planned Conservation and renewable resources to meet the requirements currently met by coal-fired generation:

Figure 11: Contribution from Existing, Committed and Planned Conservation, Renewable, Nuclear, Gas/Oil & Interconnection Resources in the Absence of Coal-fired Resources (MW)



Source: OPA

As illustrated in Figure 11, after all alternative resources are taken into account, and coal is removed, there remains a capacity gap. In addition, there is also a gap with respect to the contribution of coal-fired generation to energy production and system reliability. These contributions are discussed in Exhibit D-7-1. The only remaining resource with the characteristics to replace these contributions is gas-fired generation ("GFG"). As a result, replacing coal-fired generation will require an additional contribution from GFG, accompanied by any necessary transmission enhancements. There are different reliability requirements in the North West system and the remainder of the system. Each area, therefore, has to be looked at separately.

With respect to the North West, the IPSP plans for the replacement of the Atikokan and Thunder Bay coal-fired generation plants with a combination of Conservation and renewable resources to be available by 2014. With respect to the remainder of the system, the OPA considered a number of options for GFG to replace coal-fired generation in the earliest practical timeframe. These included consideration of existing gas-fired resources such as Lennox and Non-Utility Generators ("NUGs"), the potential expansion of existing GFG sites or facilities, addition of local GFG, and the conversion of coal-fired generating units to GFG.

Based on this assessment, three candidate options were identified:

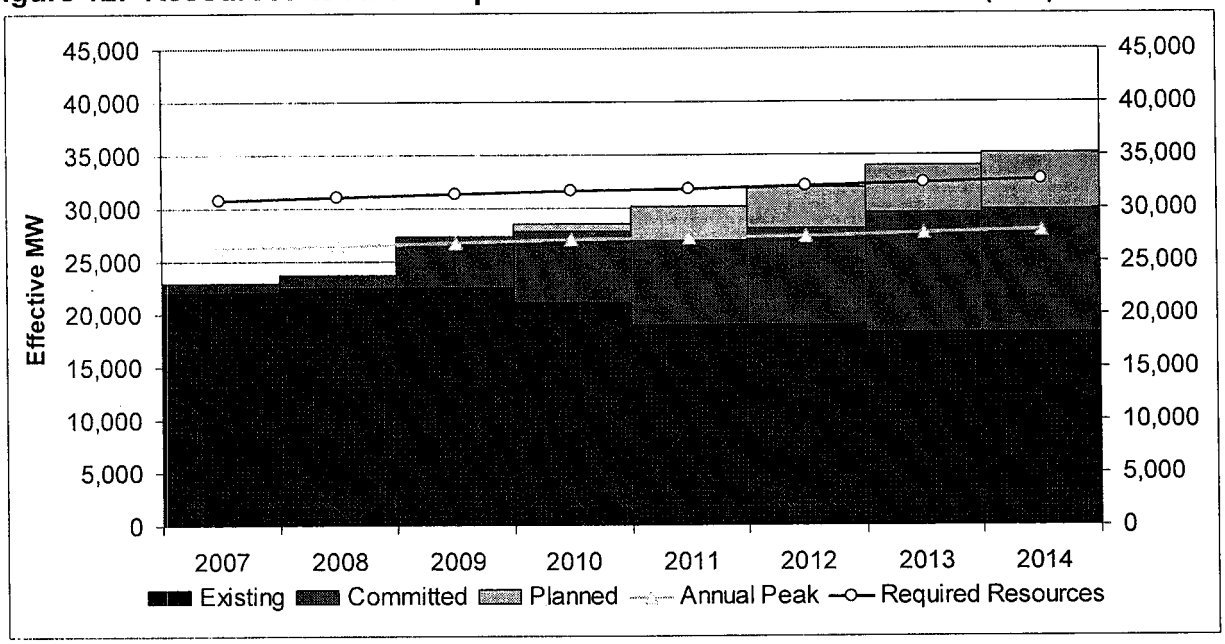
- GFG located near existing gas supply and infrastructure (i.e., the Sarnia area Dawn Hub, the location in Ontario with the lowest commodity and gas transportation cost);
- GFG located where there are local area reliability needs, accompanied by relatively modest transmission system enhancements (i.e., Northern York Region ("NYR"), Kitchener-Waterloo-Cambridge-Guelph ("KWCG"), Southwest GTA ("SW GTA") and the Greater Toronto Area (the "GTA")); and
- Conversion of coal-fired generating units to GFG. This option requires extensive associated transmission system enhancements where there are local area reliability needs.

The OPA's analysis in Exhibit D-7-1 demonstrates that, in light of the OPA's planning criteria, among these three candidates, the installation of 2,200 MW of GFG to meet local area reliability needs in NYR, KWCG, SW GTA and the GTA, accompanied by relatively modest transmission system enhancements, most effectively meets the Directive's requirements with respect to replacement of coal-fired generation.

Implementation Priority

As indicated above, local GFG is planned for the energy and capacity production contributions for coal-fired generation to be replaced by 2012. The reliability contribution will be replaced by these and other facilities by 2014. This replacement schedule is illustrated by Figure 12:

Figure 12: Resources to Allow Replacement of Coal-fired Resources (MW)



Source: OPA

In addition, to enable coal replacement, certain enhancements to the transmission system are needed in the Thunder Bay area. The details of these enhancements, including the necessary transmission development work, are addressed in Exhibit E-6-1.

As a result, the OPA intends to implement the coal replacement requirements of the Directive by procuring 1,200 MW of GFG to meet local area reliability needs (in NYR and SW GTA) in accordance with government directives and 1,000 MW of GFG (in KWCG and GTA) in accordance with the OEB-approved procurement process. Further details with respect to these procurements are provided in Exhibit D-10-1.

7.0 GAS FOR PEAK, HIGH EFFICIENCY AND HIGH VALUE USE

7.1 The Directive

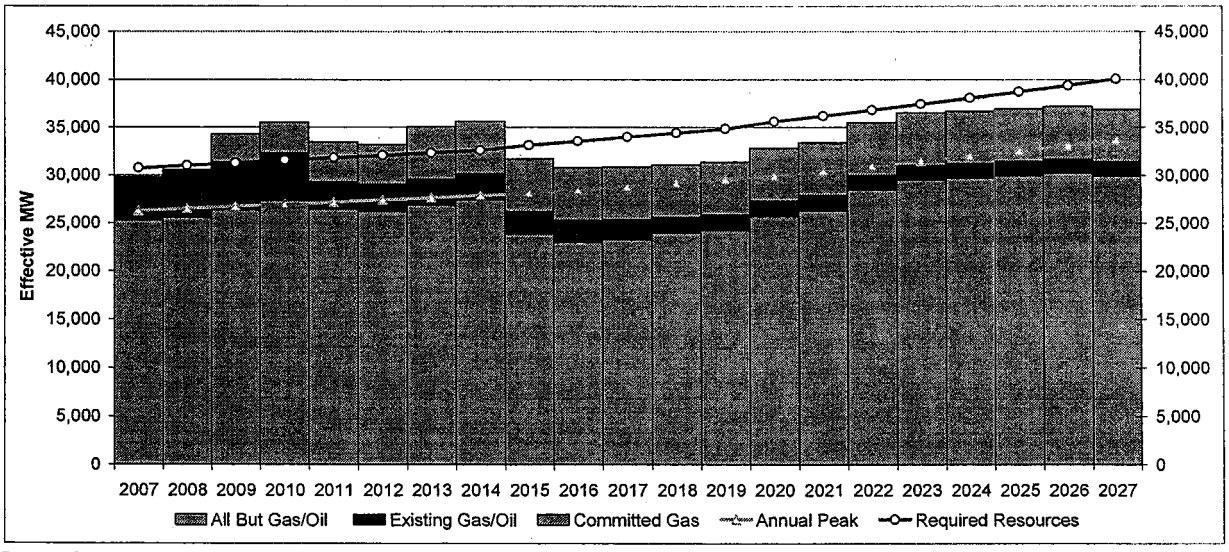
The Directive states:

> Maintain the ability to use natural gas capacity at peak times and pursue applications that allow high efficiency and high value use of the fuel.

Directive Priority

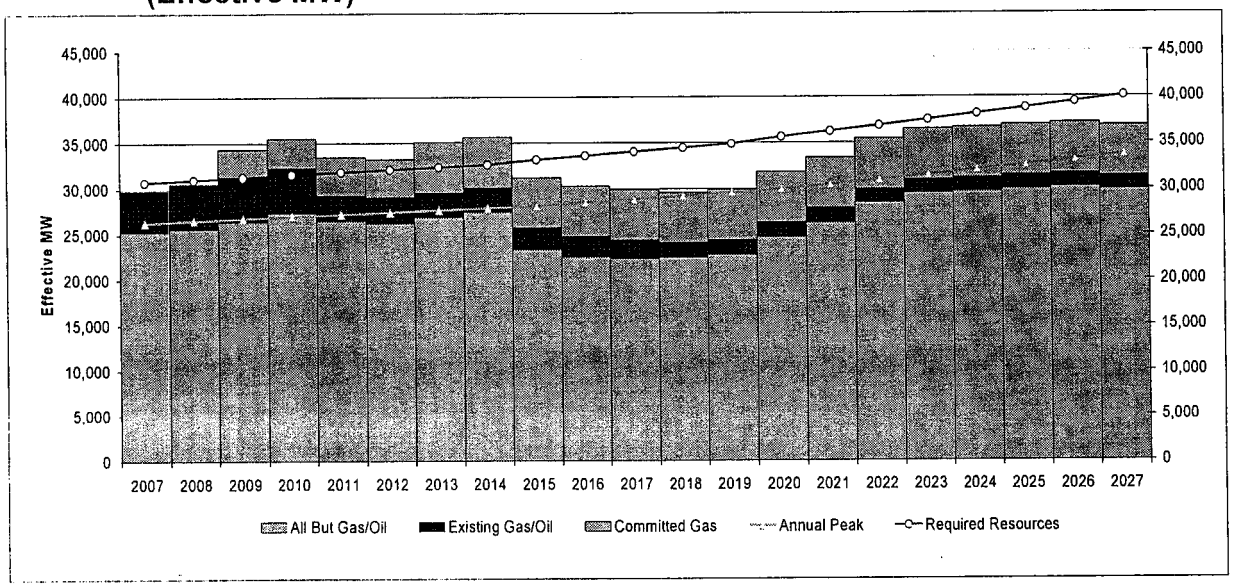
The Directive priority is to first apply the feasible and economic contributions of Conservation and renewable supply to meet peaking requirements. The contribution from nuclear power is then added. After these contributions are taken into account and the contribution from committed GFG is added, there is a remaining gap to be met by GFG. This gap is illustrated in Figure 13 and Figure 14, which demonstrate the contribution of these resources to meeting intermediate/peaking requirements under Case 1A (with Pickering B refurbishment) and Case 1B (without Pickering B refurbishment).

Figure 13: Required Gas-Fired Resources – Assuming Pickering B Refurbished (Effective MW)



Source OPA

Figure 14: Required Gas-Fired Resources – Assuming Pickering B Not Refurbished (Effective MW)



Source: OPA

As illustrated in Figures 12 and 13 after the contribution of existing, committed and planned resources, there remains a requirement for GFG.

In order to maintain the contribution by GFG to peaking, high value and high efficiency uses, the use of gas in the IPSP is restricted as much as possible to either simple cycle gas turbines ("SCGT") or CCGT.

Implementation Priority

As discussed above, GFG also contributes to meeting local area requirements, and to replacing the contribution of coal-fired generation. GFG will also be used when alternative resources are not feasible or cost effective. The IPSP also includes a certain amount of "proxy gas" to represent unspecified supply resources indicated for the long term, that will not necessarily prove to be gas-fired, but are modelled as if they will be.

When gas-fired resources are used, they are generally planned to be SCGT, to meet peaking requirements, or CCGT, to meet intermediate requirements. The Plan also includes combined heat and power ("CHP", also known as cogeneration) resources, that

meet baseload requirements, where the amount included in the Plan is that expected to materialize from OPA procurement programs. There are also a number of gas-fired generators, known as non-utility generators or NUGs, which are assumed to operate as baseload resources because of the contractual terms of their current NUG contracts. The Plan assumes that for the NUG contracts that expire by 2015, the associated capacity will continue, but will meet intermediate and peaking load requirements, depending on whether the NUGs are CCGT or SCGT resources, respectively.

The current list of contracts and projects through which the IPSP intends to meet the GFG requirements is set out in Table 4, below:

Table 4: Allocation of Committed and Planned Gas-Fired Resource Requirements

	Pickering B Refurbished			Pickering B Not Refurbished		
Project/Site	**Generation Type**	**MW**	**In-Service**	**Generation Type**	**MW**	**In-Service**
Lennox	CST	2,100	2011	CST	2,100	2011
CHP (Committed)	CHP	500	2013	CHP	500	2013
Northern York Region (Committed)	SCGT	350	2011	SCGT	350	2011
Kitchener-Waterloo-Cambridge-Guelph	SCGT	450	2012	SCGT	450	2012
Southwest GTA (Committed)	CCGT	850	2013	CCGT	850	2013
GTA	SCGT	550	2014	SCGT	550	2014
NUG Replacement	SCGT/CCGT	469	2013 +	SCGT/CCGT	1,368	2013 +
Unspecified/Proxy Gas	SCGT/CCGT	650	2018+	SCGT/CCGT	825	2017 +
	Total	**5,919**		**Total**	**6,993**	

Source: OPA Southwest GTA may be met by either CCGT or SCGT, but was modelled as CCGT. Likewise, GTA could be met by either type, but was modelled as SCGT. CST is the acronym for "Condensing Steam Turbine"

This mix will likely change as better opportunities present themselves.

Some of these projects/sites will be procured by the end of 2010 in accordance with the OEB-approved procurement process. These are: Kitchener–Waterloo-Cambridge-Guelph and GTA (as discussed above). In addition, another facility, the Lennox Generating Station, operates under a Reliability-Must-Run contract with the IESO. The contribution

from that facility will also be procured by the OPA. This is described in greater detail in Exhibit D-8-1, Attachment 1 and Exhibit D-10-1.

8.0 NEAR-TERM ACTION PLAN

The Directive and Implementation Priorities lead to both near-term and longer-term action plans. As indicated in the introduction, the IPSP identifies specific priorities for the near-term, but will, more generally, develop options for the mid-term and explore opportunities for the longer-term.

This leads to a near-term action plan that the OPA will carry out over the 2008 to 2010 period to implement the IPSP. That near-term action plan has the following components:

- Conservation: The OPA will, through resource acquisition and under existing government Directives, procure approximately 1,400 MW of Conservation resources. It will also invest in market capability and market transformation activities;
- Renewable Supply: The OPA will, under existing government Directives, procure up to 2,700 MW of renewable resources; and
- Gas Fired Generation: The OPA will, through an OEB-approved procurement process, procure gas-fired projects that are required for local area supply and transmission relief. The capacity targets for these projects are as follows: (1) 550 MW of SCGT or CCGT capacity in the GTA and (2) 450 MW of SCGT capacity in Kitchener-Waterloo-Cambridge-Guelph. Further, the OPA will, in accordance with procurement directives, procure additional gas-fired projects that are required for local area supply and transmission relief. The capacity targets for these additional projects are as follows: (1) 850 MW of CCGT capacity in the Southwest GTA and (2) 350 MW of SCGT capacity in Northern York Region. Finally, the OPA will enter into a procurement contract with OPG to replace the OEB-approved Reliability-Must-Run contract that is currently in place with respect to the Lennox GS through the OEB-approved procurement process.

In addition, it will be necessary for transmission proponents to carry out development work with respect to the transmission projects recommended in the IPSP. Certain of these projects, in addition to meeting the Directive's supply mix goals, are aimed at ensuring regional and local area reliability (i.e., Windsor Essex, Central and Downtown Toronto, and Milton Transformer Station). The recommended transmission projects, and the necessary development work, are referred to above and are addressed in more detail in the

supporting evidence relating to the individual projects. It is not expected that any of these projects will result in a leave-to-construct application before the OEB during this near-term period.

9.0 CONCLUSION

The OPA's Plan to achieve the Directive's goals involves prioritizing how Conservation and supply resources should be acquired through (i) meeting the requirements of the Directive in light of the OPA's planning criteria (the "Directive Priority"); and (ii) the sequencing of installing resources, especially in light of long lead times and necessary transmission enhancements (the "Implementation Priority").

With respect to the Directive Priority, the IPSP ensures that the identified resource goals in the Directive are met by identifying the priority order in which the resources are planned to meet the electricity needs of the province as follows:

1. Maximize feasible cost effective contribution from energy efficiency, demand management, fuel switching, and customer based generation (Conservation);
2. Maximize feasible cost effective contribution from renewable sources;
3. Make up baseload requirements remaining after Steps 1 and 2 above with nuclear power;
4. Replace coal-fired generation with power from committed and planned resources. Specifically, in order to ensure that existing coal-fired facilities are replaced by 2014, gas-fired generation ("GFG") facilities are planned to be installed in the areas of Northern York Region, Kitchener-Waterloo-Cambridge-Guelph, Southwest GTA and the Greater Toronto Area ("GTA") by 2014; and
5. Restrict contribution of GFG to specific projects as required when additional Conservation and renewable resources are not feasible or cost effective.

The Directive Priority is accompanied by an Implementation Priority. The Implementation Priority is the relative chronological ordering of resource additions. The IPSP is the combination of the Directive Priority and the Implementation Priority. It is set out in summary form in Table 5, below.

Table 5: Summary of the IPSP

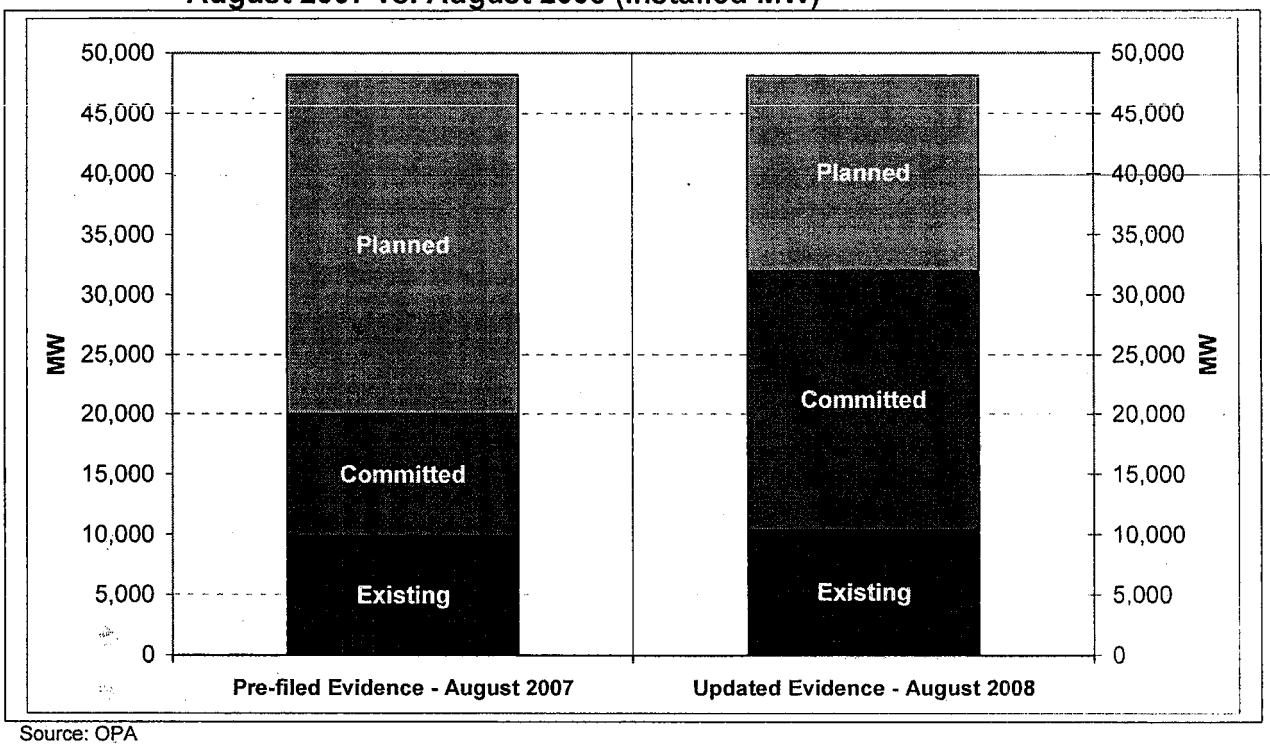
Subject of Directive	Directive Goals	Directive Priority	Implementation Priority	Current Mix of Projects/ Facilities/ Programs (Evidence Reference)	Procurement Authorization (for resources to be acquired by end of 2010)
Conservation	2010: 1,350 MW 2025: an additional 3,600 MW	Maximize feasible cost effective contribution from Conservation before supply resources.	2010 goals to be met through resource acquisition; experience with programs to provide information on how to economically meet and exceed 2025 goal using combination of resource acquisition, capability building and market transformation programs.	2010: Exhibit D-4-1, Table 21 2025: Exhibit D-4-1, Table 22	Government Directives
Renewable Supply	10,402 MW by 2010 15,700 MW by 2025	Maximize feasible cost effective contribution from renewable sources before other supply resources in the following order of economic priority: hydro, bioenergy, and wind.	2010: All feasible renewable resources that can be installed prior to 2010 should be acquired; 2025 goal to be met by first applying all feasible hydro resources (1,991 MW) and all feasible bioenergy (68 MW). The remainder of the goal (862 MW) to be made up of large wind projects. The order of implementation will be coordinated with necessary transmission enhancements.	2010: Exhibit D-5-1, Table 1 2025: Exhibit D-5-1, Tables 2, 19, 31, and 33.	Government Directives
Nuclear for Baseload	Up to 14,000 MW	Make up remaining baseload requirements remaining after Conservation and renewable supply with nuclear supply. Refurbished	10,249 MW of nuclear capability required, either from refurbishments or new build. Depending on refurbishments, new nuclear capacity of 1,400 MW to 3,400 MW, starting in 2018.	Exhibit D-6-1 Table 14	No Procurements Planned

Subject of Directive	Directive Goals	Directive Priority	Implementation Priority	Current Mix of Projects/ Facilities/ Programs (Evidence Reference)	Procurement Authorization (for resources to be acquired by end of 2010)
		nuclear facilities have planning advantages and are generally preferred to new nuclear facilities. However, each case is fact dependent.			
Replacement for Coal Fired Generation	Replace coal-fired generation in earliest practical timeframe.	Replacing coal-fired generation requires replacing its three types of contributions to Ontario's electricity needs: capacity (6,434 MW), energy production (24.7 TWh) and reliability (flexibility, dispatch ability, and ability to respond to unforeseen supply availability).	15,000 MW of resources are planned by 2015, partly to replace coal, partly to meet growth, and partly to catch up with deficiencies that existed in the beginning of the planning horizon. Gas-fired generation will be installed in the areas of York Region, Kitchener Waterloo and Southwest GTA. This will allow for the energy and capacity production contributions to be replaced by 2012. The reliability contribution will be replaced by these and other facilities by 2014.	Exhibit D-7-1, Table 5	Conservation and Renewable Resources: Government Directives GFG: (a) OEB Approved Procurement Process (550 MW GTA SCGT or CCGT, 450 MW KWCG SCGT); (b) Government Directives (850 MW SW GTA CCGT, 350 MW NYR SCGT)
Natural Gas	Confine gas to peaking, high value and high efficiency uses.	Gas fired generation will be used to meet peak and intermediate requirements and to provide flexibility. When gas-fired resources are used, they should be restricted as much as possible to either simple cycle gas generation (to	In addition to meeting the local area supply requirements in York Region, Kitchener-Waterloo and Southwest GTA, current facilities that operate as baseload may be converted to meet intermediate and peaking needs and energy will be procured from Lennox GS to replace the Reliability Must Run Contract with the IESO. An additional	Exhibit D-8-1, Table 9	OEB Approved Procurement Process

Subject of Directive	Directive Goals	Directive Priority	Implementation Priority	Current Mix of Projects/ Facilities/ Programs (Evidence Reference)	Procurement Authorization (for resources to be acquired by end of 2010)
		meet peaking requirements) or combined cycle gas generation (to meet intermediate requirements). Any new contracts and facilities should reflect these requirements as much as possible.	400-650 MW of "proxy gas" may be required around 2017.		

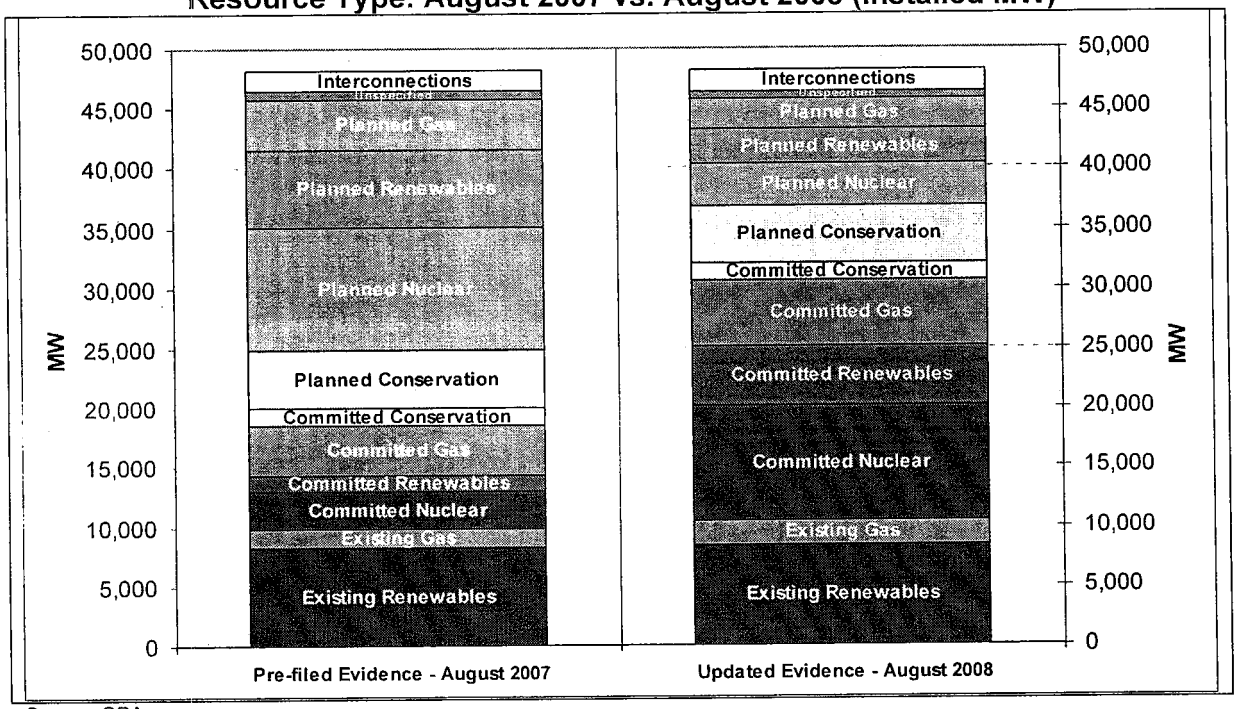
Figure 15 shows updated IPSP resources as of August 2008 in terms of commitment status as compared to IPSP resources in the evidence filed in August 2007. It will be seen that committed resources as of August 2008 are approximately 11,500 MW greater relative to as of August 2007 and that the requirement for planned resources is reduced accordingly. Figure 16 provides additional detail by illustrating both commitment status and resource type.

Figure 15: Comparison of Existing, Committed and Planned Resources: August 2007 vs. August 2008 (Installed MW)



Source: OPA

Figure 16: Comparison of Existing, Committed and Planned Resources by Resource Type: August 2007 vs. August 2008 (Installed MW)



Source: OPA

Table 6: Support Data for Figures 15 and 16

Pre-Filed Evidence - August 2007			Updated Evidence - August 2008		
	Fuel	Installed (MW)		Fuel	Installed (MW)
Existing	Nuclear	0	Existing	Nuclear	0
	Coal	0		Coal	0
	Gas/Oil	1,630		Gas/Oil	2,043
	Conservation	0		Conservation	0
	Renewables	8,258		Renewables	8,336
	Total Existing	9,888		Total Existing	10,379
Committed	Nuclear	3,040	Committed	Nuclear	9,825
	Gas/Oil	4,267		Gas/Oil	5,503
	Conservation	1,407		Conservation	1,407
	Renewables	1,415		Renewables	4,907
	Total Committed	10,129		Total Committed	21,642
Planned	Nuclear	10,249	Planned	Nuclear	3,464
	Gas/Oil	4,311		Gas/Oil	2,525
	Conservation	4,811		Conservation	4,811
	Unspecified	650		Unspecified	650
	Renewables	6,411		Renewables	2,920
	Interconnections	1,750		Interconnections	1,750
	Total Planned	28,181		Total Planned	16,120
	Total Resources	48,198		Total Resources	48,141

Source: OPA

CONSERVATION RESOURCE

1.0 INTRODUCTION

This exhibit sets out a Conservation plan on how the IPSP will achieve the Directive's goals for reducing Ontario's peak demand by 1350 MW by 2010 and an additional 3600 MW by 2025.

2.0 CONSERVATION PLAN

Q. What does the Supply Mix Directive say with regard to Conservation?

A. The Directive states that:

> *The goal for total peak demand reduction from Conservation by 2025 is 6,300 MW. The plan should define programs and actions which aim to reduce projected peak demand by 1,350 MW by 2010, and by an additional 3,600 MW by 2025. The reductions of 1,350 MW and 3,600 MW are to be in addition to the 1,350 MW reduction set by the government as a target for achievement by 2007. The plan should assume Conservation includes continued use by the Government of vehicles such as energy efficiency standards under the Energy Efficiency Act and the Building Code, and should include load reductions from initiatives such as : geothermal heating and cooling; solar heating; fuel switching; small scale (10 MW or less) customer-based electricity generation, including small scale natural gas fired co-generation and tri-generation, and including generation encouraged by the recently finalized net metering regulation.*

Q. The Directive states that Conservation includes actions to reduce peak demand, energy efficiency, fuel switching and customer-based generation. How does the OPA define these four categories of Conservation?

A. The OPA defines these terms as follows:

Actions to reduce peak demand are encouraged through demand management programs and other programs aimed at influencing Conservation behaviour (collectively referred to as "Demand Management/Conservation behaviour").

Demand management occurs when customers reduce their electricity demand during peak use hours (peak clipping) or shift some of their demand to off-peak hours (peak shifting). Demand management can occur in a number of ways: for example, when residential customers shift use of their dishwasher and laundry appliances to off-peak hours; when certain industrial customers contractually agree to shut down assembly lines in response to an automatic signal; and when residential and other customers participate in programs, allowing their use to be temporarily reduced by their utility or a demand aggregator.

Conservation behaviour occurs when customers voluntarily reduce their electricity consumption by scaling back the activity which is powered by electricity (e.g., reduce their air conditioner use by raising the set point temperature by a couple of degrees).

Energy efficiency occurs when customers reduce their electricity consumption but retain at least the same level of end-use service. Energy efficiency is the gain from using more efficient appliances, equipment and buildings (e.g., replace household electric appliances and the air conditioner with more efficient models).

Fuel switching occurs when customers elect to use other energy sources in place of electricity (e.g., replace their electric clothes dryer with a natural gas dryer).

Customer-based generation occurs when customers elect to install either a generator or a combined heat and power facility to meet all or a portion of their electricity consumption needs. Combined heat and power is also referred to as cogeneration. For the purpose of defining Conservation as distinct from supply resources, cogeneration projects of less than or equal to 10 MW, and renewable energy projects of less than or equal to 500 kW are included as contributing to the Conservation target. The Directive also allows electricity generated by Ontario customers under the net metering program to be counted towards meeting the Conservation target.

Q. What is the OPA's approach to meeting the 2010 and 2025 targets?

The OPA's approach includes facilitating the achievement of the Directive's targets by delivering four categories of Conservation savings through three types of Conservation programs. The Conservation categories are those identified in the Directive: energy efficiency, demand management/Conservation behaviour, customer-based generation and fuel switching. The OPA determined, at a high level, the Conservation opportunities available in each of the Conservation categories. Specifically, the OPA commissioned modeling which demonstrated that the majority of Conservation opportunities were to be found in energy efficiency (approximately 65%). The OPA also determined that a significant contribution to peak demand reduction can be provided by demand management (approximately 20%). The Conservation portion of the IPSP therefore focuses largely on these specific opportunities.

Three overlapping but distinct types of Conservation programs will be used to achieve the Conservation targets: Resource Acquisition (through subsidies), Capability Building and Market Transformation. Resource Acquisition refers to the procurement of energy and/or demand savings. These savings are encouraged through such tools as payments to customers for demand management, customer incentives for energy efficient building retrofits and new construction upgrades. Capability Building includes the development of skills and knowledge necessary to deliver effective Conservation programs and training and educating customers about the opportunity, need and ways to conserve. Market Transformation refers to achieving a substantial and sustainable increase in the market share of energy efficient technologies, buildings and production processes.

All three types of programs are used in the short and long-term. However, it is expected that Resource Acquisition programs will make the most significant contribution to meeting the 2010 target. In the longer term, the expectation is that the Conservation goals will continue to be met through the investment in Capability Building and Market Transformation and that there will be less need for Resource Acquisition programs.

The OPA Resource Acquisition plans for the period 2008 to 2010 are to achieve 620 MW of energy efficiency savings, 390 MW of demand response over peak period, 150 MW of customer-based generation, and to encourage customers to switch 70 MW of their electricity demand to other fuel. This Resource Acquisition plan is expected to contribute 1,230 MW along with 176 MW from the smart meter program towards meeting the 2010 target.

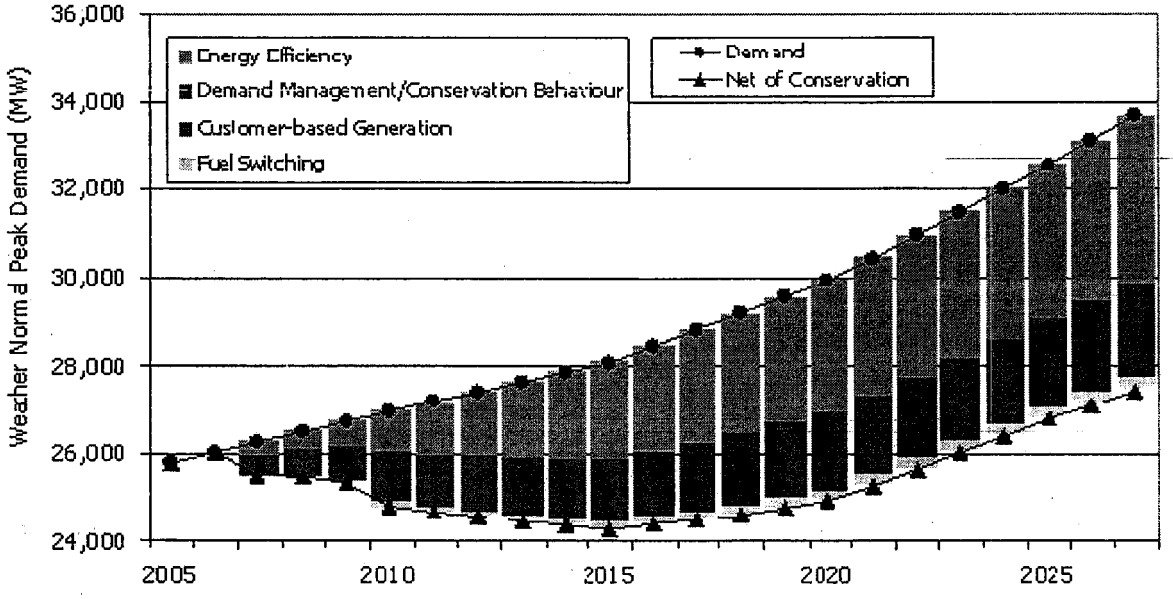
All of the OPA's Conservation Resource Acquisition plans during the first three years of the IPSP will be carried out in accordance with existing Directives from the Minister of Energy, listed in Attachment 1 to this exhibit. In accordance with the OEB's Guidelines[1], OEB approval of the economic prudence and cost effectiveness of the 2008 to 2010 Resource Acquisitions is not required as these resources will be acquired, under the authority of previously issued Ministerial Directives.

Q. What is the contribution of Conservation to meeting the resource needs of the province?

A. The contribution of Conservation to meeting customers' future peak demand and energy requirements is significant. Both peak demand and energy consumption are lower beginning in 2010 than in 2007 and continue toward the end of the forecast period as illustrated in Figure 1 and Figure 2.

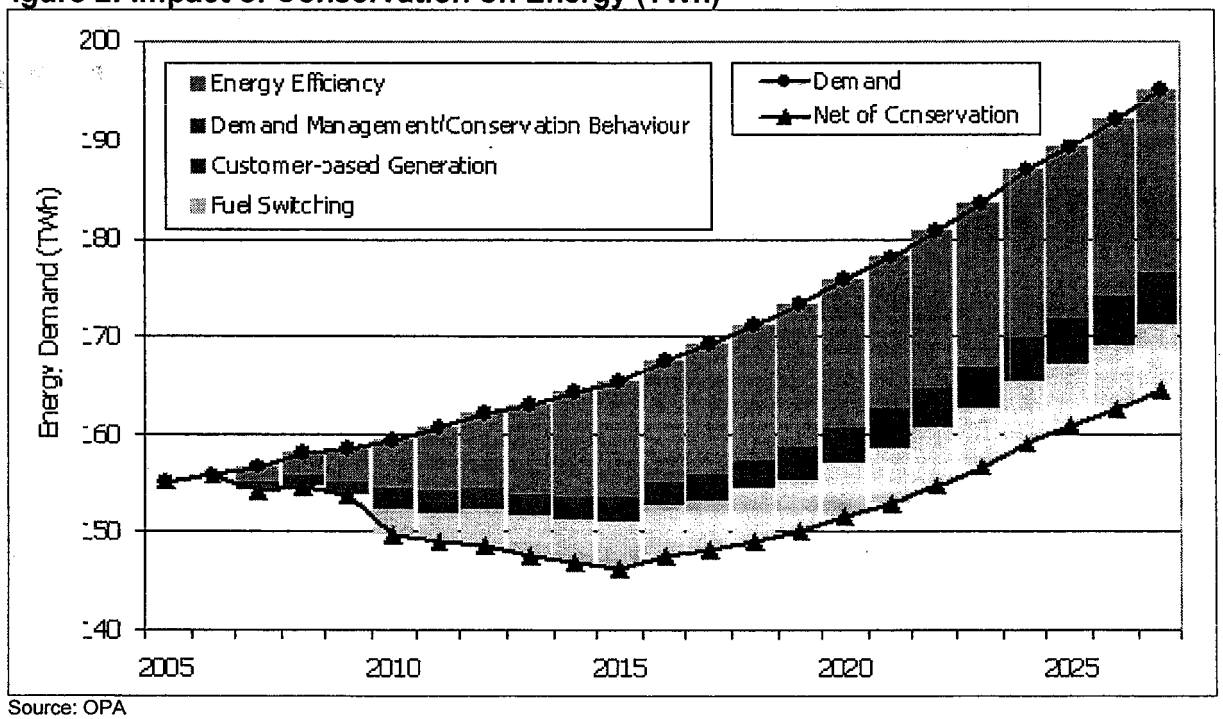
[1] *OEB IPSP Guidelines*, p. 9.

Figure 1: Impact of Conservation on Peak Demand (MW)



Source: OPA

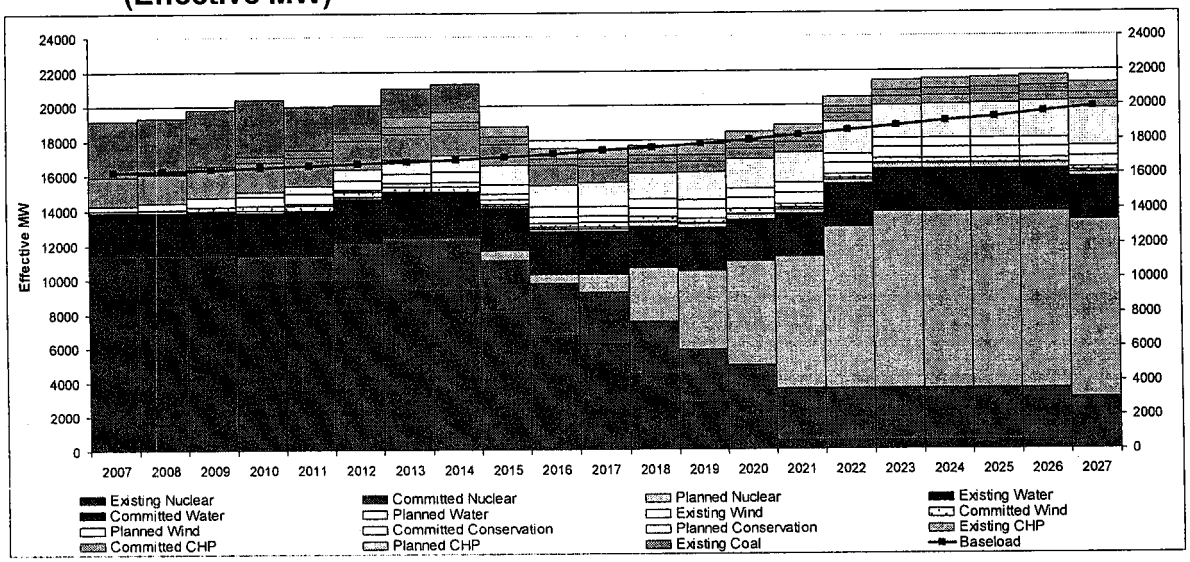
Figure 2: Impact of Conservation on Energy (TWh)



Source: OPA

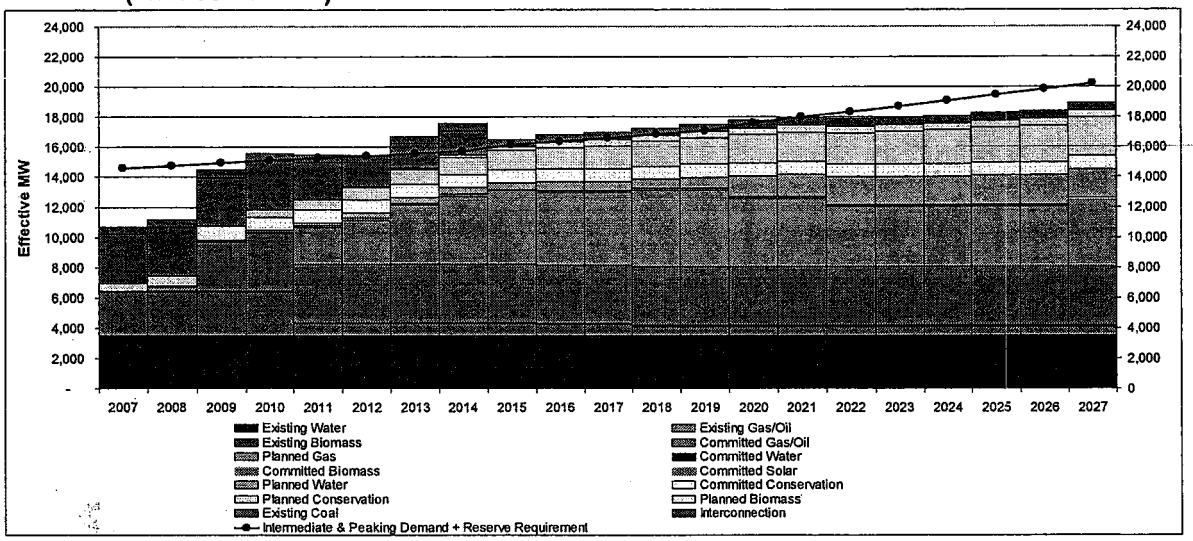
The contribution of Conservation to meeting future baseload and peak and intermediate load requirements over the planning period is illustrated in Figure 3 and Figure 4. This subject is discussed further in Exhibit D-3-1, Section 4.0. In addition to Conservation, these figures also show existing and committed Conservation and supply resources and renewable supply planned to meet future peak demand requirements.

Figure 3: Existing Committed and Planned Baseload Resources by Type (Effective MW)



Source: OPA

Figure 4: Existing Committed and Planned Intermediate/Peaking Resources by Type (Effective MW)



Source: OPA

With respect to specific resource decisions, the IPSP planning process assumes that the most cost effective Conservation resource will be developed before committing to an alternative supply resource. The timing of decisions regarding the choice between Conservation and alternative supply resources will have to be made based on the lead times required for the resources considered. The IPSP has adopted sufficient flexibility to allow major Resource Acquisition decisions to be made after experience has been gained from the 2008 to 2010 Conservation programs.

Q. What steps did the OPA use to develop the Conservation portion of the IPSP?

A. Developing the Conservation portion of the IPSP involved three steps. The first step was to identify opportunities to achieve the Conservation requirements in the Directive. The second step was to allocate these opportunities according to their contribution towards baseload, intermediate and peaking requirements. The third step was to develop programs to achieve the targeted Conservation requirements.

These steps help in fully integrating Conservation into the IPSP. The first step allows Conservation and the load forecast to be aligned. The second step allows a meaningful

comparison with supply side options to meet demand requirements. The third step is to develop Conservation category related programs that will evolve over time to have greater net benefit as determined by the Total Resource Cost ("TRC") test.

Step 1: Identifying the Opportunities

The purpose of this step is to identify opportunities to achieve the Conservation requirements in the Directive. The OPA used a variety of approaches in estimating the Conservation potential in each category. For energy efficiency and fuel switching the OPA relied on the Canadian Integrated Modeling System ("CIMS") and Marbek Demand Side Management ("DSM") tools. For demand management the OPA relied on its own experience in acquiring demand response and on an estimate of the contribution of smart meters based on a recently completed study[2]. The OPA also used the results from the Clean Energy Standard Offer Program ("CESOP"), Renewable Energy Standard Offer Program ("RESOP"), Combined Heat and Power ("CHP") and Net Metering to estimate the customer-based generation and cogeneration potential that would meet the requirements of the Directive.

These approaches to estimating Conservation potential were described in detail in the OPA September 2006 discussion paper and later revised in December 2006[3]. The stakeholders at that time indicated that the potential study results represented a reasonable basis on which to proceed in implementing Conservation programs. Consequently, it was recommended that no further effort be expended in refining the Conservation potential estimate. Instead, effort should be focused on the delivery of Conservation programs. The OPA agrees with the approach of learning by doing as opposed to refining models. However, the OPA did update the industrial sector estimates to better reflect information gathered during specific market scans[4] and

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[2] Navigant Consulting Ltd., Overview of the Portfolio Screening Model, December 2005. See Attachment 5 to this exhibit.
[3] See Exhibits C-7-1 and C-7-2.
[4] See Attachments 7, 8, 9, 10 and 11 to this exhibit.

updated customer-based generation potential to account for information gathered as a result of the CESOP, RESOP and CHP.

Energy Efficiency

The OPA has identified energy efficiency as the largest single opportunity to achieve Conservation, accounting for approximately 65% of expected savings. To estimate the achievable energy efficiency savings potential, the OPA built on a 2005 study commissioned by the Council of Energy Ministers Demand Side Management Working Group (The National Study), which was completed jointly by Marbek Resource Consultants Ltd. ("Marbek"), and M.K. Jaccard and Associates ("MKJA"). The analysis was conducted using the CIMS model, supported by Marbek tools and databases. In developing the potential estimate for energy efficiency, CIMS relied on policy tools that included the use of available technology, marginal price, carbon tax and land use.

While the study examined several scenarios to estimate energy efficiency potential, the OPA used the aggressive scenario developed by MKJA[5] to identify the relative contribution of market segments to achieve energy efficiency. The results are shown in Table 1 for energy savings and Table 2 for corresponding peak demand reductions.

The OPA further refined the MKJA energy efficiency estimates for the industrial sector. There are known features in the CIMS model that may contribute to a low energy efficiency potential result for this sector. Specifically, the model is designed to simulate changing technologies, but it does not adequately capture the additional energy savings effect of changes in processes and operating procedures that may accompany the introduction of the new technology. Stakeholders had also expressed this concern in their comments. The OPA used a subsequent market scan[6] of the industrial sector for estimating its energy efficiency potential and revised the estimate accordingly.

[5] See Attachment 6 to this exhibit.
[6] See Attachment 8 to this exhibit.

Table 1: Energy Efficiency Identified Energy Savings Potential (TWh)[7]

Sector	2010	2015	2020	2025
Residential	1.31	5.03	5.31	6.06
Commercial	1.38	6.50	9.39	11.14
Industrial	0.79	4.76	6.52	7.48
Total	**3.49**	**16.29**	**21.22**	**24.68**

Source: MKJA, OPA

Table 2: Energy Efficiency Identified Peak Demand Reduction Potential (MW)[7]

Sector	2010	2015	2020	2025
Residential	219	805	983	1,078
Commercial	298	1,676	2,398	2,901
Industrial	106	631	878	1,033
Total	**620**	**3,110**	**4,260**	**5,010**

Source: MKJA, OPA
Note: Totals have been rounded to nearest 10 MW.

These results show that the greatest energy savings can be found in the commercial sector, in the medium and long run. Similarly, the greatest potential for reduction in peak demand is found in the commercial sector, which accounts for about 50% to 60% of peak demand reduction opportunity over this time period.

In terms of energy demand, residential and commercial/institutional lighting and industrial machine drives are forecast to be major individual contributors at 33% and 17%, respectively, of 2025 savings. In terms of peak demand, space cooling (residential and commercial/institutional) plays a prominent role, accounting for 42% of forecasted savings in 2025. Fans and ventilation add another 11%. Commercial/institutional lighting is forecast to contribute 18% while industrial motors lend another 10% to savings. The detailed information can be found in Attachment 4, Table 9, of this exhibit.

Of the combined short term OPA Resource Acquisition programs, less than 50% are made up of energy efficiency to meet the 1350 MW 2010 target as shown in Table 2 above. Energy efficiency will continue to be a major contributor to meeting the long

[7] Annual numbers are shown in Attachment 4, Section 2, Tables 1 and 2.

term targets. It is planned that approximately 65% of the 2025 Conservation peak demand target will be met by energy efficiency.

Demand Management/ Conservation Behaviour

Demand Management/Conservation behaviour is the second largest contributor to both the short term and long term targets, making up approximately 20% of the contribution.

Demand Response is a mechanism to enable customer demand to play a role in meeting the real-time and long-term supply needs of Ontario's electricity system. Demand response is managed through a contract for meeting the real-time reliability and long-term supply adequacy needs. The OPA has assumed that time-differentiated and real-time pricing, as well as paying customers to reduce their load, are mechanisms that underlie the demand response potential estimate.

Demand management opportunities are particularly attractive because of their flexibility and ease of implementation. Essentially, for demand management, customers are financially incented to reduce or shift their peak demand.

To estimate demand response the OPA relied on its own recent experience as well as the previous study[2] that examined the smart meter issue. This experience has shown that there is significant demand response potential available in the near term. Industrial and large commercial customers respond to financial incentives in commercial contracts.

The estimates of energy savings and demand reductions from Conservation behaviour are directly related to customer actions and attitudes towards electricity use. Customer actions and attitudes are influenced by general education and information programs primarily aimed at residential and small volume customers. It is difficult to estimate energy savings and demand reduction opportunities that can be directly attributed to this Conservation category. However, these programs do contribute to creating an environment where other more discrete programs may be more effective because the market for them has been primed.

The OPA has assumed that the direct energy and demand saving opportunities from general education and information programming is relatively small, while recognizing these programs affect the savings in other Conservation categories. Consequently, the OPA has not assigned any incremental estimate of peak demand reduction that is attributable to Conservation behaviour.

Table 3 and Table 4 summarize the identified potential for demand management in Ontario.

Table 3: Demand Management Identified Energy Savings (TWh)

2010	2015	2020	2025
0.06	0.13	0.16	0.19

Source: OPA

Table 4: Demand Management Identified Peak Demand Reduction (MW)

2010	2015	2020	2025
570	1,220	1,490	1,640

Source: OPA

Fuel Switching

The OPA commissioned a study[8] that examined the fuel substitution potential in industrial, agricultural and commercial/institutional sectors. The fuel substitution measures represent technologies that can assist in displacing electricity consumption through the use of an alternative energy source. The TRC test was used to select fuel substitution measure candidates to be included in the fuel switching potential. The potential represents the level of electricity consumption savings that would occur if all candidate options that pass the TRC test are considered.

The end-uses that contribute to summer energy and demand reduction include: cooling/chillers, water heating, cooking, and clothes drying. Accordingly, the

[8] Marbek Resource Consultants Ltd., in association with ALTECH Environmental Consulting "Potential for Fuel Switching to Reduce Ontario's Peak Electricity Demand". See Attachments 12 and 13 of this exhibit.

commercial availability of small scale (<500 kW) turbines that are cost effective at current generation prices appears limited. Consequently, the OPA estimates that only a very small amount of customer-based wind generation is likely to materialize during the 20 year planning period.

The OPA recognizes the potential for fuel cells as an energy conversion technology, with the possibility of significant technological and economic improvements occurring during the planning period. The OPA's analysis indicates that fuel cells are likely to be used as small-scale, customer-owned facilities that contribute to Conservation. In general, OPA's approach to emerging technologies is to anticipate but not explicitly forecast patterns of adoption. The OPA has not included fuel cells in the estimated customer-based generation potential for this reason. Should favourable technological and economic developments occur, they will be reflected in the next update of the IPSP.

In estimating the potential for customer-based generation, the OPA is also relying on information gathered as a result of the CESOP, RESOP and CHP programs. Table 6 and Table 7 show the identified potential for customer-based generation for use in the IPSP.

Table 6: Identified Customer-based Generation Peak Demand Reduction Potential (MW)[10]

Technology	2010	2015	2020	2025
Co-generation	140	228	313	386
Bio-energy	5	45	180	299
Wind	1	4	15	26
Solar	2	19	76	126
Total	**150**	**300**	**580**	**840**

Source: OPA
Note: Totals have been rounded to nearest 10 MW.

[10] Figures presented in Table 6 and Table 7 include CESOP projects less than or equal to 10 MW and RESOP programs less than or equal to 500 kW.

contribution of fuel switching to peak demand reduction is small, as shown in Table 5. However, its contribution to energy savings is significant, with up to 8 TWh of savings potential in 2025. Table 5 provides the identified capacity (MW) and identified consumption (TWh) savings potential for each milestone year.

Table 5: Fuel Switching Identified Potential Energy Savings and Peak Demand Reduction (TWh & MW)

	2010	2015	2020	2025
Summer TWh	0.2	0.7	1.0	1.2
Off Summer TWh	2.2	6.3	7.4	8.3
Demand during system peak MW	70	240	330	410

Source: OPA

Customer-based generation

Current developments in regulatory and government policy encourage small customers to install onsite systems to provide all or a portion of their electricity needs. Promising technologies for the production of electricity including photovoltaic, bio-energy, wind turbines, fuel cells and microturbines. All offer residential, commercial and industrial applications opportunities that can contribute to meeting Ontario's Conservation target for 2025.

At the present time, there appears to be limited development of photovoltaic systems in Ontario. Given the significant capital expense of installing photovoltaic systems, the OPA estimates that most customer-based development will be in the 1 kW to 2 kW range, predominantly in the residential market. The OPA also assumes that the penetration of this technology will be slow initially but will increase in the longer term.

The estimate of potential customer-based generation from municipal, agricultural, forestry and bio-energy was based on an internal assessment[9]. For wind, the OPA estimates that the lowest cost per kWh projects are likely to be in the 10 MW and above category because of significant economies of scale for most wind machines. Further,

[9] See exhibit D-5-1, Attachment 5.

Table 7: Identified Customer-based Generation Energy Savings Potential (TWh)

	2010	2015	2020	2025
Co-generation	0.8	1.4	1.9	2.4
Bio-energy	0	0.4	1.6	2.6
Wind	0	0.1	0.2	0.3
Solar	0	0	0.2	0.3
Total	**0.8**	**1.9**	**3.9**	**5.6**

Source: OPA

Table 8 and Table 9 summarize identified potential for all Conservation categories.

Table 8: Identified Peak Demand Reduction (2008-2025) MW

Peak Savings (MW)	2010	2015	2020	2025
Energy Efficiency	620	3,110	4,260	5,010
Fuel Switching	70	240	330	410
Customer-based Generation	150	300	580	840
Demand Management/Conservation Behaviour	570	1,220	1,490	1,640
Total	**1,410**	**4,860**	**6,660**	**7,900**

Source: OPA
Note: Totals have been rounded to nearest 10 MW

Table 9: Identified Energy Savings (2008-2025) TWh

Energy Savings (TWh)	2010	2015	2020	2025
Energy Efficiency	3.5	16.3	21.3	24.7
Fuel Switching	2.4	7.0	8.4	9.5
Summer	0.2	0.7	1.0	1.2
Off-Summer	2.2	6.3	7.4	8.3
Customer-based Generation	0.8	1.9	3.9	5.6
Demand Management/Conservation Behaviour	0.1	0.1	0.2	0.2
Total Energy Savings	**6.9**	**25.4**	**33.6**	**39.9**

Source: OPA

The relative contribution of all identified Conservation resources to meeting the Directive target is set out in Table 10 and Table 11. The selection of Conservation resources was based on discounting the identified potential as discussed above to account for uncertainty regarding assumptions over the 20 year plan period. While the OPA will strive to maximize Conservation resources, the approximate 65% of the identified potential in each of the Conservation categories provided the necessary resources to meet the 2025 target.

Table 10: Proposed Peak Demand Reduction (2008-2025) MW[11]

Peak Demand Reduction (MW)	2010	2015	2020	2025
Energy Efficiency	623	1,938	2,694	3,189
Fuel Switching	70	156	215	268
Customer-based Generation	148	188	377	544
Demand Management/Conservation Behaviour	566	769	925	1,004
Total Peak Demand Reduction	**1,410**	**3,050**	**4,210**	**5,000**

Source: OPA
Note: Totals have been rounded to nearest 10 MW.

Table 11: Proposed Energy Savings (2008-2025) TWh[11]

Energy Savings (TWh)	2010	2015	2020	2025
Energy Efficiency	3.5	10.1	13.4	15.7
Fuel Switching	2.4	4.7	5.5	6.2
Summer	0.2	0.5	0.6	0.8
Off-Summer	2.2	4.2	4.9	5.5
Customer-based Generation	1.0	1.2	2.5	3.6
Demand Management/Conservation Behaviour	0.1	0.1	0.1	0.1
Total Energy Savings	**6.9**	**16.1**	**21.5**	**25.6**

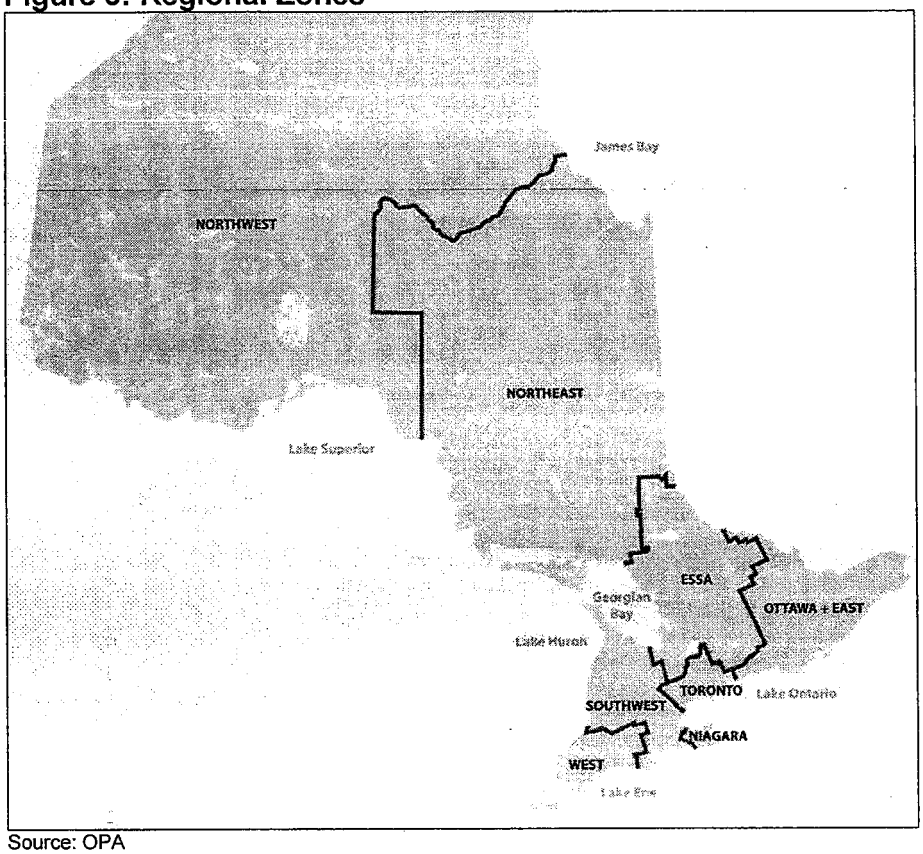
Source: OPA

Regional Conservation Opportunities

In order to integrate Conservation into local transmission and supply planning, it was necessary to allocate the 2025 provincial target to the regional level. Consequently, the OPA disaggregated the provincial Conservation opportunities by dividing the province into nine[12] geographical zones. These zones correspond to the electrical zones delineated by the IESO and are illustrated in Figure 5. Each zone was ascribed a share of the provincial load forecast based on population, commercial employment and floor space, growth rates of industrial sub-sectors and an adjustment for climate differences. The total share of the load forecast was determined by first establishing the appropriate residential, commercial and industrial load forecast shares for each zone.

[11] Annual numbers are shown Attachment 4, Section 3, Tables 3 and 4.
[12] Bruce region is included in the Southwest Zone.

Figure 5: Regional Zones



Source: OPA

These same shares were used to disaggregate the Conservation estimates by category. For each zone, the sectoral share of the load forecast was taken as the sectoral share for each Conservation category.[13] For example, if the Northwest was ascribed a certain percentage of the provincial residential load forecast, it would be ascribed the same percentage of the residential energy efficiency savings. The sectoral shares for each category for each zone were then aggregated to provide an overall zonal share for each category. The regional Conservation results are given in Table 12 and Table 13.

[13] For some Conservation categories, savings are assumed to occur only in certain sectors. For instance, all demand response savings are assumed to occur in the industrial sector.

Table 12: Proposed Regional Conservation Estimates (2008-2025) – Peak Demand Reduction (MW)[14]

Conservation Savings:				
Peak (MW)	**2010**	**2015**	**2020**	**2025**
Northwest	64	115	149	169
West	161	334	456	545
Northeast	91	162	208	229
Essa	96	193	265	318
Ottawa	97	230	318	370
East	83	168	227	266
GTA	478	1,133	1,597	1,915
Niagara	41	88	119	139
Southwest	296	628	872	1,055
Ontario	**1,410**	**3,050**	**4,210**	**5,000**

Source: OPA
Note: Totals have been rounded to nearest 10 MW.

Table 13: Proposed Regional Conservation Estimates (2008-2025) – Energy Savings (TWh)[14]

Energy (TWh)	**2010**	**2015**	**2020**	**2025**
Northwest	0.2	0.6	0.9	1.0
West	0.7	1.6	2.1	2.5
Northeast	0.6	1.2	1.6	1.8
Essa	0.5	1.1	1.4	1.8
Ottawa	0.6	1.3	1.7	2.0
East	0.4	0.9	1.2	1.4
GTA	2.5	5.8	7.6	9.0
Niagara	0.2	0.5	0.6	0.7
Southwest	1.3	3.2	4.4	5.3
Ontario	**6.9**	**16.1**	**21.5**	**25.6**

Source: OPA
Note: Totals have been rounded to nearest 10 MW.

Conservation savings are concentrated in the GTA and Southwest zones, which together account for 60% of total provincial peak savings in 2025. The opportunities for savings are greatest in these areas as these zones are forecast to experience the highest growth over the study period. By 2025, Conservation is able to supply 56% and 80% of new peak demand in the GTA and Southwest zones, respectively. In the West and Niagara zones, Conservation contributes to a lower peak in 2025 than in 2007.

[14] Annual numbers are shown in Attachment 4, Section 4, Tables 5 and 6.

Table 14: Allocation of Conservation Categories – Peak Demand Reduction[16] MW (2008-2025)[17]

Operating Characteristics	Conservation Category Type	MW Reduction			
		2010	2015	2020	2025
Base Load[18]	- Some energy efficiency (e.g., lighting, refrigeration, water heating) - Some fuel switching (e.g., water heating) - Customer-based generation (wind, biomass) - Conservation (raise temperature for cooling)	550	1,392	1,942	2,303
Intermediate Load[19]	- Load Shifting Demand Response - Smart Meters	334	448	575	603
Peaking Demand[20]	- Customer-based solar generation during peak periods - Some energy efficiency (e.g., cooling) - Some fuel switching (associated with cooling) - Load Shedding Demand Response	524	1,210	1,695	2,100
Total MW		**1,410**	**3,050**	**4,210**	**5,000**

Source: OPA
Note: Totals have been rounded to nearest 10 MW.

Table 15: Allocation of Conservation Categories – Energy Savings TWh (2008-2025)[17]

Operating Characteristics	Conservation Category Type	TWh Energy Savings			
		2010	2015	2020	2025
Base Load[18]	- Some energy efficiency (e.g., lighting, refrigeration, water heating) - Some fuel switching (e.g., associated with water heating) - Co-generation - Some renewable (wind, biomass) - Conservation	4.5	11.3	15.2	18.0
Intermediate Load[19]	- Solar - Load Shifting Demand Response - Smart Meters	0.01	0.03	0.1	0.2
Peaking Demand[20]	- Some energy efficiency (e.g., cooling) - Some fuel switching (associated with cooling) - Load Shedding Demand Response	2.3	4.7	6.1	7.4
Total TWh		**6.9**	**16.1**	**21.5**	**25.6**

Source: OPA

[16] The demand reduction to 2007 is additive to these numbers.
[17] Annual numbers are shown in Attachment 4, Section 5, Tables 7 and 8.
[18] Required 72% of the time or more. End-uses that have savings available throughout the year.
[19] Difference between base load and peaking demand. End-uses with savings available between 14% and 72% of the year.
[20] Required less than 14% of the time or less. End-uses with savings that are only available during peak periods of demand.

The four Conservation categories represent opportunities to reduce a customer's need for electricity. To use the opportunities for Conservation categories for planning purposes, it is necessary to relate them to the three main system load types, namely: base-load, intermediate and peaking[15]. This is described in Step 2.

Step 2 - Allocate capacity by reference to its contribution towards baseload, intermediate and peak requirements

Baseload, intermediate and peak loads are served by different types of resources as defined and discussed in Exhibit D-3-1, Section 4.0. By relating Conservation opportunities to load types, the OPA is able to compare Conservation resources to supply resources and to develop avoided cost estimates for use in the TRC test.

This step was conducted in two stages. First, the operating characteristics, as defined by end-use load shape, of the Conservation categories were mapped to their ability to meet baseload, intermediate and peaking needs. Second, the Conservation target was allocated among the three load types. The peak reduction results are illustrated in Table 14 and the corresponding energy savings are shown in Table 15.

[15] For base load, intermediate and peaking needs please refer to Exhibit D 3-1.

With completion of Step 2, the opportunities identified by the various models and assessments have been transformed into potential contributions to meeting baseload, intermediate and peaking requirements for integration with supply resources. The next step is to develop programs to both act upon these opportunities and to gain experience and information in program planning, delivery and evaluation. The development of programs is described in Step 3.

Step 3 – Program Development

As noted, the OPA has adopted three program approaches to Conservation. These are Resource Acquisition, Capability Building and Market Transformation.

Resource Acquisition refers to the procurement of energy and/or demand savings. These savings are encouraged through such tools as payments to customers for demand management, customer incentives for energy efficient building retrofits and new construction upgrades. These initiatives are typically supported by marketing and information programs. Resource Acquisition is the most flexible of the program options in that the level of customer subsidy and education can be adjusted to influence actions by customers. However, it is also the most expensive approach to Conservation in terms of direct ratepayer investment. It may be the least sustainable because it requires continual intervention.

Capability Building refers to the development of skills and knowledge necessary to deliver effective Conservation programs. The OPA's experience in procuring Conservation is that there is not an adequate supply of service providers to deliver the programs. The OPA believes that by increasing the "supply" of service providers (i.e., the number and proficiency of the service providers) will lead to increased competition among suppliers, lower costs, more innovation and greater Conservation offered to customers, in order to support achievement of targets in the long term. Capability Building also provides the technology and information that enable customers to manage their electricity consumption. The OPA views Capability Building as an essential approach in achieving the long-term Conservation goals. However, Capability

Building takes time and is therefore unlikely to produce significant results in the short term. In addition, it is very difficult at this time to prove a causal relationship between Capability Building efforts and Conservation results. Further analysis of the data in this regard will be made possible through experience with these programs, as assessed through Evaluation, Measurement and Verification ("EM&V") and other research.

Market Transformation is about achieving a substantial and sustainable increase in the market share of energy efficient technologies, buildings and production processes. The primary focus of Market Transformation programs is to remove barriers to the adoption of energy efficient products and behaviours. Market Transformation has been achieved when the effects continue without further intervention.

All three program types contribute to achieving the Conservation targets. The OPA will balance the need for these different program types in a manner that achieves or exceeds the Conservation targets over the course of the IPSP term.

With respect to achieving the 2010 target, there is a relatively large contribution from Resource Acquisition programs. The specific programs used to achieve the goals will change from time to time as new opportunities present themselves.

In developing the portfolio, the OPA relied on research, market experience both in Ontario and other jurisdictions, and also engaged in a consultative process with key stakeholders. The Conservation Business Stakeholder Advisory Group ("CBSAG") was formed with representatives of customer groups, environmental groups, key interveners and academia. The CBSAG reviewed the portfolio and made recommendations on the mix of programs, the execution of programs and also on the prioritization of programs. The CBSAG feedback confirmed the need to focus on the target and deliver programs that have a high certainty of delivering demand reduction. Additionally, stakeholder feedback was received relating to the need to enhance program effectiveness by using different channels and broadening the offerings to include such elements as financing. CBSAG feedback also acknowledged the need to retain emphasis on hard to reach

customers. The OPA has considered this significant stakeholder advice in developing the program portfolio.

Table 16, Table 17, Table 18 and Table 19 break out the Resource Acquisition programs that are "in market" and planned for delivery in 2008 to 2010 to mass market, commercial/institutional, industrial customer and customer-based generation.

The OPA will, over the course of the Plan, refine and enhance the programs and delivery methods, introduce new programs and remove programs in response to market conditions, and EM&V results, so as to ensure the target is met.

Mass Market Programs

Mass market programs target residential and small commercial (<50 kW) customers. These programs/campaigns are typically delivered or advertised through mass media, LDCs and large retail channels.

Table 16 summarizes the Mass Market Programs that will be active by the end of 2007 and will deliver results in the 2008 to 2010 period.

For development in 2008, the OPA is considering the addition of further home retrofit programs and is also exploring a community engagement model to extend the delivery reach (i.e., by engaging community based organizations). For example the delivery capability of Project Porchlight, which uses church groups, schools and other local institutions, will be enhanced.

Table 16: Mass Market Programs: 2008 - 2010

Sector	Program	Description	Directive
Residential New Construction	New Construction	Program to be developed for introduction in 2008. The purpose of the program will be to improve the efficiency of the new single family and townhouse stock.	Oct. 20, 2005 March 10, 2006 July 13, 2006
Residential Existing Buildings Retrofit	Hot/Cool Savings	Capability Building and Resource Acquisition program aimed at reducing electricity use associated with residential heating and cooling. The primary delivery channel for the program is the Heating, Refrigeration and Air Conditioning Institute ("HRAI") of Canada. Leveraging local heating/cooling contractors' interaction with homeowners, the program provides education and incentives to encourage homeowners to: maintain (tune-up) existing central air conditioning ("CAC") systems; replace older inefficient CAC systems with ENERGYSTAR qualified systems; install programmable thermostats on their HVAC systems; and replace inefficient furnace motors with high efficiency variable speed Electronically Commutated Motors ("ECM").	March 10, 2006
Residential Existing Buildings Retrofit	Every Kilowatt Counts	Province-wide program to procure energy savings through education and incentives and build energy customers' capability to manage electricity consumption. Households are provided with energy Conservation information and coupons for discounts on energy saving products, redeemable at participating retailers. This program will be delivered by the OPA with LDC support.	Oct. 20, 2005 March 10, 2006 July 13, 2006
Residential Existing Buildings Retrofit	Appliance Retirement	Program removes old inefficient appliances (refrigerators, freezers, room a/c) from service and recycles them in an environmentally responsible fashion. The value proposition to the customer is an awareness of the wasted money and energy associated with old appliances, the impact of efficient appliances, the turn-key removal from the home of the aged appliance, and the knowledge that the appliance will be recycled properly. This program is being delivered by the OPA with LDC support.	Oct. 20, 2005 July 13, 2006
Residential Existing Buildings Retrofit	LDC Custom Programs	This program will allow LDCs to submit program proposals that they design in response to their understanding of the local needs of the market. It will allow LDCs to customize programs to their strengths. Programs will be required to comply with a set of design and performance criteria	July 13, 2006
Residential Existing Buildings Retrofit	LDC Standard Programs	A suite of standard programs for delivery by LDC's across the province has been developed in 2007. These programs include the Appliance Retirement program, Peaksaver and the Electricity Retrofit Incentive Program outlined in these tables. Additionally, the OPA will engage with LDC's and other stakeholders to develop additional standard programs for delivery by LDC's.	July 13, 2006

Sector	Program	Description	Directive
Residential Existing Buildings Retrofit	Community Engagement	A program that will explore the use of community based agencies and organizations as delivery channels to deliver education and efficiency measures to mass market customers.	Oct. 20, 2005
Residential Existing Buildings Retrofit	New Appliance	A retail based program, building on the learnings of the Appliance Retirement Program aimed at improving the efficiency of electric appliances and support the introduction of new appliance standards.	Oct. 20, 2005
Low Income and Aboriginal	Aboriginal Program	Program has an awareness and education component focusing on low-cost initiatives, as well as an energy audit component. The program aims to reduce electricity consumption through energy efficiency and fuel switching and to help ensure that the various aboriginal communities have the tools and knowledge to participate in the Culture of Conservation.	Oct. 6, 2005
Low Income and Aboriginal	Single Family Low Income Housing	Program assists income-qualified households to manage their electricity use and reduce their energy burden through the provision of electric energy efficiency and fuel switching measures such as lighting and insulation at no cost. The Program works cooperatively with social benefits agencies to identify program participants and provide energy efficient measures, including fuel switching, and education.	Oct. 6, 2005
Residential Demand Response	Demand Response (Peak Saver)	A demand management program that involves installing control devices on residential and small commercial air conditioning units to allow for aggregated control of these devices during the summer peak period. The infrastructure includes load control devices installed at the residence or small business, and a central control application which issues broadcast paging signals to the load control devices. The program will be administered by LDCs. Customers will receive a financial incentive for enrolling in the program.	July 13, 2006

Source: OPA

Commercial/Institutional Markets

Commercial/Institutional market programs target all commercial, multi-family, institutional and agricultural customers. These customers are large enough to be communicated with directly or through various industry associations (e.g., Building Owners and Managers Association).

Table 17 summarizes the commercial/Institutional market programs that will be active by the end of 2007 and will deliver results in the 2008 to 2010 period.

The OPA will expand the offerings in the institutional market during 2008.

Table 17: Commercial/Institutional Market Programs: 2008 - 2010

Sector	Program	Description	Directive
Commercial / Institutional New Construction	High Performance Commercial New Construction	Program provides assistance to incorporate Conservation measures into the design, construction, and operation of new and substantially renovated buildings. Buildings are intended to exceed the Model National Energy Code for Buildings ("MNECB") with graduated incentive levels for higher performance. Program highlights 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.	March 10, 2006 June 13, 2006
Commercial Existing Building Retrofit	Electricity Retrofit Incentive Program	Encourages commercial, industrial and institutional energy users to undertake energy efficiency retrofit projects, including the upgrade of lighting, HVAC, and electric motors. The program consists of two elements, to which specific financial incentives will apply: 1) a prescriptive series of pre-defined measures; and 2) custom project applications. This program is administered by local electricity distribution companies.	July 13, 2006 June 13, 2006
Commercial Existing Building Retrofit	Commercial Direct Install Program	A turn-key retrofit program including a pre-defined set of energy efficiency measures focusing on more efficient lighting and HVAC equipment targeting the small commercial sector, below 50kW average monthly demand. This program reaches 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.	July 13, 2006 June 13, 2006
Commercial Existing Building Retrofit	Large Commercial Buildings Program	Promotes retrofits in large (>25,000 square feet) commercial, institutional and multi-family buildings in the City of Toronto. Authorized under the 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.	June 15, 2005 Feb 10, 2006 March 10, 2006 June 13, 2006
Commercial Existing Building Retrofit	Agricultural Energy Efficiency Program	Sector-specific campaign to facilitate awareness and implement energy efficiency in dairy, swine, poultry and greenhouse operations. Includes addition of agriculture-specific technologies to the Business Incentive Plan, augmentation of the EKC campaign material and training network with an agricultural component.	June 13, 2006

Sector	Program	Description	Directive
Commercial Existing Building Retrofit	Multi Family Buildings Program	A program addressing building retrofits to improve energy efficiency and implement fuel switching in multi-family buildings combined with education initiatives directed at tenants and building operators. The program features separate design elements for Socially Assisted Housing.	October 6, 2005
Commercial Existing Building Retrofit	Fuel Switching	Program aims to acquire fuel switching resources that contribute to coincident peak demand reduction, primarily in the commercial sector.	March 10, 2006
Commercial Existing Building Retrofit	Building Recommis-sioning	A program targeted at building operators. The program will encourage a thorough review of the operating characteristics of large buildings, properly calibrate equipment and encourage maintenance of the optimal equipment use and setup.	March 10, 2006
Commercial Existing Building Retrofit	Institutional Program	A program that addresses the unique needs of the institutional markets. The program will build upon the work done by various organizations focused on segments of the institutional market that have been partly funded by the Conservation Fund	March 10, 2006

Source: OPA

Industrial Markets

Industrial market programs target industrial customers. The emphasis in industrial markets is not only on improving technology and industrial process efficiency, but also in developing energy management knowledge, expertise and acceptance at all levels of the organization, and building expertise in the service and supply chains that serve the market.

Industrial markets are also the primary targets for the demand response programs.

Table 18 summarizes the industrial market programs that will be active by the end of 2007 and will deliver results in the 2008 to 2010 period.

For 2008, the OPA is considering adding an additional demand response program. The program will be developed based on the learnings and observed gaps from the first full year of operation of the DR 1, DR 2 and DR 3 programs.

Table 18: Industrial Market Programs: 2008 - 2010

Industrial Programs	Industrial Process and Technology	Suite of programs 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 a later evolution, Business Culture Change will be addressed. This program suite includes operational energy analysis; energy management resource support; monitoring and targeting/sub-metering; procedural/cultural/operating and maintenance improvement; and custom innovation projects.	June 13, 2006
Demand Response	DR 1	A voluntary peak shedding product that targets the highest valued peak hours.	June 15, 2005 February 9, 2006
Demand Response	DR 2	A contractual peak load shifting product for large customers that targets load savings during 1,000 hours of intermediate peak load days.	June 15, 2005 February 9, 2006
Demand Response	DR 3	A high reliability contractual peak load shedding product that targets the 100 to 200 highest value peak hours.	June 15, 2005 February 9, 2006
Demand Response	DR 4	DR4 is a placeholder that will be used to address any gaps that are realized in the existing suite of Demand Response programs.	June 15, 2005 February 9, 2006

Source: OPA

Customer-based Generation Programs

The Directive considers customer-based generation to be an eligible Conservation category. For the purpose of defining Conservation as distinct from supply resources, cogeneration projects of less than or equal to 10 MW, and renewable energy projects of less than or equal to 500 kW are included to align with the Net Metering regulation as well as contributing to the Conservation target.

To foster development of these projects, the OPA has introduced the Standard Offer programs as outlined in Table 19.

Table 19: Customer-based Generation Programs: 2008 – 2010

Customer-based Generation Programs	CESOP	A standard offer procurement program that simplifies the participation in Ontario's electricity supply sector for small clean energy distributed generation.	June 14, 2007
	RESOP	A standard offer procurement program that simplifies the participation in Ontario's electricity supply sector for small renewable energy distributed generation.	March 21, 2006 and June 14, 2007 (Northern Water Initiative)

Source: OPA

In addition to Resource Acquisition programs, Capability Building and Market Transformation programs will also be undertaken. These programs will be carried out in both the short term and the long term. The specific programs that are currently underway or that are contemplated in the next three years are set out below.

With respect to Capability Building, the OPA has identified three priority areas:

- the development and skill enhancement of a variety of program design and delivery agents;
- the development and skill support of EM&V professionals; and
- the development of the customer's ability to understand and incorporate Conservation in their daily lives and businesses.

All of these support the Conservation market place and encourage the development of an adequate supply of qualified human resources.

Program design and delivery agents are essential to achieving the targets for Conservation. While there are already some qualified delivery agents such as LDCs and other organizations, that can deliver Conservation, it is apparent that an increase in the number of delivery agents and EM&V professionals is required. The OPA continues in its current operation to engage new design and delivery agents with the goal of developing a new set of qualified Conservation agents. Early contracts with these agents involve a high degree of OPA oversight. However, as capability develops, the oversight can be reduced. The OPA will engage in segmentation of the design and

delivery agents to better understand which of these can be most effective in reaching target markets. This will allow for more focused programming with higher levels of effectiveness.

All of these efforts focus on facilitating the development of an adequate supply of human resources. As Conservation efforts ramp up and more companies and organizations become involved in Conservation, there will be a significant demand for professionals to design, deliver and evaluate Conservation programs. The OPA believes that the education sector will seize this opportunity to provide the specific skills necessary to supply the demand. The OPA is also evaluating the need for sponsored program development, in partnership with schools and other education/training facilities, to assist in developing the human resources required.

The OPA is developing Market Transformation programs and its early activities are aimed at building design and delivery capability in the market, and the promotion of minimum efficiency standards. While the OPA does not have the authority to change codes and standards, it has an active role in promoting changes to codes and standards. The OPA is relying on codes and standards to deliver energy efficiency that will achieve almost 65% of the 2025 Conservation peak demand reduction target.

Between 2007 and 2010, the OPA activities to achieve equipment standards goals will include:

- the identification of, and justification for, minimum efficiency levels and ensuring OPA's priorities are considered in changing standards. In this regard, the OPA will conduct research regarding best practices in standards development as well as fund the development of standards at the Canadian Standards Association or other appropriate bodies; and
- working with federal and provincial agencies and others to refine and improve data collection, evaluation and reporting of standards related work.

Changing customer behaviour through education is a priority for the OPA in all market sectors. There are multiple ways to change behaviour; however, there is increasing

consensus that traditional top-down information and incentive programs alone may not be very effective. Instead, it is suggested that raising awareness to support permanent Conservation action should be pursued. The OPA currently has some awareness-raising programs in place. The OPA plans to support a school-based education program, aimed at young people, to increase awareness and support changes in Conservation behaviours. The OPA is also undertaking an aggressive Conservation awareness campaign aimed at the residential market. For business markets, the OPA is building initiatives with the goal of integrating Conservation thinking into all levels of organizations. For multi-family buildings, operator and tenant education programs are in development.

The OPA will also work to identify legal and government policy opportunities and barriers to Conservation. These will be addressed in annual reports of the CECO, and, where appropriate, the OPA will propose solutions to these barriers.

Another aspect of Market Transformation is a public leadership program that highlights the efforts of customers who have achieved significant Conservation results as examples for others to follow. Activities include:

- Informing leaders and customers on the benefits of Conservation and options for actions through public speaking; a summer message radio program; and a Conservation radio show as well as the maintenance of a call center;
- Development and maintenance of "Every Kilowatt Counts" as an overarching brand for Conservation;
- Development and maintenance of media and web presence. For example: maintenance of the Consumer and Business Markets website (www.everykilowattcounts.ca); and
- Recognizing customer Conservation success.

Q. What are committed and existing Conservation programs and what is the anticipated peak demand reduction from these programs?

A. The Minister of Energy has issued several Directives that require the OPA to achieve specific Conservation targets. As a result, all of the OPA's Conservation Resource Acquisition during the first three years of the IPSP will be carried out to ensure compliance with these Directives. Therefore, the OEB's review will not consider whether these resources are economically prudent and cost effective. However, the following information is provided for the assistance of the OEB and intervenors.

Through research, market experience and customer and stakeholder consultation, the OPA has developed a portfolio of programs for execution to meet the requirements of these Directives. These are committed programs divided into mass market customers, commercial, institutional and industrial customers and total 1,230 MW of coincident peak demand reduction. In addition, other sources, namely smart meters, will also contribute 176 MW towards meeting the 2010 target. This information is summarized in Table 20 below.

Table 20: Committed Conservation Resources 2008 – 2010

	PROGRAM TARGETS			CONSERVATION CATEGORIES			
Program	**Target (MW)**	**Free Rider Rate (%)**	**Net Demand Reduction (MW)**	**Energy Efficiency (MW)**	**Demand Management (MW)**	**Fuel Switching (MW)**	**Customer-based Generation (MW)**
New Construction Program	45	30	32	32			
Existing Buildings Retrofit	242	30	169	169			
Low Income & Aboriginal	16	30	11	11			
Demand Response	105	30	74		74		
Total Mass Market Programs	**408**	**30**	**286**	**212**	**74**		
New Construction Program	55	30	39	39			
Existing Building Retrofit	492	30	344	274		70	
Socially Assisted Housing	29	30	20	20			
Total Commercial/Institution Market Programs	**576**	**30**	**403**	**333**		**70**	
Industrial Markets							
Industrial Programs	113	30	79	79			
Demand Response Programs	451	30	316		316		
Total Industrial Market Programs	**564**	**30**	**395**	**79**	**316**		
Customer-based Generation							
Customer-based Generation Programs	211	30	**148**				148
Total OPA Resource Acquisition Programs	**1,759**	**30**	**1,231**	**625**	**390**	**70**	**148**
Other Influenced CDM							
Smart Meters	**176**	**0**	**176**				
Total Conservation & Demand Management	**1,940**		**1,410**	**620**	**390**	**70**	**150**

Source: OPA
Note: Totals have been rounded to nearest 10 MW.

In deciding on an appropriate rate to use for free riders and in the absence of Ontario specific electricity research to support the exercise, the OPA considered the approaches used in other jurisdictions. Of note, in Natural Gas Demand Side Management in Ontario, 30% is the free rider rate for custom projects. California adopted a free rider rate of 30% as a default until it created the California Standard Practice Manual. The 30% free rider assumption as a proxy for the baseline is a sufficiently prudent Conservation planning assumption. More specific free rider rates may emerge from research and EM&V results.

Q. Why does the IPSP rely largely on Resource Acquisition programs to meet the 2010 targets?

A. The reliance on Resource Acquisition programs during this period is driven by two practical concerns. First, given the 2010 time frame, there is no feasible alternative to using these types of programs to meet the target – the other types of programs rely on longer term changes in the market place.

Second, in addition to achieving the 2010 targets, the Resource Acquisition programs will provide valuable information on Conservation potential in Ontario. As indicated above, the OPA commissioned modeling work to identify Conservation opportunities at a fairly high level. Given the lack of program experience in Ontario, it is difficult to have a high level of confidence in numbers that derive solely from a model. As a result, it is necessary to "learn by doing" during the 2008 to 2010 period. The information gathered from Resource Acquisition program experience, vetted through EM&V, will confirm the achievement of Conservation goals, enhance the quality of data for use in planning purposes, and inform new and existing program design and development. All of this will contribute to a greater level of confidence in the feasible Conservation potential in Ontario. This confidence will allow the OPA to plan for Conservation to meet specific resource requirements (e.g., the contribution to meeting baseload, intermediate and peaking requirements) and to determine whether it is feasible to plan for achieving Conservation in addition to the goals set out in the Directive.

Third, the emphasis on demand reduction in this period makes use of a proven, verifiable and effective program to reduce peak demand with a short lead time.

Q. How are the Conservation categories distributed across the residential, commercial and industrial sectors in meeting the 1,350 MW goals?

A. The 2010 Conservation reduction target of 1,350 MW will be met primarily through OPA sponsored Resource Acquisition programs[21]. In addition, the OPA will develop Market Transformation and Capability Building plans that are expected to produce results that will contribute to the incremental 2025 Conservation reduction target of 3,600 MW.

The Resource Acquisition programs to achieve the 2010 target are summarized in Table 21 which shows Conservation peak demand reduction among the residential, commercial/institutional and industrial sectors.

Table 21: Committed Conservation Resources (2008 – 2010) – MW

	Energy Efficiency	Demand Management/ Conservation Behaviour	Customer-based generation	Fuel switching	Totals
Residential	219	250[22]	67	50	586
Commercial/ Institutional	298	0	29	10	338
Industrial	106	316	51	10	483
Total	**620**	**570**	**150**	**70**	**1,410**

Source: OPA
Note: Totals have been rounded to nearest 10 MW.

Based on current study results, the OPA has allocated Conservation category estimates for the achievement of the 2025 target into the residential, commercial and industrial sectors as shown in Table 22. The specific characteristics of the Conservation categories and customer classes will be used for planning and program design purposes. The specific programs that underlie these categories and customer classes are the ones that the OPA is currently pursuing. However, they will change as more attractive opportunities present themselves.

[21] The IPSP addresses the 2010 and 2025 Conservation Directive targets. The pre-IPSP Conservation and demand management experience related to 2007 target is addressed at Attachment 2 to this exhibit.
[22] This number includes 176 MW of contribution from Smart Meter program.

Table 22: Proposed Conservation Resources (2011 – 2025) – MW

	Energy Efficiency	Demand Management/ Conservation Behaviour	Customer-based Generation	Fuel Switching	Totals
Residential	448	189	18	91	746
Commercial/ Institutional	1,549	0	49	68	1,666
Industrial	568	250	329	39	1,186
Total	**2,560**	**440**	**400**	**200**	**3,600**

Source: OPA
Note: Totals have been rounded to nearest 10 MW.

Q. How will information gained in meeting the 2010 target be incorporated into meeting the 2025 target?

A. In addition to achieving the 2010 target, the programs being implemented in the short term will be used to inform the OPA and the market on how best to achieve the longer term target. Specifically, these programs, as assessed through an EM&V process and other research, will provide meaningful information on:

- the contribution of Conservation categories towards meeting the 2010 Directive requirement. By understanding this contribution would assist in establishing the amount of Conservation that can reliably be counted towards meeting the 2025 targets,
- cost effectiveness of Conservation programs. This is assessed primarily by using the TRC test. The TRC test is described in more detail in Attachment 3 of this exhibit;
- the new supply chain capability that has been developed and that needs to be developed; and
- the link between general Conservation awareness and Conservation behaviour through surveys.

Q. What is the OPA's Conservation delivery cost estimate for the 2008 to 2010 period?

A. Conservation delivery costs consist of two components: program costs and incentive costs.

Program costs are the costs related to program design, delivery, marketing, administration, and EM&V that are incurred directly by the OPA or indirectly by third party delivery agents in order to manage a reduction of electricity demand. Program costs do not include the cost of incentives paid to participating customers to encourage uptake of Conservation measures.

Incentive costs are payments to customers to assist them with incurring incremental equipment costs. These payments are made by the OPA or third party delivery agents. For example, LDCs may provide incentive payments to customers in the form of rebates, loans, shared savings arrangements and participation fees.

The Conservation delivery cost estimate for the 2008 to 2010 period is shown in Table 23. In this table, program costs and incentive costs have been organized by Conservation resource category and have been broken down further by residential, commercial/institutional, industrial, customer-based generation, EM&V and Market Transformation/Capability Building initiatives.

Table 23: Conservation Delivery Cost Estimate (2008 – 2010) ($2007 Millions)[23]

Sector/Activity	Target (MW)	Free Rider	Net Demand Reduction (MW)	Costs (Millions$)
OPA Resource Acquisition Programs				
Residential				
Energy Efficiency	303	30%	212	363
Demand Response	105	30%	74	91
Commercial/Institutional				
Energy Efficiency	476	30%	333	307
Fuel Switching	100	30%	70	74
Industrial				
Energy Efficiency	113	30%	79	31
Demand Response	451	30%	316	215
Customer-based generation	212	30%	148	36
Evaluation, Measurement and Valuation				53
Total OPA Resource Acquisition Programs	**1,760**		**1,230[24]**	**1,170**
Market Transformation/Capability Building				
Codes and Standards				2
Conservation Awareness				9
Conservation Fund				10
Total Market Transformation/Capability Building				**21**
OPA Overheads				**58**
Total OPA Program Budget	**1,760**		**1,230[24]**	**1,248**

Source: OPA

The planned program portfolio to achieve the 2010 target of 1,350 MW shown in Table 23 has a positive net benefit when the TRC test is applied. There are, however, some initiatives pursued within the portfolio, such as Conservation awareness, that do not have a positive net benefit when the TRC test is applied, but serve a useful purpose in developing Conservation capability and/or Market Transformation and in achieving long term Conservation targets.

The demand reduction estimates in Table 23 for the 2008 to 2010 period are based on detailed program design and delivery information while the corresponding numbers in

[23] Annual numbers can be found in Attachment 4, Section 7, Tables 10 and 11.

[24] This number does not include 176 MW of Smart Meter program savings. This total has been rounded to nearest 10 MW.

Table 24 for the 2011 to 2025 period are based on initial high level studies of Conservation potential in the province.

Q. What are the OPA's Conservation delivery cost estimates for the 2011 to 2025 period?

A. Conservation delivery cost estimates for the 2011 to 2025 segment of the planning period have been developed using the methodology and assumptions described in detail in Attachment 3 of this exhibit.

Conservation energy and peak savings forecast to be achieved in any particular year of the planning period are assumed to be effective in each succeeding year of the study period.[25]

Conservation delivery cost estimates for selected years during the 2011 to 2025 segment of the planning period are shown in Table 24. In this table, program costs and incentive costs have been organized by Conservation resource category.[26] For the purposes of this table, the assumption is that program costs stay constant (net of inflation) on a per unit basis. It is expected that the program costs on a per unit basis will decline. However, it is not possible at this stage to provide an estimate of the percentage by which they will decline.

[25] Demand management initiatives aimed at large customers, however, are an exception in this respect, as these resource savings are assumed to be effective for one year only, and would require renewal for the electricity savings to persist beyond the year that the costs are incurred.

[26] Conservation delivery costs have not been broken down further by residential, commercial/institutional, industrial, customer-based generation and EM&V categories for the 2011 to 2025 segment of the planning period. In addition, the cost estimates for Conservation awareness and the Conservation Fund have been grouped with the demand management/Conservation behaviour category for the Conservation delivery cost estimates over the 2011 to 2025 segment of the planning period.

Table 24: Conservation Delivery Cost Estimates (2011 to 2025) ($2007 Millions)[27]

Conservation Resource Category	2011	2015	2020	2025	Cumulative Costs 2011-2025
Energy Efficiency					
Program Costs	93	95	44	26	863
Incentive Costs	190	192	89	53	1,753
Energy Efficiency Delivery Costs	**283**	**287**	**132**	**79**	**2,616**
Demand Management/Conservation Behaviour					
Program Costs	21	22	25	27	358
Incentive Costs	132	142	171	184	2,381
DR/Conservation Behaviour Delivery Costs	**153**	**164**	**196**	**211**	**2,739**
Fuel Switching					
Program Costs	55	29	11	11	329
Incentive Costs	41	82	32	30	579
Fuel Switching Delivery Costs	**96**	**111**	**43**	**41**	**907**
Customer-based Generation					
Program Costs	0	0	1	1	16
Incentive Costs	8	7	28	22	317
Customer-based Generation Delivery Costs	**8**	**8**	**30**	**23**	**333**
Total Conservation Resources					
Total Program Costs	170	146	81	65	1,566
Total Incentive Costs	370	424	320	289	5,030
Total Conservation Delivery Costs (including Market Transformation, OPA overhead and EM&V costs)	**540**	**570**	**401**	**354**	**6,596**

Source: OPA

As with the Conservation delivery cost estimate for the 2008 to 2010 segment of the planning period, the OPA has assumed free riders of 30% for the purpose of this evaluation.

In addition, though some of the equipment installed during the planning horizon may have lifetimes of less than 20 years and require replacement for savings to persist, such replacement costs have not been included in the evaluation. This is because such replacement costs are presumed to be more or less offset by the terminal value of long-lived equipment installed in the latter years of the planning horizon.

[27] Annual numbers can be found in Attachment 4, Section 7, Tables 10 and 11.

Q. The Directive defines peak demand savings targets. What is the OPA's approach to energy consumption savings (i.e., kWh) and how does the OPA reconcile energy savings objectives with the Supply Mix Directive?

The OPA interprets the Supply Mix Directive to specify peak demand reduction and therefore has made peak demand its priority in the near term.

The OPA targets energy savings as part of program delivery. A load profile is applied to the energy savings to determine the portion that contributes to the peak demand. Energy savings that contribute to reducing the peak demand are given priority over energy savings that do not reduce peak demand. For example, the recently announced program for large commercial buildings in Toronto provides for an incentive of $400 per kW of peak demand reduction or, alternatively, participants can select 5 cents per kWh. This implies that a measure that reduces energy consumption by 1 kW for significantly less than 8,760 hours/year will receive a lower financial incentive than one that reduces peak demand.

Q. Why is the OPA confident that the 2010 and 2025 targets will be achieved?

A. The OPA is confident that short-term targets can be achieved because of the steps described earlier. With respect to the long-term targets, the OPA believes that they are aggressive but achievable. However, at this time, it is not feasible to put forward a program portfolio of sufficient detail to specify how Ontarians can best meet and exceed the long term target.

The potential work that the OPA has used in the development of the IPSP indicates that, with a sustained commitment to aggressive policy tools (reflecting things such as price, codes and standards, carbon tax and land use policy), close to 8,000 MW of Conservation can be achieved by 2025. The targets of 1,350 MW and 3,600 MW of Conservation represent approximately 65% of the identified potential. As a result, the target plan does not exhaust all of the identified potential.

The OPA is encouraged that considerable momentum is building for Conservation that is attributable to changes in regulatory and government policy. Amendments have been made to the Building Code, the Province has passed the *Energy Conservation Leadership Act*, and work on regulations related to energy efficiency continues at the federal and provincial levels.

Of particular interest are the recent announcements by the provincial government with respect to its Green Plan. The Government has made available approximately $150 million in program support aimed at reducing emissions through Conservation. The program includes a home energy retrofit program, retail sales tax exemptions for various products, and emphasis on solar thermal systems for all sectors. These government initiatives are good complements to the existing and contemplated OPA programs. However, at this time, it is difficult to accurately predict the level of increased Conservation attributable to the Green Plan.

Additionally, public support for Conservation has been growing. Conservation is associated with environmental benefits, and recent evidence suggests that concern for the environment is of primary concern to Canadians.

Finally, international experience demonstrates that a commitment to Conservation can bring about substantial results. California has successfully reduced demand over a 20 year period by 15%. This percentage demand reduction is similar to the targets that have been set in the Directive.

Q. What are the OPA's assumptions about the conditions that could impact success in meeting the target?

A. The OPA's assumptions rely on the maintenance or the provision of enhanced support for Conservation from the following external factors:

Government support (Federal and Provincial)

Both the federal and provincial governments play significant roles in Conservation in Ontario. Through its Office of Energy Efficiency, the federal government provides tools, information and incentives to the market to adopt energy efficient technology and practices. A reduction in the level of activity of these organizations will require the OPA to adjust its approach and level of effort.

In addition, legislated codes and standards underpin the level of efficiency that is reflected in the market. In essence, they provide the compliance minimum. It is assumed that the codes and standards in place in the market will not be lowered and, in fact, will be raised. If the minimum level of codes and standards is not raised, the OPA will need to increase intervention to achieve the targeted reductions.

Electricity pricing projections

The current electricity pricing environment is expected to continue. Pricing is an important driver affecting consumer behaviour and use of any commodity. Should the price of electricity increase at the rate projected by this plan and mass market customers increasingly be exposed to the OEB's proposed "time of use" pricing model, it is likely that customers will be incented to use electricity more efficiently. The electricity prices used in the IPSP Reference Forecast as well as the marginal price used in the CIMS model for estimating energy efficiency potential are shown in Exhibit D-1-1, page 25.

Economic factors

A series of economic factors that impact customer decisions are built into the reference forecast. By most accounts, the current economic environment is positive with continued GDP growth, low interest rates and high consumer confidence. Successful Conservation depends on a strong economy. Economic strength allows businesses to access the capital necessary to implement Conservation, and provides residential customers with the means to invest in their homes. Adverse economic conditions could

weaken the investment environment, reduce the amount of capital available for Conservation, and thereby reduce the level of Conservation achieved.

Number of skilled trades people available to the market

The implementation of many Conservation actions requires skilled trades and professionals. The OPA commissioned a study to establish the current state of the availability of main players to deliver Conservation and to identify areas where OPA can leverage supply chain capability to deliver more Conservation.

This study[28] analysis suggests that Ontario may find it challenging to achieve current targets, notwithstanding the significant funding commitment. The study also noted that although equipment availability and energy service provider's readiness are not major concerns, that there are two factors which will nonetheless constrain actual Conservation deliveries over the 2008-2010 period. First, many Conservation investments take time to bear fruit, and therefore much of the investment in the 2008-2010 period may only show significant returns after 2010. Second, the amount of additional human resources required to implement Conservation is likely to be a constraining factor. The study also identified projects that could increase the delivery capability. This included contact with energy services companies based out of Ontario, targeting ethnic business and community associations, establishing degree and certificate programs for human resource development. This study finding is in alignment with the OPA's approach to Capability Building.

[28] Assessment of Conservation and Demand Management Supply Chain Capability in Ontario by London Economics International, LLC. See Attachment 14 of this exhibit.

Q. What program structure and principles will govern the medium and long-term program development?

A. Customer acceptance is a key consideration in the design and delivery of OPA Conservation category type programs. To facilitate customer acceptance, these programs should be simple, user-friendly, and accessible, as well as being easy to implement and administer. Future programs will be developed through a portfolio planning process that relies upon the marketplace to offer products and services to meet the requirements identified in the IPSP. The OPA is currently working with an advisory committee with respect to the development of its 2008 program portfolio.

Q. How has the OPA determined a baseline against which to measure Conservation results?

A. The OPA has established a goal of achieving Conservation that is incremental to that included in the reference forecast. This includes Conservation resulting from OPA programs as well as that which results from programs run by any other market actor (for example, the provincial or federal government).

The baseline used is what is defined as being naturally occurring Conservation. The naturally occurring Conservation that was used in the reference forecast was based on an overall assessment of efficiency improvements in the marketplace. This estimate does not provide the level of detail that would be required to translate the baseline into the specific programs that the OPA has chosen to undertake. Therefore, for the initial planning period, the OPA is using free riders as a proxy for the baseline. This means that the achievement of Conservation is not net of free riders but rather in excess of baseline assumptions regardless of how the actions were influenced.

As EM&V provides better data, these assumptions will be updated and actual Conservation results recorded.

Q. What is Evaluation, Measurement and Verification (EM&V)?

A. Evaluation, Measurement and Verification are three interrelated functions to support estimation of program effectiveness, savings impacts, and fiduciary accountability. These functions are defined as follows:

Evaluation: Refers to activities in which the information obtained through measurement and verification, as well as insights gained through experience, is used to assess the value of, primarily, energy and demand savings. These assessments are then compared to the original program savings expectations. Evaluations can be used to decide if program modifications are needed, or funding increases or decreases are justified.

Measurement: Refers to activities that measure the pre- and post-Conservation program conditions. Measurement techniques include surveys and on-site measurement that are used to confirm the assumptions underlying the baseline conditions affecting energy usage. These techniques also measure conditions after Conservation activities have been deployed.

Verification: Refers to activities which verify that the equipment installations or behavior changes reported by the program delivery agent(s) have occurred, and that the equipment is working.

The OPA is learning from the best practice EM&V experience in other jurisdictions to develop a system that yields a high level of confidence in program design and results. Development of the EM&V system comes at a time when there is a high level of uncertainty about the projected peak and energy impacts of Conservation programs in Ontario.

In the near term, the OPA is making a significant investment in EM&V resources. It has notionally committed to allocate 5% of its Conservation Program budget towards EM&V in the period 2008 to 2010.

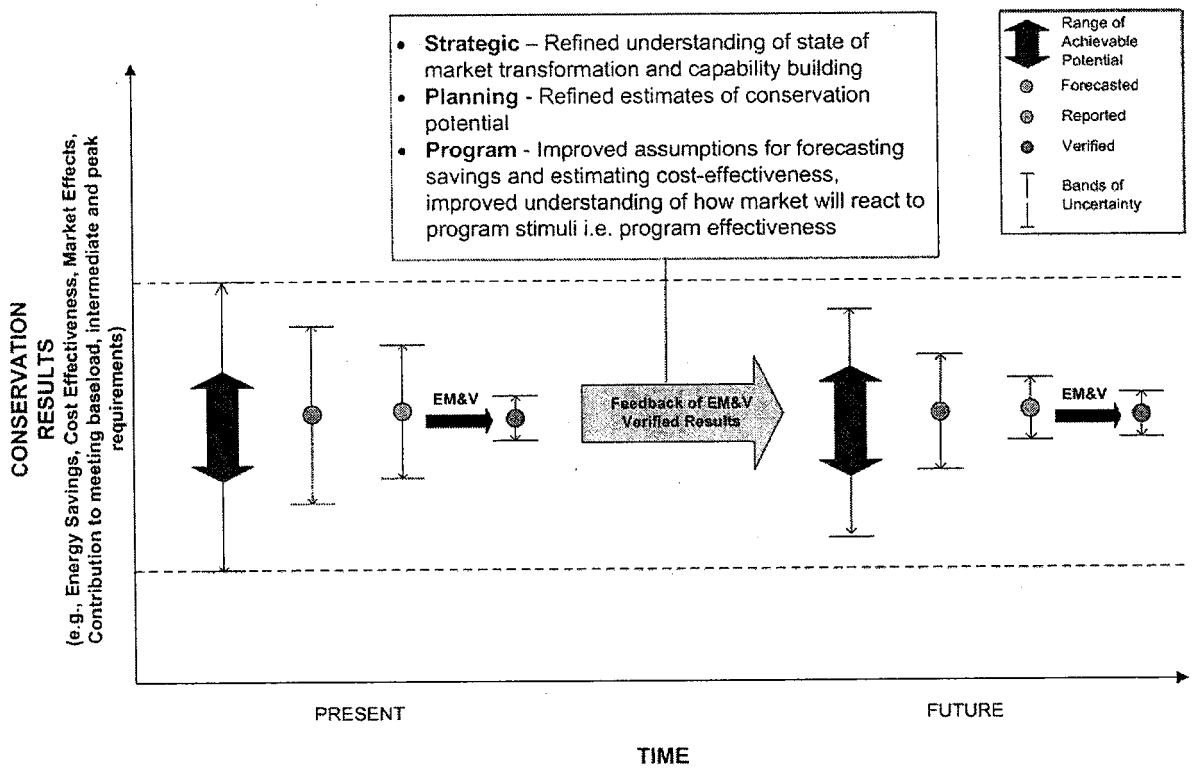
This investment will lead to an EM&V system that will provide OPA staff, the OEB, policy and decision makers, as well as the electricity customers of Ontario, with meaningful information on Conservation program performance.

Q. How will the OPA use EM&V?

A. Evaluation, Measurement &Verification will be used for three primary purposes:

- to confirm that the province has met its Conservation targets;
- to enhance the quality of the data used for forecasting and to verify the feasibility of Conservation potential for electricity system planning purposes. It will provide detailed end use data for improved energy demand forecasting. The OPA will continually update and validate the input assumptions that go into determining Conservation category potential and its allocation across baseload, intermediate and peaking load requirements. This should increase the confidence in using the Conservation potential estimate for resource planning purposes. This increased understanding will also lead to greater confidence in using the information in regional planning. These concepts are illustrated in Figure 6; and
- to inform new and existing program design and development. EM&V provides information regarding program cost-effectiveness and performance by studying similar programs and initiatives in other jurisdictions and through analysis of other programs in Ontario. This will allow the OPA to improve its programs over time and to adjust its portfolio of programs to reduce activity in areas that are not generating results and to introduce new programs to fill the gaps.

Figure 6: Impact of EM&V on Range of Conservation Certainty



Source: OPA

Q. What is the OPA's approach to developing EM&V?

A. The OPA has focused on three main areas in its approach to developing EM&V.

First, the OPA will develop a Conservation data warehouse that tracks and reports in a standardized form Conservation results that are generated by the OPA's programs. This data warehouse will track customer and measure information, will link results to programs, and will track any overlap of results between programs that may occur. This provides certainty on the savings that are realized by the programs. The data warehouse will also be able to store information developed by other participants.

Second, the OPA is managing an ongoing review of all Conservation input assumptions that are contained in the OPA's list of prescriptive measures used in Conservation

program design. This review, evaluates all of the measures that the OPA and others can access to develop Conservation programs and priority is given to measures needed for current and imminent initiatives. All measures will be reviewed at least every three years. Conservation input assumptions include: the incremental cost of the measure; the prescriptive electricity and other energy savings attributed to the measure; the effective life of the measure; and the free rider rate associated with the measure in standard program delivery. This review is similar to that undertaken by the Ontario Energy Board in establishing its TRC Guide. Discussions have been held with the OEB to synchronize the activity and to avoid duplication. In keeping with the OPA's goal of having the most reliable planning assumptions, the OPA will draw on many sources to establish the most accurate list possible. These sources include research commissioned by the OPA, a review of research in other jurisdictions, and market consultation.

This review is valid for the application of prescriptive measures in program design, however, a large proportion of Conservation savings are generated by custom projects where the input assumptions are unique. The OPA is developing a set of EM&V protocols that will establish the requirements for custom projects. Additionally, the OPA will require the engagement of qualified third parties to provide M&V services for custom projects with the goal of demonstrating their cost effectiveness and peak demand savings.

Third, the OPA conducts program evaluations with a goal of verifying savings, cost effectiveness and program performance. These evaluations are typically conducted by third parties.

For future planning purposes, the OPA will consider performing evaluations as well as measuring Conservation activity for the electricity sector as a whole. This will involve evaluating not only OPA programs, but developing estimates of the effect of Conservation activity being driven by other market actions. Performing EM&V on Conservation programs developed and delivered by other market actors will be difficult,

and the confidence in the result will not be as high as for OPA programs. EM&V will assist in mapping the results of Conservation initiatives against the system load shape to determine how they perform in contributing towards meeting baseload, intermediate and peaking requirements.

For the longer term, the OPA is developing approaches to EM&V that will enable the OPA to incorporate reliable Conservation planning assumptions. These approaches may include increased use of market scans and market research, technology assessments, market intelligence and analysis of actual electricity consumption data.

Q. How will the OPA monitor these programs and actions to evaluate their effectiveness during the planning period?

A. In addition to the EM&V protocols and processes discussed above, the OPA maintains close relationships with the program managers who are contracted to deliver programs that result in savings. These relationships include requirements for regular reporting of program results. Additionally, meetings are held to review market development; to review the success of programs in contributing to meeting provincial targets; and, to explore ways to improve program design and delivery. These close relationships also contribute to the Capability Building efforts of the OPA. As program managers become more proficient, the OPA hopes to increasingly "outsource" or procure turn-key Conservation programs and pay for results delivered.

Q. How were the planning criteria applied when developing the Conservation plan?

A. The OPA's decision-making approach applied the following planning criteria: reliability, feasibility, flexibility, cost, environmental performance and societal acceptance. These criteria were applied to the major decisions that the OPA made in developing its Conservation plan since reliability, feasibility and flexibility correspond to establishing economic prudence. Given that the OPA developed its portfolio to be TRC[29] positive

[29] For TRC and related matters, please refer to Attachment 3 of this Exhibit.

and, therefore, cost effective, four main decisions remained in developing the OPA's Conservation plan.

The first decision was to allocate the Conservation target among the four Conservation opportunity categories (energy efficiency, demand management/consumer behaviour, fuel switching and customer-based generation). The OPA's balance was heavily in favour of energy efficiency and demand management, which together account for approximately 85% of the total short- and long-term Conservation target.

The second decision was to apply these opportunities to meeting baseload, intermediate and peaking requirements. This step did not require a discretionary choice among options.

The third decision was to allocate Conservation programs among the program types: Resource Acquisition, Capability Building and Market Transformation. There is a different balance in the near term of the IPSP (heavily weighted towards Resource Acquisition) than in the longer term (more heavily weighted towards Market Transformation).

The final decision to which the OPA applied the planning criteria was how to address the potential for exceeding the Conservation target.

The application of the planning criteria to these main decisions is as follows:

Balance among Conservation opportunities

As indicated, the OPA's balance among Conservation opportunities was heavily in favour of efficiency and demand management.

The key reasons for this are feasibility and reliability, as well as flexibility in the case of demand management. Data and market information unequivocally demonstrate that the greatest potential contributors towards Conservation are efficiency and demand management. As a result, the IPSP is focused largely in these areas. It would not be

feasible to achieve the 2010 and 2025 Conservation targets without a significant contribution from efficiency and demand management.

Furthermore, given that efficiency is primarily obtained through the replacement of capital stock, it is engineered into the system. Similarly, demand management is a relatively predictable and controllable type of Conservation. As such, they both are favourable from a reliability perspective.

In addition to cost and reliability considerations, demand management is also justified because of its flexibility. It largely involves customers responding to financial incentives, which can be adjusted in a flexible and predictable way.

Allocation among Conservation programs over time

As previously discussed, the OPA is using three basic program types: Resource Acquisition, Capability Building and Market Transformation. The balance among these programs is different in the near-term from the longer term plan.

In the near-term, the balance is largely towards Resource Acquisition as this is the only feasible way to achieve the 2010 Directive Target. The other program types will begin during this period and contribute to longer term results.

In the longer term, the balance moves away from Resource Acquisition. At this time, longer term investments in Capability Building and Market Transformation are expected to produce the majority of Conservation savings.

Capability Building and Market Transformation have the advantage of being more reliable and cost effective than Resource Acquisition. Conservation results from these programs are more reliable because they are not dependent on a specific procurement or program. By definition, the effects of these initiatives are expected to outlast the immediate impacts of any particular program. These program types are more cost effective because they allow for the development of innovative market solutions and do not seek to force services into a particular program design. Capability Building, such as

education of customers and development of supply chains, is an investment that has long term enduring benefits.

Conservation in excess of the target

The OPA plans to achieve the 2010 and 2025 Conservation targets. Conservation up to that target is considered as a resource for planning purposes that replaces the need for alternative supply sources.

The OPA will seek to exceed the target. However, determining whether and how this can be done requires a realistic understanding of the feasibility of achieving Conservation beyond the target. Such an understanding can only occur as Ontario gains more experience in Conservation and associated EM&V results. In addition, the OPA will monitor future policy changes such as codes and standards, price, carbon taxes and land use that underpin the identified potential in order to assess the feasibility of exceeding the target.

In the short-term, the IPSP planning process assumes the maximum feasible and cost effective Conservation will be developed before committing to alternative supply resources. In the mid- to long-term, it will be necessary to determine whether to commit to new Conservation or supply resources. The IPSP has sufficient flexibility to develop a number of options on both the Conservation and the supply side. If experience from the 2008 to 2010 Conservation programs demonstrates that there is feasible Conservation to exceed the Directive target, that Conservation will be compared to alternative supply resources before any commitment is made.

Q. How was the cost effectiveness of the Conservation plan determined?

The cost effectiveness of the Conservation plan was determined based on the application of the TRC test. The TRC test is used to determine whether Conservation

resources included in the plan are cost effective for society as a whole.[30] Conservation resources that "pass the TRC test" are considered to be cost effective, in that achieving such Conservation produces a positive net benefit.

The result of the TRC test is expressed as a net present value ("PV") of the benefits of the Conservation net of the direct costs of the Conservation.

The benefits of the Conservation are the electricity supply costs that are avoided as a result of the electricity savings achieved by the Conservation; these benefits are the avoided supply costs, or simply "avoided cost" [31].

The cost of the Conservation, for the purpose of the TRC test, consists of two components. One is the premium cost of the electricity-saving equipment (i.e., the "incremental equipment cost").[32] The other component is the design, administration and evaluation cost of the Conservation program itself (i.e., the "program cost").[33]

The TRC test is applied by using the following formula:

Net Benefit = PV of Avoided Cost – (PV of Incremental Equipment Cost + PV of Program Cost)

Q. What are the results of the TRC test?

The avoided cost from Conservation categories in the Plan, based on the portfolio cost method, is estimated to be $15.9 billion (2007$), with incremental equipment and

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[30] The TRC test does not evaluate distributional effects, such as the effect of a Conservation program on non-participating customers, or the effect of a program on the net revenue of a sponsoring utility.

[31] Avoided supply costs include costs associated with avoided energy and avoided generation, transmission and distribution capacity.

[32] Incremental equipment costs are the capital, operating and maintenance and, where applicable, fuel costs incurred by customers to achieve a reduction in electricity demand. Examples of incremental equipment cost would be the extra cost of compact fluorescent light bulbs relative to conventional incandescent bulbs, or the cost of added insulation or other weatherization for the home.

[33] Program costs are the costs related to program design; delivery; marketing; administration; and EM&V that are incurred by the OPA, LDCs or other Conservation delivery channel organizations in order to manage a reduction of electricity demand. (Program costs do not include the cost of incentives paid to participating customers to encourage uptake of the Conservation measures. Incentives are not counted in the program cost portion of the TRC net benefit because incentives are a transfer of funds from the program-sponsoring organization to the participating customers, and consequently do not directly enhance the aggregate net benefit.)

program costs of $6.9 billion over the 20 year period. This provides a net benefit of $9.0 billion from using Conservation instead of supply options. The method and assumptions used in applying the TRC test are detailed in Attachment 3 to this exhibit.

Q. Are there lower cost methods to achieve the target? If so, why was that lower cost method not chosen?

A. The OPA does not have the experience to cost the alternative approaches in the short term context and is therefore unaware of a lower cost approach to achieving the 2010 target.

3.0 COMPLIANCE WITH REGULATION

Q. Section 2(1) of O. Reg., 424/04 provides that, in developing the IPSP, the OPA must do a number of things. Please advise how the OPA did the following in developing the Conservation component of the IPSP:

> Consult with customers, distributors, generators, transmitters, and other persons who have an interest in the electricity industry in order to ensure that their priorities and views are considered in developing the plan.

A. The OPA received substantial comments on the Conservation discussion paper issued in September, 2006 and took these comments into account when revising the Discussion Paper for release in December, 2006. In addition, the OPA had several stakeholder engagement events.

The process followed by the OPA for these events is detailed in Exhibit C-2-1. Stakeholders provided comments and suggestions for changes to the Conservation portion of the IPSP. The main comments/concerns and the OPA actions to address the comments included the following:

- Some stakeholders have indicated that the OPA should treat the 6,300 MW Minister's directive as a minimum level to be achieved and not as a cap.
    - In response, the OPA has clarified that it does not interpret the Directive target to be a cap. In addition, the IPSP takes a more qualitative approach to

applying the Planning Criteria than was suggested in the initial discussion paper.

- Some stakeholders questioned the appropriateness of the use of relative cost, relative risk, social factors and relative environmental impacts criteria and ranking (in the original Conservation discussion paper) and the application of sustainability criteria (revised Conservation discussion paper) for category level portfolio selection.
    - The OPA continues to use the planning criteria, but has applied them in a more qualitative way than in the original Discussion Paper.
- Some stakeholders indicated that Conservation must meet customer needs, interests and priorities, since the basic point of Conservation programming is to convince customers about the benefits of reducing their electricity consumption and demand, and focusing on opportunities that will be of interest to customers.
    - The OPA recognizes that customers are interested in more than just energy savings. The OPA programs will reflect a range of product dimensions from aesthetics to convenience to cost savings, environmental benefits, and other considerations in its program design.
- It was commented that Conservation should promote innovation and flexibility. The OPA should avoid over-engineered solutions. Where feasible, consideration should be given to standard offer-type programs.
    - The OPA's program mix, especially in the longer term, relies on Capability Building and Market Transformation. This allows innovative approaches from the marketplace. Where capability currently exists, the OPA uses "standard offer" programs such as CESOP and Demand Response. As market capability develops, this model will evolve to other applications where the OPA is paying for verified demand reduction from an increasing variety of market designed and delivered programs.
- Some stakeholders emphasized that the amount of Conservation selected in meeting the future electricity needs should be cost effective.
    - The Conservation potential was established based on estimated avoided cost and the TRC test. The OPA recognizes that energy savings and demand reductions achieved by spending ratepayer dollars must be carefully monitored and savings verified. There must be confidence that the gains are being achieved and will be sustainable over time.
- Stakeholders stated that strong Conservation foundations are necessary.
    - The OPA is committed to building a strong foundation by supporting the ongoing efforts of Conservation delivery partners to deliver Conservation.

Q. Identify and develop innovative strategies to accelerate the implementation of Conservation, energy efficiency and demand management measures.

A. The OPA's strategic approach to developing a long term market based framework for Conservation is innovative and if successful will accelerate the implementation of Conservation. The strategy relies in the short-term on Resource Acquisition to effect demand reductions quickly and to meet the short-term targets. However, in the longer term, the strategy is designed to contribute to an active market for Conservation products with many capable and motivated participants.

Within this goal, the OPA has used a number of innovative strategies designed to accelerate the implementation of Conservation in the long term while maintaining the focus on achieving the short-term targets. These strategies include Capability Building, and using the Conservation Fund ("CF") to promote innovation.

An example of Capability Building is the selection of BOMA to deliver a Large Commercial Buildings Program in Toronto. BOMA has developed products for use by its constituents and effectively acted on their behalf in various forums. The OPA continues to explore a variety of delivery options. These include social agencies, government ministries, a municipality and gas LDCs. As the OPA's experience with the delivery options grows, it will be better able to target programs through an enhanced understanding of the delivery partners and how they add value.

The Conservation Fund is another innovative strategy that the OPA has developed to build capability in the market, and accelerate the adoption of Conservation. Pilot projects undertaken through the CF allow the OPA to identify and develop potential marketing and delivery channels to deliver Conservation programming by forging partnerships with a broad range of organizations across all sectors. This not only helps build the capability of channels to integrate Conservation into their day-to-day activities, but also provides the OPA with valuable market capability intelligence, and delivers valuable lessons which then help inform the development of OPA programming.

Q. Identify and develop innovative strategies to encourage and facilitate competitive market based responses and options for meeting overall system needs.

A. The strategies outlined in the previous section are designed to contribute to the creation of a viable market for Conservation products and services. The current market has a limited number of buyers of the Conservation resource. As a result, the OPA is investing in Market Transformation and Capability Building to assist in increasing the players in the market place as well developing the skills.

Q. Ensure that safety, environmental protection and environmental sustainability are considered in developing the plan.

A. In developing the Conservation Plan, the OPA has considered environmental protection and sustainability. The Conservation Plan by its nature has a positive environmental contribution. Conservation as a resource reduces the need for generation, transmission and distribution and therefore realizes environmental benefits through a revised supply mix.

In developing the specific programs in the Conservation Plan, the OPA pays particular attention to the other possible environmental impacts. For example, in the Appliance Retirement program, the OPA ensured that the decommissioning and disposal of the old appliances was done in such a way to ensure no secondary environmental impact through incorrect CFC and insulation disposal.