EB-2010-0331
EB-2010-0332

ONTARIO ENERGY BOARD

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

AND IN THE MATTER OF an Application by Hydro One Brampton Networks Inc. for an Order or Orders granting approval of initiatives and amounts related to the Conservation and Demand Management Code;

AND IN THE MATTER OF an Application by Hydro One Networks Inc. for an Order or Orders granting approval of initiatives and amounts related to the Conservation and Demand Management Code (collectively, the "Hydro One 2011-14 CDM Application").

POLLUTION PROBE

CROSS-EXAMINATION REFERENCE BOOK

March 3, 2011

KLIPPENSTEINS
Barristers & Solicitors
160 John Street, Suite 300
Toronto, Ontario M5V 2E5

Murray Klippenstein
Basil Alexander
Tel: (416) 598-0288
Fax: (416) 598-9520

Counsel for Pollution Probe

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Ministry of Energy

Office of the Minister

4th Floor, Hearst Block
900 Bay Street
Toronto ON M7A 2E1
Tel.: 416-327-6758
Fax: 416-327-6754

Ministère de l'Énergie

Bureau du ministre

4e étage, édifice Hearst
900, rue Bay
Toronto ON M7A 2E1
Tél. : 416 327-6758
Téléc. : 416 327-6754

Ontario

FEB 1 7 2011

MC-2011-625

Mr. Colin Andersen
Chief Executive Officer
Ontario Power Authority
1600–120 Adelaide Street West
Toronto ON M5H 1T1

Dear Mr. Andersen:

In my capacity as the Minister of Energy and pursuant to the authority granted to me under subsection 25.30(2) of the *Electricity Act, 1998*, I am providing the Ontario Power Authority (OPA) with direction for the preparation of an integrated power system plan (the "Plan"). This Supply Mix Directive replaces the Supply Mix Directive issued on June 13, 2006 and the Supply Mix Directive issued on September 17, 2008.

Pursuant to this Authority, I hereby direct the OPA to prepare a Plan to meet the government's goals as set out in this Supply Mix Directive as follows:

Demand

In developing the Plan, the OPA shall use a medium electricity demand growth scenario. This scenario balances the expected growth in residential and commercial sectors with modest, post-recession growth in the industrial sector. Under this scenario, Ontario's demand would grow moderately (approximately 15 per cent) between 2010 and 2030, based on the projected increase in population and conservation as well as shifts in industrial and commercial needs.

It is feasible that technological changes could drive higher electricity demand growth through, for example, greater adoption of electric vehicles and the potential electrification of public transit. The Plan needs, therefore, to have the flexibility to accommodate the potential for a higher growth outcome.

Conservation

The OPA shall plan to achieve through Conservation and Demand Management (CDM) a peak demand reduction target of 7,100 megawatts (MW) and an energy savings target of 28 terawatt-hours (TWh) by the end of 2030. Further, the OPA shall plan to achieve interim CDM targets as follows: 4,550 MW and 13 TWh by the end of 2015; 5,840 MW and 21 TWh by the end of 2020; and 6,700 MW and 25 TWh by the end of 2025. These interim CDM targets are to serve as milestones to measure progress towards the overall 2030 CDM target.

The Plan shall seek to exceed and accelerate the achievement of these CDM targets if this can be done in a manner that is feasible and cost-effective. The targets are to be measured from a base year of 2005.

.../cont'd

The above-noted targets shall also include electricity savings forecasted through the implementation of codes, standards, regulations and other initiatives that are progressive and reasonable based on OPA analysis.

Consistent with my directive to the Ontario Energy Board (OEB) dated March 31, 2010, the definition of CDM should be inclusive of load reduction from initiatives such as geothermal heating and cooling, solar heating and fuel switching and customer-based generation for the purpose of load displacement. The definition should be exclusive of generation that is contracted-for under the OPA's Feed-in Tariff (FIT) and microFIT Programs and other generation that is separately metered for the purpose of injecting electricity into the transmission system or a distribution system.

Nuclear

The OPA shall continue to plan for nuclear generation to account for approximately 50 per cent of total Ontario electricity generation. To this end, the Plan shall provide for the refurbishment of 10,000 MW of existing nuclear capacity at the Bruce Nuclear Generating Station and the Darlington Nuclear Generating Station as well as the procurement of two new nuclear generating units (about 2,000 MW) at the Darlington site. The Government will pursue this procurement where it can be achieved in a cost-effective manner.

Nuclear refurbishment is a complex task and Ontario will need a coordinated plan for refurbishment that takes into account various considerations. To this end, the OPA shall continue to work with Ontario Power Generation (OPG), Bruce Power, and the Ministry of Energy to ensure that the Plan includes an updated coordinated refurbishment schedule.

Coal Phase-out and Potential Conversion

Since 2003, Ontario has shut down eight coal-fired generating units, including the recent closures of two units each at OPG's Nanticoke and Lambton Generating Stations. The shutdown of two additional units at the Nanticoke Generating Station will take place before the end of 2011.

The Government's commitment to replace all coal-fired generation by the end of 2014 will be met. The OPA shall work with the Independent Electricity System Operator (IESO) and OPG to determine opportunities for advancing the closure of additional units.

The Government has directed the OPA to negotiate with OPG for a contract for biomass fuelled generation from the 215 MW Atikokan Generating Station in Northwestern Ontario. It is expected that this plant could be operating on biomass by 2013.

Two units at OPG's Thunder Bay Generating Station are to be converted to run on natural gas over the period leading up to 2014. Opportunities to co-fire with biomass will continue to be examined.

In developing the Plan, the OPA shall assess the conversion of some or all of the remaining units at Lambton and Nanticoke to natural gas under a range of different scenarios for nuclear generation and system peaking requirements. The government will make a decision on conversion of some or all of these units in 2012. This decision will be made once planning work on continued operation of the operating units at the Pickering Nuclear Generating Station

.../cont'd

and the refurbishment of the remaining units at the Bruce and Darlington nuclear generating stations is further advanced, providing better information on the availability of nuclear capacity.

In order to plan properly for the possibility of conversion, the government anticipates that planning and approval work for the natural gas pipeline infrastructure required to Nanticoke will begin soon.

Renewables - Hydroelectric Resources

New hydroelectric developments are underway by OPG, including the Niagara Tunnel and the 440 MW Lower Mattagami redevelopment as well as additional private sector developments. The Plan shall allow for future hydroelectric development where it is cost-effective to build and to connect to the transmission system.

The Plan shall provide for installed hydroelectric capacity to reach 9,000 MW by 2018. The OPA shall continue to explore cost-effective opportunities for further hydroelectric development and maximize existing hydroelectric resources. Additional cost-effective hydroelectric resources should be developed if they are identified. It is expected that the Plan shall provide for hydroelectric generation to account for approximately 20-25 per cent of total Ontario electricity generation.

Renewables Other Than Hydroelectric (Wind, Solar, Bio-energy)

The June 2006 Supply Mix Directive required that the OPA plan to use the existing base of 7,850 MW of renewable energy (hydroelectric generation) and to double this capacity to 15,700 MW by 2025 including hydroelectric, wind, solar, and bio-energy.

Since then, there have been a number of renewable energy procurements through initiatives such as the Renewable Energy Supply (RES) programs (RES I, II and III), the Renewable Energy Standard Offer Program and the FIT Program. As a result of these successful procurements, as well as the Green Energy Investment Agreement, the additional renewable capacity expected to come into service is greater than the levels envisaged in 2006. Based on forecast assessments of what the system can accommodate, the OPA shall plan for 10,700 MW of renewable energy capacity, excluding hydroelectric, by 2018.

The government will look for opportunities to incorporate additional capacity from renewables into the Plan taking into consideration the cost-effectiveness for Ontario electricity consumers, planned transmission additions, and electricity demand growth.

It is expected that the Plan shall provide for renewables, excluding hydroelectric, to account for approximately 10-15 per cent of total Ontario electricity generation by 2018.

Natural Gas

Natural gas will continue to play a strategic role in Ontario's supply mix by complementing intermittent supply from sources such as wind and solar, meeting local and system requirements, and ensuring that adequate capacity is available as nuclear plants are modernized. The OPA shall continue to plan on natural gas usage for these strategic purposes.

.../cont'd

The 2007 Integrated Power System Plan submitted to the OEB included a forecasted need for three additional gas plants in the Province, including one in the Kitchener-Waterloo-Cambridge area and one in the southwest GTA. Due to changes in demand along with the addition of approximately 8,400 MW of new supply since 2003, the outlook has changed and two of the proposed plants, including the proposed plant in Oakville, are no longer required. A transmission solution to maintain reliable supply in the southwest GTA will be required.

As indicated in the 2007 Plan, procurement of a natural gas-fired plant in the Kitchener-Waterloo-Cambridge area is still necessary to ensure adequate regional electricity supply.

Transmission

The government recognizes the need to pace transmission upgrades and the importance of striking a balance between a clean economy and limiting ratepayer cost burdens. Long-term planning for transmission should allow for the expansion of the system to include renewables in order to foster a cleaner economy and should also be able to adjust if conditions change.

The Plan shall include the five priority transmission investment projects identified by the OPA for system reliability, serving new load and renewables incorporation out to 2018. For the purposes of preparing the Plan, the OPA shall assume these projects will proceed. These priority projects are:

- Device(s) to enhance transfer capability, such as series or static var compensation, or other similar devices, in Southwestern Ontario
- Upgrading existing line(s) west of London;
- A new line west of London;
- Enhance the East West tie along the east shore of Lake Superior through a new line; and
- New line to Pickle Lake.

The OPA, as the provincial transmission planner shall define and make recommendations about the scope and timing of these transmission projects on the basis of their rationale, as part of the Plan. The OPA shall also immediately work in cooperation with Hydro One and make recommendation(s) on the scope and timing of transmission projects to be undertaken by the transmitter pursuant to an amendment of the transmitter's licence conditions resulting from a directive issued to the OEB by the Minister of Energy in early 2011.

In addition to this, the OPA shall identify other cost-effective transmission and distribution solutions through ongoing decision processes – integrated planning and economic tests – and maximize use of the existing system.

The OPA shall develop a plan for remote community connections beyond Pickle Lake, including consideration for the relevant cost contributions from benefiting parties, such as the federal government. This plan may also consider the possibility of interim solutions as appropriate that reduce consumption of diesel fuel.

.../cont'd

Smart Grid

The OPA shall give planning consideration to the Smart Grid developments that are taking place in Ontario. The OPA should also ensure that distribution level investment associated with smart grid and renewable connections is considered in the context of the Plan.

Reliability and Operability

The Plan shall consider potential electricity storage, the availability of imports from other jurisdictions and other methods in order to meet Ontario's reliability and operability requirements throughout the duration of the Plan.

The economics of storage technologies will depend on the differential between peak and off-peak costs, the capital and operating costs of the storage facility and the relative costs of other peak managing options. Examination of storage opportunities should include a determination as to whether the customer and system benefits exceed the development and operating costs of the storage system.

Impacts of the Plan on Electricity Consumers

The government recognizes that electricity investments are important for individual and business consumers from a variety of perspectives, including cost. The OPA shall develop the Plan mindful of total bill impacts and the impact that the costs associated with the choices it makes within the Plan has on electricity rates generally.

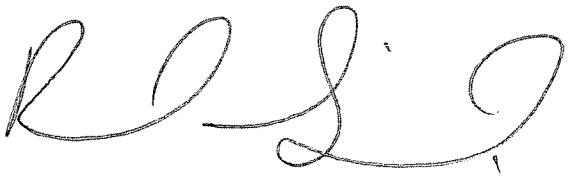
Consultation

Ontario's Aboriginal peoples play an important role in the development of Ontario's electricity system. The Government will retain responsibility for addressing Aboriginal economic opportunities in the energy sector. The Government expects the OPA to carry out the procedural aspects of any Crown duty to consult First Nation and Métis communities in developing the Plan.

Regulatory Observance

The Plan shall comply with Ontario Regulation 424/04 (Integrated Power System Plan) made under the *Electricity Act, 1998*, and all other applicable statutory and regulatory requirements, as amended from time to time.

Sincerely,



Brad Duguid
Minister

Ontario
Executive Council
Conseil des ministres

Order in Council
Décret

On the recommendation of the undersigned, the Lieutenant Governor, by and with the advice and concurrence of the Executive Council, orders that:

Sur la recommandation du soussigné, le lieutenant-gouverneur, sur l'avis et avec le con- sentement du Conseil des ministres, décrète ce qui suit:

WHEREAS it is desirable to achieve reductions in electricity consumption and reductions in peak provincial electricity demand.

AND WHEREAS the Minister may, with the approval of the Lieutenant Governor in Council, issue directives under section 27.1 of the *Ontario Energy Board Act, 1998* in order to direct the Board to take steps to promote energy conservation, energy efficiency, load management or the use of cleaner energy sources, including alternative and renewable energy sources.

AND WHEREAS the Minister may, with the approval of the Lieutenant Governor in Council, issue directives under section 27.2 of the *Ontario Energy Board Act, 1998* in order to direct the Board to establish conservation and demand management targets to be met by distributors and other licensees.

NOW THEREFORE the Directive attached hereto is approved and shall be and is effective as of the date hereof.

Recommended: _____
Minister of Energy and Infrastructure

Concurred: _____
Chair of Cabinet

Approved and Ordered: MAR 3 1 2010
Date

_____
Lieutenant Governor

O.C./Décret : 437/2010

MINISTER'S DIRECTIVE

TO: THE ONTARIO ENERGY BOARD

I, Brad Duguid, Minister of Energy and Infrastructure, hereby direct the Ontario Energy Board pursuant to sections 27.1 and 27.2 of the *Ontario Energy Board Act, 1998*, as described below.

The Board shall take the following steps in order to establish electricity conservation and demand management ("CDM") targets to be met by licensed electricity distributors ("distributors") within the timeframe specified herein:

1. Subject to paragraph 5, the Board shall, without a hearing and in accordance with the requirements of this Directive, which relate to the conservation and demand-management targets to be met by distributors and other licensees including the OPA, amend each distributor's licence to add a condition requiring the distributor to achieve reductions in electricity consumption and reductions in peak provincial electricity demand through the delivery of CDM programs ("CDM Programs") by the amounts specified by the Board (the "CDM Targets"), over a four-year period beginning January 1, 2011.

2. In establishing CDM Targets for each distributor, the Board shall:

   (a) ensure that the total of the CDM Targets established for all distributors is equal to 1330 megawatts (MW) of provincial peak demand persisting at the end of the four-year period and 6000 gigawatt hours (GWh) of reduced electricity consumption accumulated over the four-year period;

   (b) specify for each distributor, a CDM Target for the reduction of provincial peak electricity demand and a CDM Target for the reduction of electricity consumption, each of which must be greater than zero; and,

   (c) have regard to information obtained from the Ontario Power Authority ("OPA"), developed in consultation with distributors, regarding the reductions in provincial peak electricity demand and electricity consumption that could be achieved by individual distributors through the delivery of CDM Programs.

3. The Board shall amend the licence of each distributor as follows:

   (a) by adding a condition that specifies each distributor must meet its CDM Targets through:

   (i) the delivery of Board approved CDM Programs delivered in the distributor's service area ("Board-Approved CDM Programs");

(ii) the delivery of CDM Programs that are made available by the OPA to distributors in the distributor's service area under contract with the OPA ("OPA-Contracted Province-Wide CDM Programs"); or,

(iii) a combination of (i) and (ii)

(b) by adding a condition that specifies that the distributor must deliver a mix of CDM Programs to all consumer types in the distributor's service area, whether through Board-Approved CDM Programs, OPA-Contracted Province-Wide CDM Programs or a combination of the two, as far as is appropriate and reasonable having regard to the composition of the distributor's consumer base;

(c) by adding a condition that requires the distributor to comply with rules mandated by a code issued by the Board.

4. The Board shall amend licenses of distributors to ensure that:

(a) distributors utilize the same common Provincial brand (which includes any mark or logo that the Province has used or is using, created or to be created by or on behalf of the Province, and which will be identified to the Board by the Ministry as a provincial mark or logo for its conservation programs) with all Board-Approved CDM Programs;

(b) that the brand identified in (a) shall be the same brand utilized by the OPA and distributors for OPA-Contracted Province-Wide CDM Programs, once those programs have been created; and,

(c) that the brand shall be used by distributors in conjunction with or co-branded with distributor's own brand or marks.

and the Board shall, upon receipt of written direction from the Ministry, which may be issued from time to time, and as a condition of license, require any one or more distributors to cease using the Provincial brand described in this paragraph at such time or in such way as may be specified in such direction.

5. The Board shall not amend the licence of any distributor that meets the conditions set out below:

(a) with the exception of embedded distributors the distributor is not connected to the Independent Electricity System Operator (IESO)-controlled grid; or,

(b) the distributor's rates are not regulated by the Board.

6. The Board shall issue a code that includes rules relating to the reporting requirements and performance incentives associated with CDM Programs and to the planning, design, approval, implementation and the evaluation, measurement and verification ("EM&V") of Board-Approved CDM Programs and to such other matters as the Board considers appropriate.

In developing such rules, the Board shall have regard to the following objectives of the government in addition to such other factors as the Board considers appropriate:

(a) that Board-Approved CDM Programs shall not duplicate OPA-Contracted Province-Wide CDM Programs that are available from the OPA at the time of Board approval;

(b) that the Board shall encourage opportunities for coordinating CDM Programs between the distributor and other relevant entities such as other electricity distributors, natural gas distributors and the OPA;

(c) that the Board shall not preclude consideration of CDM Programs or funding for CDM Programs on the basis that a distributor's CDM Targets have been or are expected to be exceeded;

(d) that a tiered performance incentive mechanism shall be available to distributors for verified electricity savings with incentives beginning to accrue once a distributor meets 80% of each CDM Target; performance incentives shall not be offered for electricity savings achieved beyond 150% of each CDM Target;

(e) that Board approval for funding of any given Board-Approved CDM Program shall correspond to the period in which the Board-Approved CDM Program is offered, provided that the period is no longer than the period for which CDM Targets are established;

(f) that the Board shall require distributors to use OPA cost-effectiveness tests, as modified by the OPA from time to time, for assessing the cost-effectiveness of Board-Approved CDM Programs;

(g) that the Board shall require distributors to use the OPA protocol process and third-party vendor of record list, as modified by the OPA from time to time, when conducting EM&V of Board-Approved CDM Programs;

(h) that the Board shall consider the definition of CDM to be inclusive of load reduction from initiatives, such as geothermal heating and cooling, solar heating and fuel switching, but exclusive of initiatives that are associated with the OPA Feed-in Tariff Program and the OPA Micro Feed-in Tariff Program; and,

(i) that all Board-Approved CDM Programs shall utilize the same common provincial brand (which includes any mark or logo that the Province has used or is using, created or to be created by or on behalf of the Province, and which will be identified to the Board by the Ministry as a provincial mark or logo for conservation) used for OPA-Contracted Province-Wide CDM Programs, once such programs are created, and used in conjunction with or co-branded with any brand or mark used by the distributor.

7. The Board shall not approve CDM Programs until OPA-Contracted Province-Wide CDM Programs have been established.

8. The Board shall, in approving Board-Approved CDM Programs, continue to have regard to its statutory objectives, including protecting the interests of consumers with respect to prices.

9. The Board shall conduct, or cause to be conducted, targeted audits of EM&V carried out by the distributor or third-parties on behalf of the distributor, as necessary.

10. The Board shall annually review and publish the verified results of each individual distributor's CDM Programs and the consolidated results of all distributor CDM Programs, both Board-Approved CDM Programs and OPA-Contracted Province-Wide CDM Programs and take steps to encourage distributors to improve CDM Program performance.

11. The Board shall permit distributors to meet a portion of their CDM Targets through the delivery of CDM Programs targeted to low-income consumers.

12. The Board shall have regard to the objective that lost revenues that result from CDM Programs should not act as a disincentive to a distributor.

Minister of Energy and Infrastructure

Pollution Probe INTERROGATORY #1 List 1

Interrogatory

Reference: Exhibit .C, Tab 1, Schedule 1

For each of Hydro One's OPA-contracted province-wide CDM programs, please provide the following information:

a) cumulative* annual energy savings (MWh) per year;
b) number of participants per year;
c) potential number of participants per year;
d) annual budgets broken out according to:
   i) financial incentives for customers; and
   ii) other;
e) TRC ratio;
f) PAC ratio; and
g) free-rider rate estimates and copies of the reports that support these free rider rate estimates;

For example, assuming that the program saved 100 kWh in 2011 and an incremental 200 kWh in 2012, but only 90 kWh of the 2011 savings persisted in 2012, then the cumulative annual energy savings in 2012 would be 290 kWh (i.e. 90 + 200).

Response

Hydro One is not in the position to provide any additional information about the OPA-contracted programs beyond the evidence we've already provided in our submission.

Pollution Probe INTERROGATORY #2 List 1

Interrogatory

Reference: Exhibit C, Tab 1, Schedule 1, pp. 29 — 31

Please provide Hydro One's number of actual and potential:

a) residential; and
b) general service peaksaver customers as of December 31, 2010.

Response

		Participants to date	**Potential**
a)	Residential	33,000	450,000 estimated with central air conditioning. The future program may not be restricted to central air conditioning and therefore may have additional potential.
b)	General Service (<50kW)	400	80,000

=7%

=0.5%

Pollution Probe INTERROGATORY #3 List 1

Interrogatory

Reference: Exhibit C, Tab 1, Schedule 1, pp. 29-3 1

Please provide Hydro One's forecasted cumulative number of:

a) residential; and
b) small commercial participants for each of the following years: 2011, 2012, 2013 and 2014.

Response

The table below outlines Hydro One's forecasted cumulative participants for the years 2011, 2012, 2013 and 2014:

HONI Cumulative Participants - Forecast*				
	2011	**2012**	**2013**	**2014**
Residential	8,000	17,000	27,000	40,000
Small Commercial	100	200	300	400

**Estimated based on Hydro One's past experience and best available information.*

Total

+33,000 = 73,000
= 16%

+400 = 800
= 1%

Pollution Probe INTERROGATORY #4 List 1

Interrogatory

Reference: Exhibit C, Tab 1, Schedule 1, pp. 29-31

Has Hydro One analyzed the benefits and costs of adopting more aggressive participant targets for its residential and small commercial demand response program? If yes, please provide copies of Hydro One's analyses. If no, please explain why not.

Response

This is a province-wide program designed by the Residential DR Working Group and approved by the OPA. Although we have been a member of this working group and contributed to the design of this program, Hydro One is not in a position to provide detailed information about the benefits and costs analysis that supported the design of this initiative.

Ontario Energy Board (Board Staff) INTERROGATORY #39 List 1

Interrogatory

Reference: Exhibit C, Tab 1, Schedule 2, Page 50 of 67

Preamble: HONI has provided the cost-effectiveness test results for the Municipal-Hospital Energy Efficiency Performance Initiative of: TRC = 1.4 and PAC = 1.1.

a) Please confirm that HONI complied with Section 4.1.1 of the CDM Code and used the OPA's Cost Effectiveness Tests.
b) Please provide the specific calculations, both TRC and PAC, which yielded the cost-effectiveness results shown in the application.

Response

a) HONI confirms that we complied with Section 4.1.1 of the CDM Code and used the OPA's Cost Effectiveness Tests.
b) As indicated in our submission, the cost effectiveness results are as follows:

Total Resource Cost:

Total Resource Cost (TRC) Test			
Benefits	Costs	Net Benefit	Test Ratio
$4,041,638	**$2,925,201**	$1,116,437	**1.4**

TRC Test Ratio = Benefits / Costs

Program Administrator Cost:

Program Administrator Cost			
Benefits	Costs	Net Benefit	Test Ratio
$4,041,638	**$3,605,690**	**$276,758**	**1.1**

TRC Test Ratio = Benefits / Costs

Participant Cost (PC) Test

Participant Cost (PC) Test			
Benefits	Costs	Net Benefit	Test Ratio
6,811,200	294,145	6,517,055	23.2

PC Test Ratio = Benefits / Costs

The following table outlines the inputs and assumptions used for the calculations of the cost effectiveness tests:

Measure and Input Assumption Sheet

Measure Name: Municipal & Hospitals

Efficient Technology & Equipment Description
The Municipal and Hospital Energy Efficiency Performance Program provides monetary incentives to municipal and hospital customers for overall electrical energy efficiency reductions within facilities and across their portfolio. This initiative requires participants to commit to continuous electrical energy management and efficiency action plans resulting in improvements year over year. Hydro One expects that the unique offerings (as described in our submission) of the initiative will assist in transforming this segment by entrenching energy efficiency and energy conservation as a core best practice within their organizations.
Base Technology & Equipment Description
Current processes and practices

Resource Savings Assumptions:

Participants
Hydro One expects to enroll roughly 7.5% of the potential customers or a minimum of 6 hospitals and 27 Municipalities from 2011 to 2014 **Breakdown by type of participants:** - 6 hospitals - 15 large municipalities - 8 medium municipalities - 4 small Municipality

Electricity *kW and/or kWh*
Peak Demand Savings: The average peak demand reduction per participant is estimated at 33kW for the duration of the initiative.. The average annual energy saving is also estimated at 10% **Energy Savings:** The average energy savings per participant is estimated at 773MWh for the duration of the initiative.. **Persistence** The results for each participant will consist of savings achieved through either equipment and/or behavioral changes that are assumed to persist from the time of customer enrollment to December 31, 2014. The incentive structure is designed such that participants will be paid for any incremental energy savings achieved from the date of customer participation to December 31, 2014. The energy savings in the TRC analysis are spread over 8 costing periods (3 winter periods, 3 summer periods and 2 shoulder periods) based on the end-use profile for this customer class derived from Hydro One data.
Natural Gas *m3 or Btu or CFM*
Gas savings are not included in the TRC analysis at this time. However, Hydro One is currently exploring the opportunities for collaborating with the gas utilities on this initiative.
Water
Water savings are not included in the TRC analysis at this time. However, Hydro One will be exploring opportunities for including water savings in this initiative

Other Input Assumptions:

Equipment Life *(years)*
• Capital Equipment: 16 years (lighting measures were used as a proxy for a typical project; source: 2010 OPA Measures and Assumption List)
Incremental Costs *(including equipment, operations & maintenance)*
Lighting measures were used as a proxy for a typical project; source: 2010 OPA Measures and Assumption List. • $20,000 ($50*400 Fixtures):average incremental cost for a large municipality (retrofits from 400W Metal Halide to T5 technologies) • $10,000 ($50*200 Fixtures): average incremental cost for a medium size municipality (retrofits from 400W Metal Halide to T5 technologies) Likelihood of small municipalities to undertake capital projects is assumed to be minimal in comparison to medium and large size municipalities and so has not been considered for program modeling.
Free Ridership *%*
The Free Ridership rate is assumed to be 20% which was estimated based on the past experience with this segment and it will be subject to verification through the EM&V process.
Incentives
Participating customers will be eligible to receive a financial incentive at [redacted] for incremental energy performance improvements. Incentives will be paid out annually on the higher of the overall verified performance savings or the deemed energy savings from equipment retrofits. For a given participant, incentives will be paid out from year to year for only new incremental energy and load savings.

Program Cost (excluding incentives)
Includes Program Management, Marketing, Audits, Membership and Training, and EM&V costs

Program Cost by year			
2011	**2012**	**2013**	**2014**
[redacted]	[redacted]	[redacted]	[redacted]

Filed: January 27, 2010
EB-2010-0332
Exhibit I
Tab 4
Schedule 10
Page 1 of 1

Pollution Probe INTERROGATORY #10 List 1

Interrogatory

Reference: Exhibit C, Tab 1, Schedule 2, pages 45-5 1

a) Will the Municipal and Hospital Energy Efficiency Performance Program's customer financial incentives for saving electricity be a function of their first year annual savings or a function of their savings over the life of the energy efficiency measures? For example, everything else being equal, will the financial incentive for an energy efficiency measure that saves 100 kWh per year for 20 years be greater than the financial incentive for an energy efficiency measure that saves 100 kWh for 5 years? And if yes, by how much?
b) Please provide the avoided cost value(s) (i.e. LUEC) used by Hydro One to evaluate the TRC Test benefits of the Municipal and Hospital Energy Efficiency Performance Program.
c) Please state the Municipal and Hospital Energy Efficiency Performance Program's proposed customer financial incentives per kWh and/or per kW and the time period during which a project would receive such incentive payments (e.g. one year, 5 years, economic life of the project's energy savings, etc.).

Response

a) The incentive structure in this initiative is based on annual savings and not the savings over the life of the energy efficiency measures.

b) Please refer to Exhibit I, Tab 4, Schedule 7.

c) The proposed customer financial incentive is $0.075 per kWh of savings. Incentives for this initiative are based on annual savings relative to a customer baseline, which will be reset annually through to December 31, 2014.

4.0 REQUESTED BOARD-APPROVED PROGRAMS

4.1 Need for Board-Approved Programs

The March 31, 2010, Directive by the Minister of Energy and Infrastructure allows distributors to meet their CDM targets through initiatives under the OPA-Contracted CDM Programs and OEB-Approved CDM Programs. The OPA has indicated that its Programs are expected to achieve 1,037 MW of the 1,330 MW provincial target, leaving the difference to be addressed by other OEB-Approved programs.

Hydro One intends to take full advantage of initiatives under OPA-Contracted Programs, which are expected to satisfy approximately 80% of the Hydro One CDM target. In addition to the OPA-Contracted programs, Hydro One requires a range of OEB-Approved Programs in order to satisfy the remainder of its allocated CDM target.

Hydro One has reviewed a range of programs as potential OEB-Approved Programs. Based on an extensive review of potential programs, Hydro One has prioritized the six programs that appear in Figure 4 for OEB approval.

Figure 4: Board-Approved CDM Programs

Program Name	Projected Budget ($)	Total Projected Reduction in Peak Provincial Demand (MW)	Total Projected Reduction in Electricity Consumption (GWh)	Cost Effectiveness Tests	
				TRC Ratio	PAC Ratio
Community Education Events	1,350,000	0.2	10	1.7	1.6
Neighborhood Benchmarking	3,150,000	2	61	1.2	1.2
Monitoring & Targeting	4,250,000	5	10	1.6	1.5
Small Commercial Energy Management and Load Control	15,200,000	20	20	1.7	1.9
Municipal and Hospital Energy Efficiency Performance	3,950,000	1	26	1.4	1.1
Double Return Plus	4,100,000 (13%)	21 (43%)	52 (29%)	11.3	7.4
Total	**32,000,000**	**49**	**179**		

The MW and GWh estimates are based on past programs' EM&V (e.g. Double Return) and data from third party consultants.

As part of Hydro One's process to develop the proposed OEB Approved Programs, the Company carried out cost effectiveness tests, including Total Resource Cost ("TRC") and Program Administrative Cost ("PAC") tests. Hydro One has also worked with other distributors and gas companies in order to maximize program efficiencies. Joint delivery of Board Approved Programs by CLD members can generate cost efficiencies for CLD members. Further synergies with the gas companies are also being investigated to further

Pollution Probe INTERROGATORY #13 List 1

Interrogatory

Reference: Exhibit C, Tab 1, Schedule 2, p. 58:

> "While the participants are encouraged to optimize their reduction in their peak demand, incentives are only applied to savings that range from a minimum of 5% to a maximum of 10% reduction."

Please explain in detail why Hydro One is not proposing to pay incentives for peak demand reductions in excess of 10%.

Response

While Double Return Plus is expected to be an effective initiative in achieving its objectives, it is one among many initiatives in our CDM portfolio in which we strive to strike a balance in meeting the needs of different customer classes through CDM offerings. As such, our intent is to avoid dedicating undue resources to one initiative at the expense of others.

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Tab 4
Schedule 14
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Pollution Probe INTERROGATORY #14 List 1

Interrogatory

Reference: Exhibit B, Tab 1, Schedule 2, p. 3; and Exhibit C, Tab 1, Schedule 2, p. 57

Please explain in detail why Hydro One is not proposing to offer a Double Returns program also to its residential and small volume customers.

Response

The application of Double Return Plus to residential and small volume customers will require significant program redesign in order to account for the differences in rate and billing structure, enabling technologies, and customer class characteristics. Hydro One will continue to explore opportunities for extending this initiative to a wider range of demand-billed customers and will come forward with new proposed initiatives as appropriate.

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IMPACT AND PROCESS EVALUATION OF THE DOUBLE RETURN PROGRAM

Submitted to:

Hydro One Networks Inc.

July 8, 2008

SUMMIT BLUE
CONSULTING, LLC

FINAL REPORT

1 INTRODUCTION

This report provides an assessment of Hydro One Networks Inc. ("Hydro One") Double Return demand response initiative through a process and impact evaluation of the program. The Double Return Program ("Double Return") is a demand response initiative targeted at medium to large commercial and industrial (C&I) interval-metered customers. The purpose of this effort is to provide Hydro One with information on program results and ways the program might be improved going forward.[2]

Double Return provided a cash incentive to customers for actions they took to reduce their peak energy usage. By reducing their average winter and summer peak electricity consumption by 5-10%, the qualified customers received a cheque for double the amount of the delivery charges they already saved. This is the first "matched savings" program specifically designed for medium to large C&I customers[3] in Ontario. Customers are automatically enrolled in the program, and Hydro One provides a detailed energy efficiency guide to assist customers in developing and implementing their electricity reduction plans. Hydro One also developed a secure web site which provided customers with individual historical peak consumption information, their targets for 10% reduction, and the day and time when they reached their peak energy use. For customers who required individual assistance to develop a plan to reduce peak demand, Hydro One also offered one-on-one consultations with an energy specialist who visited their facility and provided a walk through to identify energy savings opportunities as well as a follow-up report. Double Return was available in the winter months (Dec 2006, Jan/Feb 2007) and summer months (June through August). The incentive calculations are based on actual load data collected from customers' interval meters. Customers did not have to apply for the program but an attempt was made to avoid providing incentives in cases where a shutdown had occurred or, alternatively, a customer was disqualified from receiving incentives for a legitimate business expansion.

In evaluating this program, it was important to take into account its unique features compared to other programs that had a "matched savings" basis or complementary component. California has implemented several variants of such programs, mostly focused on residential customers without interval meters where reductions in peak period savings could not be determined. These have generally been termed 20/20 programs where residential customers that saved 20% of their energy during any single summer month would have their bills reduced by a similar amount. Variants of these programs were extended from monthly reductions to summer season reductions to reduce the impact of naturally occurring volatility in consumption. Two California utilities (SDG&E

[2] This evaluation was not a regulatory requirement since the program was funded through third tranche spending,

[3] This is the first "matched savings" program to target mid-C&I customers. Other efforts have focused on residential customers, notably those in California, Oregon and Utah. For more information see: Violette, D. and G. Cook, *Quick-Hit DR Programs: A Case Study of California's 20 -20 Program*, prepared for the Ontario Power Authority, by Summit Blue Canada, 2005.

and PG&E) have also applied the 20/20 program to customers in C&I segments and targeted peak period consumption. In addition, similar programs were implemented in Utah and Oregon. Over a dozen variants have been implemented or tested across North America.

All of the "matched savings" programs have had objectives beyond inducing reductions in energy use. They are viewed as ways to create awareness and help launch other follow-up programs. This is also true for Hydro One's double return program. As a result, these matched programs have also had social marketing, awareness and educational goals as key objectives. This is accomplished through the marketing processes used to promote the program, the automatic enrollment of all eligible participants, and the supporting information offered, in addition to the cash incentives to reduce energy use.

None of these matched savings variants have had the specific focus of the program implemented by Hydro One – a plan that allowed for rapid implementation, automatic customer participation, and the ability to produce verifiable energy and peak period impact estimates. It is important to account for the unique aspects of Double Return program which encompasses marketing and promotion, the specific customers targeted and defined as active in the program, and the methods used to account for other influencing factors. Double Return was more complex than programs that had been offered to residential customers but nowhere near as complex as the 20/20 program offered to commercial and industrial customers in California in 2005. The chart below compares some of the variants of these programs.

<table>
<tr>
<td>Residential 20/20 (2000-2001)
• Energy savings of 10%
• No applications needed
• Measured on seasonal bill
• Mass marketing</td>
<td>Commercial/Industrial Peak Day 20/20 (2005)
• Energy reductions of 10% to 20% during peak day events
• Application & approval
• Metering needed
• Minimum 20 kW demand</td>
</tr>
<tr>
<td colspan="2">Targeted Outreach (Hydro One Double Return 2007)
• Peak demand savings of 5%
• No applications needed
• Measured by interval meters
• Workshops, customer websites, on-site visits</td>
</tr>
</table>