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BY COURIER

January 11, 2005

Mr. John Zych
Secretary
Ontario Energy Board
Suite 2601, 2300 Yonge Street
P.O. Box 2319
Toronto, ON.
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Dear Mr. Zych:

RP-2004-0203/EB-2004-0533 Conservation and Demand Management Plans on Behalf of Hydro One Networks Inc. and Hydro One Brampton Networks Inc.

Hydro One Networks Inc. (Networks) and Hydro One Brampton Networks Inc. (Brampton) seek a final order of the Board for approval of our conservation and demand management (CDM) plans.

Attached is an application which reflects a joint effort between Networks and Brampton. It is supported by a CDM plan comprising:

- an Executive Summary, followed by a set of high-level planning assumptions and considerations in the choice of strategy and programs, which is common to both companies and
- two individual, but similarly prepared CDM Plans, with Networks' and Brampton's separate portfolios of initiatives and related expenditures, provided in Schedules A and B, respectively.

If you have any questions on Networks' plan, please call Carolyn Russell (Senior Advisor, Regulatory Affairs), who may be reached by phone (416) 345-5914, fax (416) 345-5866, or e-mail: carolyn.russell@HydroOne.com. Her address is Hydro One Networks Inc., 483 Bay Street, South Tower, 8th Floor, Toronto, Ontario M5G 2P5.

If you have questions on Brampton's plan, please call Scott Miller (Manager, Regulatory Affairs), who may be reached by phone (905) 840-6300, fax (905) 840-0967, or e-mail: smiller@HydroOneBrampton.com. His address is Hydro One Brampton Inc., 175 Sandalwood Parkway West, Brampton, Ontario L7A 1E8.

Documents pertaining to this application should be served to both Glen MacDonald (Senior Advisor - Regulatory Affairs), who may be reached by phone (416) 345-5913, fax (416) 345-5866, or e-mail: glen.e.macdonald@HydroOne.com and Scott Miller at the address noted above.

Ten hard copies and a diskette with an electronic version of this application are enclosed.

Yours truly,

Brian Gabel

Attachment

cc. Mr. A. Fogwill, Applications Director, Market Operations
Carolyn Russell, Hydro One Networks Inc.
Scott Miller, Hydro One Brampton Networks Inc.

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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 Applications by Hydro One Networks Inc., and Hydro One Brampton Networks Inc. for Orders approving Conservation and Demand Management Plans.

APPLICATION

The Application

1. The Applicants are Hydro One Networks Inc. (“Networks”) on behalf of its distribution business and Hydro One Brampton Networks Inc., subsidiaries of Hydro One Inc. Networks is an Ontario corporation with its head office in the City of Toronto, which carries on the business, among other things, of owning and operating electricity distribution facilities within Ontario. Hydro One Brampton Networks Inc. (“Brampton”) is an Ontario corporation with its head office in the City of Brampton, which carries on the business of owning and operating electricity distribution facilities in the City of Brampton, Ontario.
2. Networks and Brampton are seeking a final order, or orders of the Ontario Energy Board (“the Board”) granting:
 - (a) An approval of each utility’s conservation and demand management (“CDM”) Plan,
 - (b) A confirmation that each utility’s CDM Plan satisfies the condition of a financial commitment to reinvest in CDM initiatives, set by the Minister of Energy.
 - (c) A confirmation that each utility’s position on future adjustments to its CDM Plan which is set out in paragraph 15 of this Application, is appropriate and acceptable.
 - (d) A confirmation that each utility’s actual expenditures incurred in connection with the preparation of this Application and its participation in this proceeding (including any

1 intervenor or Board costs that are attributed to each utility) will be credited to the
2 required amount of CDM expenditures for each utility.

3 3. This Application, which reflects a joint effort between Networks and Brampton, is
4 supported by an attached CDM Plan, comprising:

5 (a) an Executive Summary, followed by a set of high-level planning assumptions and
6 considerations in the choice of strategy and programs, which is common to both
7 companies and

8 (b) two individual, but similarly prepared CDM Plans, with Networks' and Brampton's
9 separate portfolios of initiatives and related expenditures, provided in Schedules A
10 and B, respectively.

11 4. Board approval of these plans would enable a total of approximately \$42.7 million to
12 fund CDM programs. Networks anticipates funding in the amount of \$39.5 million from
13 the next installments of Market Adjusted Rate of Return ("MARR") – not including an
14 adjustment for Payments in Lieu of taxes ("PILs"). Brampton is planning CDM
15 expenditures of \$3.2 million, also based on the Board-approved after-tax MARR
16 adjustment.

17 5. This submission is prepared in accordance with the Board's Procedural Order, dated
18 October 5, 2004.

19 **B. Procedural History**

20 6. By letter dated December 19, 2003, the Minister of Energy ("the Minister") advised
21 distributors that they would be permitted to apply to the Board for recovery of their third
22 tranche of MARR (postponed by the enactment of Bill 210), as of March 1, 2005. Board
23 approval would be "conditional on a financial commitment to reinvest in conservation
24 and demand management initiatives an amount equal to one year's incremental returns."

25 7. By letter dated May 31, 2004, the Minister advised distributors pursuant to Section 79.6
26 of the *Ontario Energy Board Act, 1998* that they were permitted to apply to the Board for
27 a deferral account with which to track CDM expenditures in advance of their ability to
28 recover such costs through implementation of the next stage of allowable return on
29 equity. This letter listed a variety of specific CDM measures such as energy efficiency,

1 load management measures and initiatives for low income and other hard to reach
2 consumers, which the Board should support.

3 8. In this letter, the Minister also stated that “the prudence of actual expenditures in these
4 areas will ultimately be determined by the OEB” and also that “[c]onservation assets
5 should be included in rate base.”

6 9. Following a July 16, 2004 letter to distributors with guidelines to establish a CDM
7 deferral account and to assist with the planning and application for approval of their
8 CDM plans, the Board on August 30, 2004, issued an Information Bulletin which
9 indicated its readiness to give “preliminary approval” of planned CDM activities and its
10 intent to effect a review of the prudence of actual expenditures. It anticipated that “final
11 approval will be given, provided the money spent was in accordance with the
12 distributor’s proposal and that commitments outlined in the plan have been met. That is,
13 did the distributor achieve what it said it would and was it done cost effectively.”

14 10. On October 5, 2004, the Board issued a Procedural Order that addressed, among other
15 things, applications for approval of CDM plans and filing requirements. The Board
16 established a process which provided distributors the choice of applying for interim or
17 final approval. Networks and Brampton understand that “interim” approval is similar to
18 the “preliminary approval” discussed in the Board’s August 30th Information Bulletin —
19 in essence, an order which could be set aside or amended should a successful argument
20 be made that the approach taken in the interim order was inappropriate. This Information
21 Bulletin states that a final order is a “binding decision approving the plan and deciding
22 that the third tranche will be available to meet the distributor’s financial commitment to
23 invest in conservation and demand management activities.” It further indicates that a
24 final order is “a binding decision” and “a party taking this approach would have the
25 certainty that a final order would not be reviewed later by the Board.” The filing
26 requirements listed in this Procedural Order are addressed in paragraph 18 of this
27 Application.

1 **C. A Summary of Networks' and Brampton's CDM Plans**

2 11. The CDM Plans of Networks and Brampton comprise load management, conservation,
3 customer education and utility efficiency (distribution system loss reduction) initiatives,
4 as well as related research and planning. These include initiatives such as a residential
5 real-time energy use monitoring pilot, a residential low-income initiative and mass
6 market conservation initiatives, such as energy efficiency audits, compact fluorescent
7 lights and LED holiday light exchange. There is also a farm efficiency initiative,
8 commercial and industrial load control, a time-of-use rates pilot project, smart metering,
9 audits, power factor correction and technology demonstration for business customers.

10 12. Figure 1 on page 1 of the Executive Summary provides a top-level summary of the
11 initiatives and expenditures comprising Networks' and Brampton's plans. A breakdown
12 of total spending by customer type, program and year for Networks is provided in Figure
13 19 on page 26 of Schedule A and for Brampton in Figure 36 on page 44 of Schedule B.

14 13. In choosing program concepts for further development, Networks and Brampton have
15 been using the following criteria:

- 16 (a) Customer Needs – The program meets the needs of their individual customer bases.
17 (b) Benefit Allocation – Benefits arising from the planned initiatives to be distributed
18 across their customer bases.
19 (c) Benefit Assurance – Potential to realize energy savings and cost of delivery.
20 (d) Leveraging Partnerships – Partnerships that will make use of economies associated
21 with greater scale of delivery or existing delivery channels.
22 (e) Activities Support Minister's Plans - The preferred concepts or initiatives to fit within
23 the activities identified in the Minister's May 31, 2004, letter to distributors.

24 14. Networks and Brampton believe that this is a balanced proposal, but acknowledge that
25 the planned activities are still generally at the early conceptual stage. Furthermore, the
26 current dynamic state of the electricity market will necessitate flexibility in program
27 planning and development. Such flexibility will enable Networks and Brampton to
28 respond to customer demand levels and the results from pilot projects so that funds can
29 be re-allocated among programs as needed. Also, final budget estimates will change due
30 to the results of competitive tender processes where used. Accordingly, potential

1 adjustments to the CDM Plans will take the form of the discontinuance of initiatives that
2 were initially selected for inclusion in the CDM Plans, the addition of new initiatives and
3 / or the re-allocation of the budget among initiatives.

4 15. Networks and Brampton request that, once final approval of each plan is granted, the plan
5 adjustments described above would not require separate Board approval until the
6 cumulative fund transfers among programs result in a variance that exceeds 20% of each
7 utility's third tranche spending obligations, as proposed by the Coalition of Large
8 Distributors and approved by the Board on December 10, 2004 (RP-2004-0203/ EB-
9 2004-0485/ EB-2004-0485/ EB-2004-0486/ EB-2004-2487 /EB-2004-0488/ EB-2004-
10 0489).

11 **D. Monitoring and Evaluation**

12 16. Networks and Brampton will work together to provide quarterly and annual reports on
13 their CDM initiatives in accordance with the Board's Decision on December 8, 2004
14 respecting the CDM plans of the Coalition of Large Distributors (as referenced above).
15 In this Decision, the Board suggests that a working group be formed to develop a
16 methodology for determining cost-benefit analysis, to be used in annual reporting.
17 Networks and Brampton would be interested in participating in this working group
18 should one be convened.

19 **E. Filing Requirements**

20 17. Networks and Brampton understand that the requirements in the Board's July 16, 2004
21 Preliminary Guidelines, particularly those addressing quantification of program benefits
22 and assessment of program costs and benefits, no longer apply and have been superceded
23 by the requirements of the Board's October 5, 2004 Procedural Order.

24 18. These October 5th filing requirements are:

- 25 (a) a description of the proposed programs identifying the affected customer classes and
26 the specific details of each program;
- 27 (b) the total program budget including the total amount and schedule of the annual
28 expenses for the 2004-2007 time period; and

1 (c) the anticipated program benefits, including quantifiable benefits where these can be
2 identified (i.e. energy savings (kW or kWh)). Where the program has anticipated
3 qualitative benefits (such as enabling technologies or customer education), these
4 expected qualitative benefits must be described.

5 19. Networks and Brampton submit that the information in their CDM plans meet the
6 Board's requirements. Quantified (kilowatt or kilowatt-hour) savings have not been
7 filed. Networks and Brampton believe it is prudent to invest initially in pilot projects
8 which test promising technologies and approaches and to assess the customer results of
9 these projects before embarking on a full-scale roll-out. Until such results are obtained,
10 Networks and Brampton believe it is not feasible to establish such targets. Networks and
11 Brampton have provided their understanding of the qualitative benefits of these
12 initiatives, in accordance with requirement (c), above.

13 **G. Document Service**

14 20. Networks and Brampton request that a copy of all documents filed with the Board be
15 served on both Applicants and the Applicants' counsel, as follows:

16

17 (a) The Applicants:

18

19 Mr. Glen MacDonald
20 Senior Advisor - Regulatory Affairs
21 Hydro One Networks Inc.

22

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24 483 Bay Street
25 Toronto, Ontario
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b) The Applicants' Counsel:

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Rogers, Moore

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DATED at Toronto, Ontario, this 11th day of January, 2005.

HYDRO ONE NETWORKS INC.
HYDRO ONE BRAMPTON NETWORKS INC.
By their counsel,

Don Rogers

**Hydro One Networks Inc.
and
Hydro One Brampton Networks Inc.**

**Conservation and Demand
Management Plan**

RP-2004-0203 / EB-2004-0533

January 11, 2005

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Executive Summary

Purpose of Submission

Hydro One Networks Inc. (Networks) and Hydro One Brampton Networks Inc. (Brampton) seek a final order of the Board for approval of their CDM Plans as well as confirmation that their respective CDM plans satisfy the Minister's condition of a financial commitment to reinvest in CDM initiatives.

Provincial Goal

Networks and Brampton will help advance the Provincial Government's conservation and demand management (CDM) initiative, which has established an overall goal of a five per cent reduction in the Province's energy needs by 2007. Accordingly, their CDM Plans will contribute to reducing energy growth and shifting demand while serving our customers' interests.

MARR Funding for Conservation and Demand Management

Networks anticipates funding in the amount of \$ 39.5 million from the next installments of Market Adjusted Rate of Return (MARR) – not including an adjustment for Payments in Lieu of taxes (PILs). Brampton is planning CDM expenditures of \$3.2 million also based on the Board-approved after-tax MARR adjustment. This funding will be allocated as follows (numbers may not add exactly due to rounding):

Figure 1.0

Networks		Brampton	
	\$M		\$M
Load Management		Residential	
• Smart Metering (partial)	14.9	• CFL Promotion	0.5
• TOU Rates Pilot	0.5	• Holiday Lights Trade- in	0.1
• Residential Load Control	4.7	• Customer Education	0.2
• C&I and Farm Load Control	3.5	• Pilots	0.3
		– Load Control	
<i>Sub-total</i>	23.6	--Real-Time Monitoring	
		-- Smart Metering	
		<i>Sub-total</i>	1.0
Conservation		Commercial and Industrial	
• Low Income Program	4.5	• Power Factor Correction	0.2
• Residential Real-Time Monitoring	1.8	• Technology Demonstration	0.1
• Farm Efficiency	0.8	• Conservation Assets	1.3
• Distribution Loss Reduction	2.0	• Load Control	0.5
• Mass Market Programs	2.1		
		<i>Sub-total</i>	2.1
<i>Sub-total</i>	11.2	Utility Efficiency (System Loss Reduction)	0.1
Communication/ Education Program Management and Research	1.0	Research and Planning	0.04
	3.7		
Total	39.5	Total	3.2

The smart meter funding above is partial funding, for the initial start-up and first priority implementation of the program. The focus here on smart meters is to advance an

important Provincial initiative. It also helps put in place an enabling platform for CDM activities such as load management. The full metering plan, estimated to be in the several hundred million-dollar range, will be developed after the Board's final plan is presented, expected to be February 15, 2005.

Criteria

The programs are directed at the needs of the customer bases of Networks and Brampton. The former is unique in terms of its extensive Provincial coverage, often over rural regions of low density. In choosing program concepts for development, Networks and Brampton have been using the following criteria:

- Customer Needs – The programs meet the needs of Networks' and Brampton's individual customer bases.
- Benefit Allocation – Benefits arising from the planned initiatives to be distributed across Networks' customer base.
- Benefit Assurance – Potential to realize energy savings and cost of delivery.
- Leveraging Partnerships – Partnerships that will make use of economies associated with greater scale of delivery or existing delivery channels.
- Activities Support Minister's Plans - The preferred concepts or initiatives to fit within the activities identified in the Minister's May 31, 2004, letter to distributors.

Flexibility and Prudence

Networks and Brampton believe that this is a balanced proposal, but acknowledges that the planned activities are still generally at the early conceptual stage. Furthermore, the current dynamic state of the electricity market will necessitate flexibility in program planning and development. Such flexibility will enable Networks and Brampton to respond to customer demand levels and the results from pilot projects so that funds can be re-allocated among programs as needed. Also, final budget estimates will change due to the results of competitive tender processes where used.

Networks and Brampton believe that the most prudent approach to investing the one-time infusion of MARR funds, is one which utilizes pilot projects to test promising technologies and approaches before embarking on a full-scale roll-out. Before a full program is launched, the results of pilot projects will be reviewed for customer acceptance, customer behaviour change, and amount of either energy savings or demand reduction. Until customer results are obtained, it is not possible to establish feasible targets for either kilowatt-hour savings or kilowatt demand reduction. Hence, we consider it premature to establish such program targets at this time.

Cost Effectiveness

Given the current dynamics in Ontario's electricity market, the resulting lack of published system avoided costs, and the fact that the proposed Conservation Bureau has not yet been established, there is currently an inability to apply proposed cost benefit tests that put supply and demand on equal footings. It is expected that the new Ontario Power Authority, the new Conservation Bureau and/or the Board will establish such tests and the associated inputs for 2006 rates.

This plan encompasses a blend of conservation, efficiency and demand management initiatives that fit well with the Minister's vision. Those components have been chosen for their capability to contribute to peak demand reductions within the short planning horizon, as well as to build toward culture change and to lower energy consumption

The detailed program descriptions for Networks and Brampton are contained in Schedules A and B, respectively.

Introduction

Networks and Brampton seek a final order of the Board for approval of their CDM Plans. Networks and Brampton also seek confirmation that their respective CDM plans satisfy the Minister's condition of a financial commitment to reinvest in CDM initiatives. This submission does not include initiatives from Hydro One Remote Communities Inc. (Remotes), which is seeking approval of its CDM plan under a separate filing.

This submission reflects a joint effort between Networks and Brampton in the development of a CDM strategy with co-operative work on research, planning, communications and program support. However, each company is assessing a portfolio of CDM concepts and initiatives which is tailored to its individual customer base to the extent possible. Accordingly, this submission is structured with a set of high-level planning assumptions and considerations in the choice of strategy and programs common to both companies, while Networks' and Brampton's separate portfolios of programs and related expenditures are described in Schedule A and Schedule B, respectively.

Upon the Board's approval of these plans, Networks and Brampton would release work for competitive tender and/or negotiation with product suppliers, delivery channel members, or experts in the field of conservation, efficiency, and demand management as required. The Company has initiated a Request For Qualification during the period June to December 2004 and has assembled a roster of potential collaborators.

Planning Assumptions

Board approval of these plans would enable a total of approximately \$42.7 million to fund CDM programs, split between Networks and Brampton as follows.

Networks anticipates CDM funding in the amount of \$39.5 million from the next installments of the Market Adjusted Rate of Return (MARR), not including any further adjustment for Payments In Lieu of taxes (PILS).

Brampton has developed a CDM plan whose spending equates with a revenue increase of \$3.2 million (which is the MARR increase exclusive of any PILs adjustment).

These spending commitments are a precondition to the Board's approval of applications for rate changes for both Networks and for Brampton. In their applications for March 2005 rate adjustments, both Networks and Brampton will seek an increase in rates for the third stage of MARR and for related PILs. We anticipate that the Board, when authorizing the March 2005 rate increase, will also approve an increase in revenue requirement for PILs.

While the Board has directed that expenditures related to this initial MARR funding be completed by the end of September, 2007, we anticipate that some portion of this funding may be needed through to the end of the year or possibly into 2008.

Our two companies are proposing to follow a pilot project approach to confirm the costs and benefits before full scale programs are initiated. Further, specific criteria which Networks and Brampton are using in their decision-making are identified in the Strategy sections of Schedules A and B.

It is expected that the Conservation Bureau (of the soon to be established Ontario Power Authority) or the Board will develop reliable cost-benefit tests and inputs. These will be incorporated in the updated Distribution Rate Handbook and their use will assist Networks, Brampton and other LDCs in evaluating future programs funded through the 2006 rate review process.

Program Development Considerations

Provincial Goal

The Provincial Government has committed to reducing energy demand in the Province by five per cent by the year 2007. A five percent reduction of Ontario's 26,000 MW summer peak comprises 1,300 MW.

System peak demand is a key driver behind the need for new generation and transmission infrastructure. Energy costs are also highly sensitive to peak demands. We note that the Province of Ontario has in recent years trended towards summer peak rather than winter peak, mainly due to increased air-conditioning. Accordingly, Hydro One's early efforts will include pilot tests of techniques to help manage summer peak.

The following charts in Figure 2.0 below, outline the 2003 energy consumption and summer and winter peak demand for Networks' and Brampton's distribution customer bases for 2003.¹

Figure 2.0

Networks (Actual for 2003)

Customer	Energy (GWh)	Summer Peak (MW)	Winter Peak (MW)
Commercial	5,550 (24%)	1,211 (37%)	1,143 (26%)
Industrial	3,042 (13%)	753 (23%)	798 (18%)
Farm	2,419 (11%)	262 (8%)	500 (12%)
Residential	11,701 (52%)	1,047 (32%)	1,895 (44%)
Total	22,711	3,272	4,336

Brampton (Actual for 2003)

Customer	Energy (GWh)	Summer Peak (MW)	Winter Peak (MW)
Commercial	1,320 (38%)	232 (35%)	218 (40%)
Industrial	1,170 (34%)	185 (28%)	158 (29%)
Residential	951 (28%)	245 (37%)	169 (31%)
Total	3,441	662	546

The amount of energy savings or demand reduction actually attainable will depend on a number of external factors, not the least of which are the pricing structures which the OEB has been directed to review. Changes to pricing structures are contemplated for both the commodity and for distribution charges.

Until such factors are in place, and customers have had some experience managing their load and see some savings, and some of the culture change has begun to take hold, Networks and Brampton cannot determine their capability to achieve significant targets.

Customer Energy Use Profile and Load Analysis

Using in-house end-use models and the data and information on hand, the summer and winter peak day profiles by sector and end-use were analyzed. The analysis shows which customer groups and end-uses are major contributors to the summer peaks for

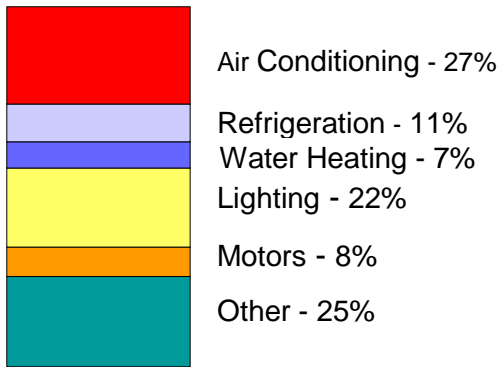
¹ Breakdown between customer sectors is based on assumptions on end-use equipment.

Networks, Brampton and Ontario in total. As noted earlier, the Province of Ontario has trended toward a greater summer peak than winter peak.

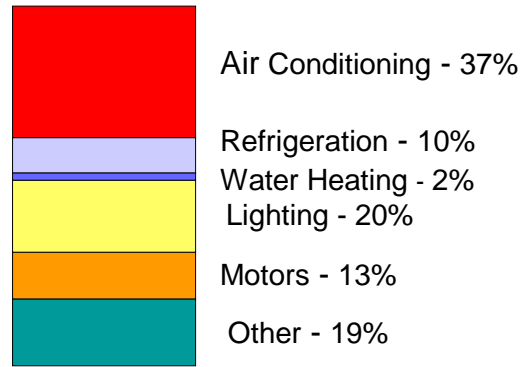
The largest components of summer peak demand for Networks and Brampton are air conditioning and lighting. We therefore, are concentrating our early conservation and demand efforts on these key areas of demand, as well as on residential water heating control which has been successfully implemented in Ontario in the past.

Figure 3.0

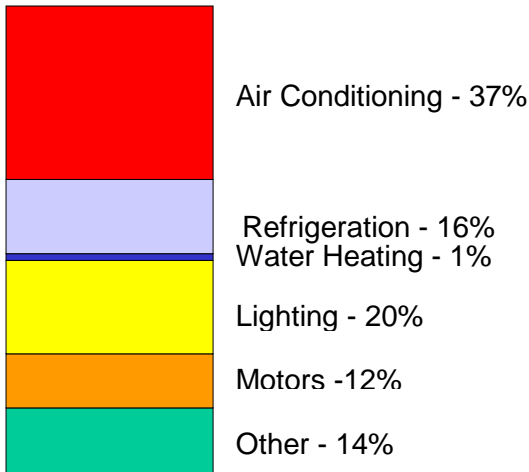
**Networks' All Sector
Summer Peak**



**Provincial All Sector
Summer Peak**



**Brampton's All Sector
Summer Peak**



Schedule A

Hydro One Networks Inc.

Conservation and Demand Management Plan

RP-2004-0203 / EB-2004-0533

January 11, 2005

Hydro One Networks Inc. (“Networks”) CDM Plan

Objectives

The objectives of this plan are to:

- Contribute to the creation of a conservation culture in Ontario.
- Help consumers and businesses manage their electricity use.
- Contribute to the Province’s target of reducing energy demand.
- Support community-based programs and foster co-operation with municipal local distribution companies.

Strategy

Choice of Program Concepts

In developing the plan, the following criteria are being used to assist in deciding which program concepts are likely to be most cost-beneficial and a priority for further development:

- Customer Needs – The program meets the needs of Networks’ customer base.
- Benefit Allocation – Benefits arising from the planned initiatives to be distributed across Networks’ customer base.
- Benefit Assurance – Potential to realize energy savings and cost of delivery.
- Leveraging Partnerships – Partnerships that will make use of economies associated with greater scale of delivery or existing delivery channels.
- Activities Support Minister’s Plans - The preferred concepts or initiatives fit within the activities identified in the Minister’s May 31, 2004, letter to distributors.

General Program Strategies

Networks will:

- Rely on external expertise (consultants, contractors, universities, etc.) where appropriate to assist with research, concept design and program development and delivery.
- Leverage partnerships and work with other LDCs, the EDA, Government agencies, such as Natural Resources Canada (NRCan) and the eventual Ontario Power Authority Conservation Bureau, to more efficiently leverage our efforts with those underway or planned elsewhere in the Province.
- Continue to place a high priority on a few quickly implemented pilot projects to begin assessing customer response.

The demand management and conservation work that Networks is currently undertaking or plans to undertake in 2004-2007 will include initiatives in the areas of:

- Load management (which includes metering, a time-of-use rates pilot project and load control initiatives).
- Conservation and energy efficiency (which includes a residential low-income program, a residential real-time energy monitoring pilot, farm efficiency and other mass market conservation initiatives, such as compact fluorescent lights).
- A distribution system loss reduction initiative.

- Customer communications, education and continuing program support.

Networks' CDM program overview is illustrated in Figure 4.0 below.

Figure 4.0

Initiative	Funding (\$ 000s)
Load Management	\$ 23,600
Conservation and Efficiency	11,200
Communication and Education	1,000
Program research, planning and administration	3,700
Total	\$ 39,500

Load Management: Smart Metering

Target Markets

All of Networks' customers are expected to benefit from this program.

Description of the Program

Smart metering provides the ability to record consumption in time intervals that can be matched to price signals aligned to reflect the true cost of power.

The provincial targets for smart metering, established in the Minister of Energy's directive, are 800,000 smart meters by 2007 and all 4.3 million meters by 2010. This plan describes Networks' initial start-up effort to contribute to the Province's smart metering program.

The Board has established working groups, populated by stakeholder representatives to examine, among other things, prioritization of smart meter deployment in the Province. Based on the directive above, the group is recommending that LDCs install smart meters for 20% of their customer population by 2007 and for the remainder by 2010 (refer to RP-2004-0196 Smart Meter Initiative-OEB Draft Implementation Plan). The Board's recommended Smart Meter Implementation Plan is expected on February 15 2005.

The following deployment pattern is generally consistent with the Board working groups' recommendation, as it would be applied to Networks:

Figure 5.0

Full Smart Metering Deployment:	<u>Total Customers</u>
All demand-billed customers (>50 kW) by 2007	9500
All new customers (mid-2005 – 2007)	
• New connections	40,000
• Service Upgrades	15,000
• Measurement Canada requirements	50,000
Mass-geographic deployment (2006 – 2007)	125,500
Total Meters by 2007	240,000
Mass-geographic deployment (2008 - 2010)	960,000
Total Meters by 2010	1.2 Million

An integral piece of Networks CDM plan will be the funding of an initial deployment for 2005-06 of smart meters in the Province.

Benefits

Understanding and reacting to proper pricing is an essential component to creating a conservation culture and managing customer demand. The largest benefit of smart meters is providing customers with the ability to understand their consumption patterns and to make effective decisions on usage.

Working Assumptions

Since LDCs do not have a supply obligation or commodity price exposure, the benefits to support expenditures reside in other areas of the market.

The infrastructure investments for smart meters can also be used as a platform for other CDM and productivity initiatives (e.g. load control, automated meter reading, etc.). It is Networks'

intention to study these and other potential benefits with an aim to reduce costs or increase service for customers. The CDM plan expenditures will be directed to the minimum functionality that satisfies the Minister's directive. Approval for added functions will be presented in 2005 as proposed by the OEB working groups in their draft report.

Early indications, again from the OEB work group's draft report, are that cost recovery for smart meters will be permitted through delivery charges. The funds outlined in this CDM are only for part of the full metering deployment requirement. CDM funding will be used for the initial start-up and deployment for about the first year of the implementation plan.

Budget

The demand management funds allocated to the smart metering program would address initial startup costs and roughly the first twelve months of smart meter deployment. Since the OEB's final smart meter implementation plan has not yet been finalized, the deployment plan will not be in one calendar year. Hence the first twelve months of initial smart meter deployment will cover the later part of 2005, and the earlier part of 2006.

Figure 6.0

Customer Segment	# of Meters	OMA / Capital	2005 / 2006 \$'000s
Start-up Costs		OM&A	\$ 1,400
Customers > 50 kW, retrofit demand meters	1,500	Capital	\$ 6,300
Customers < 50 kW, (e.g. new connections, service upgrades,)	24,000	Capital	\$ 7,200
Total from CDM funding			\$ 14,900

As noted above, the MARR funds are directed to initial start-up and first priority implementation of Networks' contribution to the Province's smart metering program. This funding is not sufficient for the full program, which anticipates meter replacements on a mass scale and which Networks estimates will require expenditures in the range of several hundred million dollars.

The budget assumes:

- ◆ No provision for ongoing OM&A, as an implementation plan has yet to be developed.
- ◆ Includes cost of new customer connections at above 200 kW but below 500kW as per OEB recommendation of March 2004 (see description page 12).

Load Management: Interval Metering Pilot

This pilot project was discussed in Networks' October 1, 2004, application for a deferral account to address the company's expenditures on demand management. It will be incorporated into the company's future smart metering program.

Target Markets

This pilot project is targeted to the approximately 130 new farm, commercial and industrial customers who will consume an average annual peak amount of electricity within the 200 to 500 kW range per month.

Description of the Program

The main objectives of this project are to respond to the OEB's March 2004, Report to the Ministry of Energy on Demand Side Management and Demand Response and to develop a better understanding of the logistics of undertaking the Minister's directive on smart metering. The report recommends lowering the Distribution System Code threshold to 200kW from 500kW for interval meter installations on new load customers. Accordingly, in May 2004, Networks began to install interval meters at the premises of new customers with demand equal to and greater than 200 kW.

Benefits

As a result of this measure, these customers can access their load profile data. This will educate customers on their energy use patterns, help them better manage their load and thus aid them in reducing their bills.

Budget

The incremental cost to install interval meters versus that for demand meters for the 130 new customers in the segments discussed above is estimated at \$200,000 per year.

Incremental Cost for: \$200,000

This cost has now been included in the smart metering initiative (discussed on page 11).

Load Management: Time-of-Use Rate Pilot

The OEB approved this pilot project on an interim basis, effective on November 10, 2004 and on a final basis, December 21, 2004 (RP-2004-0203/EB-2004-0461).

Target Markets

The pilot program applies to customers whose off-peak period electricity demand is substantially higher than that during the 7 a.m. to 7 p.m. peak period. The program will be offered to Networks' core General Service, Farm, and T-class customers as well as to eligible General Service and Large Use customers of acquired LDCs.

Description of the Program

This pilot program offers customers rate incentives through the application of rates that help to shift electricity demand away from periods of maximum demand and into the off-peak periods. There is no change proposed to existing rates. Instead, eligible customers would have the current volumetric charge (\$/kW/month) applied to their on-peak billing demand only, rather than to their overall billing demand. Depending on the difference in demand between the two time periods, customers could realize substantial savings in their distribution bills. The on-peak period is defined as 7 a.m. to 7 p.m. weekdays excluding holidays, similar to the definition currently applied for the calculation of wholesale Transmission Network charges. The off-peak period is defined as all remaining hours. Several implementation eligibility criteria apply:

- A ratio of off-peak billing demand at least double that of on-peak billing demand.
- Sustainability of the minimum ratio of off-peak to on-peak billing demand for at least two consecutive billing periods.
- The appropriate metering, capable of recording demand by interval period, must be in place.

Customer consumption patterns will be reviewed annually to ensure that they continue to meet the eligibility criteria. All applicable pass-through charges would continue to apply.

Benefits

The number of customers who will modify their consumption patterns to take advantage of this pilot program will indicate whether Distribution charges are an impediment or a significant factor in promoting load shifting by customers. Encouraging Commercial and Industrial customers to shift their demand away from the more constrained peak period would benefit both those customers and the electricity system as a whole. The net effect is lower electricity demand during the on-peak period and lower system losses. Consequently, some reduction would be expected in the electricity commodity prices paid by all electricity customers since, in general, lower demand requires less expensive generating capacity to meet that demand.

Budget

Figure 7.0
(\$'000s)

Time of Use Rate Pilot	2004/2005	2006	2007	Total
OM&A	175	150	150	475

The Board has approved an amount of \$150,000 per year or \$450,000 to 2007, to address revenue losses associated with the pilot project. The amount could be higher if the program is successful and more customers change their usage patterns as a result of the availability of the interim rate. In addition, the estimated costs of the proposal include one-time costs for billing, communication and monitoring costs in the range of \$25,000 to \$35,000.

Load Management: Residential Load Control

This pilot project was discussed in Networks' October 1, 2004, application for a deferral account to address the company's expenditures on demand management.

Target Markets

Residential customers with central air conditioning, and/or electric hot water heating, and/or pool pumps.

Description of Program

The objectives of this project are to assess residential customer response and the potential load impact of controlling central air conditioning, pool pumps and electric hot water heating during system peak periods through installations of load control units and interval meters in up to 450 homes. This represents a statistically representative sample, and includes four areas in Hydro One's service territory: Kingston area, Simcoe area, Newmarket area and Brampton (A description of Brampton's portion of the pilot project and related costs are provided in Schedule B). Participants are paid a monthly incentive for participation in the pilot project. To capture both winter and summer peaks, this project will run from July 2004 through September 2005.

Benefits

Air conditioning and water heating are significant contributors to both summer and winter peak loads on Networks' system. Accordingly, potential demand savings from load control could contribute significantly to Networks demand side management effort, if results from this pilot project indicate that expansion to a full program is warranted. Customers will experience reductions in their energy usage without a significant effect on their comfort.

Toronto Hydro is in the process of joining Hydro One's pilot program and plans to add 150 of its customers to the pilot.

Budget -- Pilot Project

Figure 8.0

ACTIVITY	COST (\$'000s)
Meters, Control Devices and their Installation	980
Market and Technical Expertise	140
Customer Incentives and Other	180
Less HO Brampton cost	(80)
HO Networks	Total 1,220

Budget -- to 2007

Figure 9.0

		(\$'000s)			
Residential Load Control		2004/2005	2006	2007	Total
Pilot	OM&A	1,220			1,220
Program	Capital		2,300	1,200	3,500
					Total 4,720

The budget assumes:

- ◆ Results of the pilot project are successful before the 2006 and 2007 capital budget is released for a larger-scale program.

- ◆ Ongoing customer incentive payments and program management costs for OM&A have not been included. If the pilot project proves successful and broader rollout is warranted, then these costs would be included in the 2006 cost of service application.
- ◆ Capital spending is on equipment associated with load control.
- ◆ Costs indicated above are for Networks' customers only.

Load Management: Commercial, Industrial and Farm Load Control

Target Markets

Commercial and Industrial General Service rate class customers, including the Municipal University, Schools and Hospital (MUSH) sector and Networks' larger three-phase commercial farm customers.

Program Description

In addition to the load management programs already discussed, Networks is committed to implementing a Load Control and Demand Response Pilot for its commercial and large industrial customers.

Benefits

Load control could contribute significantly to demand side management savings, especially at critical peak periods. A pilot project will be designed for this sector, the results of which will be assessed before expansion to a full program is warranted. Customers will experience voluntary reductions in their energy usage without a significant effect on their operations.

Budget

Figure 10.0
(\$'000s)

Program		2004/2005	2006	2007	Total
Pilot	OM&A	420	80		500
Program	Capital		1,500	1,500	3,000

Total 3,500

The budget assumes:

- ◆ The pilot project must demonstrate success prior to approval for capital expenditures.
- ◆ The projected capital would be spent on equipment for load control.

Conservation: Low Income Program Residential

Target Markets

Residential Networks customers who are low income. “Low income” will be defined as per government offices or programs (either federal or provincial).

Program Description

Low income customers may have a higher prevalence of electric water heating, or electric heating, and spend proportionately more of their disposable income on energy. It is also believed that the populations of rural areas are typically housed in older, more poorly-insulated homes, and are likely to have older, less efficient appliances. Low income customers have fewer means to improve the efficiency of their energy-using equipment. Therefore this group could be motivated to invest in energy efficiency improvements if assistance is provided.

Statistics Canada stated that 1,378,000 residents or 11.7% of Ontario residents were living at or below the low income cut-off (2001). For all Ontario households, the lowest income quintile spent nearly 5.2% of their income on electricity, while the highest income spent 0.9% of their income on electricity. Networks’ early research indicated the following:

Figure 11.0 Average Per Capita Income Level

Census Year	Ontario	% Growth Ontario year over year	Networks’	% Growth Networks Year over Year
1999	27,906	5.6	24,199	1.13
2000	29,701	8.0	25,392	0.67
2001	30,268	3.6	25,991	0.49
2002	30,884	3.5	26,876	0.33

The difference in the per capita income level between the general Ontario population and Networks’ customer population suggests that the incentive (subsidies) and program costs may need to be higher than those of other local utilities to be effective.

Networks is currently in discussions with potential delivery channel partners from community based organizations, non-government organizations, federal government programs, and the private sector, to determine the content of the CDM program. Assuming Board approval, Networks would enter into negotiations with one of the above delivery agents.

Benefits

The benefits include improved energy efficiency and decreased consumption.

Budget

The Provincial Government has set aside \$2 million to address the low income sector. Networks has allocated annual funding of \$1.5 million over the three year period (\$4.5 million in total).

Figure 12.0
(\$’000s)

Low Income Program	2005	2006	2007	Total
OM&A	1,500	1,500	1,500	4,500

This budget will be directed to high priority energy savings programs. It will not be used for utility security deposits.

Conservation: Residential Real-Time Monitoring

This pilot project was discussed in Networks' October 1, 2004, application for a deferral account to address the company's expenditures on demand management.

Target Markets

Residential customers with electro-mechanical meters on the exterior of their home.

Description of Program

The major objectives of this project are to assess residential customer behaviour and quantify potential energy savings arising from the provision of real-time usage data. The real-time monitor is an in-home display device that receives a wireless signal from a sensor placed on the exterior electricity meter. About 500 homes in different areas of the Province have been provided with real-time energy usage monitors and feedback devices to record their usage from July, 2004, to August, 2005, thus capturing both winter and summer system peak periods. The pilot project will test the assumption that when provided with actual real time usage data, customers will change their behaviour to reduce electricity consumption. The program will also test a customer's willingness to use such technology and monitoring devices.

Benefits

Customers will be able to track their energy consumption in kilowatt-hours and their estimated monthly electricity costs, as well as to experience the benefits of behaviour changes and of implementing energy efficiency measures. Results from this pilot project will help Networks assess the potential change in customer behaviour and the energy reduction which can be attributed to the availability of this device and the benefits of expansion to a full program.

London Hydro has joined Networks' pilot project and is adding 70 of its customers.

Budget -- Pilot Project

The total cost for the pilot project during 2004-2005 is \$465,000, less \$40,000 for Brampton's cost, or \$425,000 for Networks.

Budget -- to 2007

Figure 13.0

(\$'000s)

Residential Real Time Monitoring	2004/2005	2006	2007	Total
Pilot OM&A	425			
Program OM&A		700	700	1,825

If the 2004-2005 pilot project is successful, and customers change their behavior, the estimated budget for 2006 and 2007 is based on the assumption that Networks will provide customers with a financial rebate when they purchase a real time monitor.

The costs indicated above are for Networks' customers only.

Conservation: Farm Energy Efficiency

This pilot project was discussed in Networks' October 1, 2004, application for a deferral account to address the company's expenditures on demand management.

Target Markets

This program applies to all of Networks' 92,000 farm customers.

Description of the Program

Networks has identified its farm customers as an important customer sector in which to test the applicability of certain initiatives aimed at reducing electricity demand or consumption. Networks high number of agriculture customers is unique in comparison to the customer bases of the municipally-owned LDCs. Given Networks' large geographic service territory, delivery channels are a significant challenge. Hence, a prudent approach to cost mitigation is to leverage existing delivery channels in either the government, not-for-profit, and/or private sectors. Networks plans to invest in three programs.

- *Compact Fluorescent Light Bulbs (CFLs) Pilot*

Networks plans to introduce a pilot program that will leverage existing delivery channels to create awareness and acceptance of CFLs. Up to 5,000 farm customers will receive incentives to purchase CFLs, which have been determined to help reduce energy consumption and reduce costs. The on-site nature of the program will help to encourage higher participation rates.

- *Energy Audit Pilot*

Networks, in partnership with the Ontario Ministry of Energy, the Ontario Ministry of Agriculture and Food and the Ontario Federation of Agriculture will participate in the delivery of an on-farm energy audit program. This program will include a combination of information materials, delivery of audits and incentive programs that will help to reduce energy consumption, primarily on livestock farms.

The audit initiative will help farm customers determine areas (such as heating, ventilation, insulation and lighting, among others) where energy efficiency can be improved. The provision of incentives will help customers to improve the energy efficiency of their businesses.

Networks will contribute both "in kind" support and financial support to this initiative.

- *TVO Information Segments*

Networks also plans to invest in the production of information segments to be aired on TV Ontario. These segments will be aimed at helping farm customers improve their farms' energy efficiency.

Benefits

The programs will help to reduce energy consumption, reduce costs and promote a culture of conservation.

Budget

Figure 14.0
 (\$'000s)

Program		2004/2005	2006	2007	Total
CFL Program	OM&A	200	200	200	600
Energy Audit	OM&A	25	25	25	75
TVO Programs	OM&A	25	25	25	75

Total 750

Conservation: Distribution Network Loss Reduction Program

Target Markets

All of Networks' customers will benefit from this program.

Discussion of the Program

Management of system losses is an on-going consideration in the planning, design, operation, purchase, upgrading and replacement of Networks' distribution facilities and equipment. Nonetheless, Networks believes that there is an opportunity to achieve incremental economic reductions in distribution system delivery losses through targeted investment.

The Distribution Network Loss Reduction Program involves identifying and implementing projects in three specific areas where incremental investments will result in an overall economic benefit to customers by reducing system delivery losses. The three areas in which opportunities for such projects will be investigated are:

- *Power Factor Correction*

Feeder power factors in the distribution network are typically in the range of 0.85 to 0.95, depending on time of year, mix of customers, and customer usage patterns. Loss reductions in the order of 10 to 25% are theoretically achievable through power factor correction. Power factor correction is achieved through application of shunt capacitor banks on distribution feeders. Targeting feeders with the known poorest power factors will generate the highest contributions to loss reduction DSM.

- *Feeder Phase Balancing/System Configuration*

The distribution network consists of approximately 400 "sub-transmission feeders" and 2700 "distribution" feeders. Preliminary studies indicate that, on average overall feeder loss savings in the order of 10 to 15% could be achieved through measures such as balancing phases and optimizing open point locations between feeders. Directing incremental funding toward these areas could result in overall economic benefits to customers.

- *Leveraging System Reinforcement Investments*

Networks currently has an existing capital program for reinforcing its distribution network in response to load growth, for new customer connections, and for risk mitigation and reliability improvement. We generally assess programs based on technical and financial considerations using a least-cost planning approach. We will be amending our investment planning criteria to more explicitly identify and evaluate opportunities to reduce losses through plan modifications.

Investment opportunities will be prioritized and implemented, based on the most beneficial investment- to-loss reduction ratios.

Benefits

Lowering distribution system delivery losses will reduce overall system demand and provide additional network capacity for growth. Since system delivery losses are currently passed onto all customers, improvements in this area will benefit all customers.

Budget

Figure 15.0

(\$'000s)

Distribution Network Loss Reduction	2004/2005	2006	2007	Total
Capital		1,000	1,000	2,000

Total 2,000

Conservation: Mass Market (Residential and Small Commercial) Programs

Target Markets

These programs apply to Small Industrial and Commercial customers (including the Municipal, University, School, and Hospital segments), as well as to Residential customers.

Program Description- Small Commercial and Industrial

There are several other conservation initiatives that Networks is investigating. Programs designed to target small Commercial and Industrial customers include a Customer Efficiency Needs Analysis/Audit Program. This may be web-based or by analysis of customer premise.

Program Description- Residential

Programs that will target Residential Customers include a Compact Fluorescent Lighting (CFL) Program and an LED Holiday Light Exchange Program. Networks also plans to offer a self-administered Energy Analysis/Audit Program, likely to be “do-it-yourself” or web-based. Networks is also investigating the potential of an Air Conditioning Exchange Pilot Program. Any exchange programs would need assistance from the community.

Benefits

Compact fluorescent lights use one-quarter of the energy of a standard incandescent lamp. This fact makes their total impact on Networks’ distribution system, measurable. LED lights also use substantially less energy. A reduction in demand and energy consumption due to the removal of inefficient incandescent lamps is a major benefit. Also, the benefits are sustained, as a CFL lasts up to 10,000 hours, or 10 times longer than an incandescent lamp.

Energy audit or analysis programs can help customers identify opportunities to change their behaviour and/or pursue or leverage government-sponsored programs to invest in more efficient equipment. (There are many federally-sponsored programs through the Office of Energy Efficiency and Natural Resources Canada.) Increased customer awareness of efficiency options can contribute to overall cultural change.

Budget

The total budget, to 2007, allocated to cover these initiatives is \$2,160,000.

Figure 16.0

(\$'000s)

Program		Total
CFL	OM&A	1,500
LED	OM&A	430
Energy Audits/Analysis	OM&A	230

Total 2,160

Communication and Education

This pilot project was discussed in Networks' October 1, 2004, application for a deferral account to address the company's expenditures on demand management.

Target Markets

This initiative is generally targeted to the mass market – primarily Networks' residential and small business customers.

Program Description

Networks has initiated the development of an integrated energy conservation campaign based on its POWERSAVER brand. The objective is to raise the awareness and understanding of customers, so that they will voluntarily adopt a new attitude to energy conservation. Given the diversity of Networks' customer base, a variety of approaches have been developed, from the very basic to the more complex. The campaign builds on Networks' relationship with customers, leverages existing channels (such as the electricity bill and web site) and government programs, and builds new relationships with industry allies, non-profit organizations and school boards.

During 2004, a variety of activities encompassed:

- The development and distribution of brochures and bill stuffers, such as:
 - Brochures providing energy-saving tips for homeowners were developed for use at trade shows, community events and by government and other organizations.
 - As part of Natural Resources Canada's national "Switch and Save" campaign, Networks' mass market customers received bill inserts which promoted EnergyStar CFLs.
- Sponsorship of and participation in community-based events, trade shows and conferences such as "The Art of Being Green Energy Show" in Lanark in July, 2004 and the Annual Association of Municipalities of Ontario 2004 Conference.

During 2005 through 2007, the existing channels will continue to be used and refined. Networks' web site will be strengthened with new information, links to relevant DSM web sites, and an enhanced electricity calculator for homeowner use. Networks' quarterly customer newsletter, *Staying Connected*, also will regularly feature energy conservation stories.

Communications initiatives will also be developed to complement Networks' other mass market programs such as the CFL program, energy audits and school-based initiatives.

Benefits

Networks' communication efforts will complement its other programs, create greater awareness of the issue and thereby contribute to the Province's shift toward an energy-conserving society.

Budget

Figure 17.0
(\$'000s)

Education & Communication	2004	2005	2006/2007	Total
OM&A	300	700	0	1,000

The budget assumes that as other agencies such as the Conservation Bureau begin to play a larger role in energy education, Networks would adjust the nature or scale of its communications.

Program Management and Research

Costs are included below for a team to monitor the effectiveness of pilot projects, manage and report related costs, adjust the variable elements of the plan, manage vendors and contracts and oversee and report on the delivery of individual programs. This group will be responsible for ensuring that costs are controlled within budgets, and that cost tracking methods are in place.

Networks also recognizes the need to update our understanding of the electricity market to improve our program design and delivery capability. In April 2004, to better understand our customers' attitudes towards energy management and their level of interest in various DSM initiatives, a telephone survey of 500 customers was conducted. Customers were asked about factors that motivate them to conserve electricity, who was best to deliver programs and what types of programs would they be willing to participate in. This information has provided valuable information for program design.

We will continue such research and planning efforts in the future including:

- Further analyzing residential load data and gathering more detailed information on aspects of the residential sector such as homeowners' buying behaviour, residential energy and appliance usage. This will help Networks to better design and target effective residential programs (e.g. potential market penetration rates).
- Conducting an equipment and opinion survey of our commercial and industrial customers in early 2005. This will provide segmentation data to be used in finalizing the design of the load management pilot program planned to begin in 2005, as discussed previously, and will aid in the development of other initiatives.
- Surveying other utilities and jurisdictions to identify key success factors and business issues in the provision of CDM programs to the marketplace.
- Identifying key channel members in the marketplace – a research-based initiative which will focus on determining the existence of channel members who may effectively deliver Networks' CDM initiatives to customers.
- Continuing with strategy and portfolio development – a key component of Networks' research and planning initiatives, which will build upon the above research. The purpose of the strategy is to identify opportunities, to make recommendations for achieving Networks' strategic goals and to provide a match between our internal capabilities and external environment.

Budget

Figure 18.0

(\$'000s)				
Program Management & Research	2004/2005	2006	2007	Total
OM&A	1,500	1,200	1,000	3,700

- Assumes incremental costs; cost of existing internal resources have not been included.

A Summary of Program Expenditures

Two charts summarizing Networks' planned CDM expenditures are provided below, as follows:

- Figure 19.0 – the plan and proposed expenditures grouped by customer sector and year.
- Figure 20.0 – a breakdown of capital and operating expenditures by program and year.

**Figure 19.0
Program Budget and Expenditures Detail 2004-2007**

	Expenditures (\$M)				
	Total		2004-2005	2006	2007
	(\$M)	%			
RESIDENTIAL					
• Smart Meters CDM	7.2		3.2	4.0	
• Load Management	4.7		1.2	2.3	1.2
• Conservation	8.3		3.9	2.2	2.2
Residential Total	20.2	51%	8.3	8.5	3.4
BUSINESS					
• Smart Meters CDM	6.3		3.2	3.1	1.6
• Load Management	4.0		.6	1.8	0.2
• Conservation	0.9		0.4	0.3	
Business Total	11.2	28%	4.2	5.2	1.8
ALL CUSTOMERS					
• Smart Meters PMO	1.4		1.4		
• Distribution Network Loss Reduction	2.0			1.0	1.0
• Communications/ Education Program	1.0		1.0		
• Management & Research	3.7		1.5	1.2	1.0
Total All Customers	8.1	21%	3.9	2.2	2.0
GRAND TOTAL	39.5		16.4	15.9	7.2

**Figure 20.0
Proposed Budget and Timeline Summary
CDM Plan Expenditures (\$000's)**

PROGRAM	2004/2005		2006		2007		2004-07 TOTAL
	\$ 000s	CAPEX	OPEX	CAPEX	OPEX	CAPEX	
Smart Metering		6,400	1,400	7,100			14,900
Interim Time-of-Use Rate Pilot			175		150	150	475
Residential Load Control			1,220	2,300		1,200	4,720
C-I-F Load Control			420	1,500	80	1,500	3,500
Low Income Program Residential			1,500		1,500		4,500
Residential Real-Time Monitoring			425	700		700	1,825
Farm Energy Efficiency			250		250	250	750
Distribution Loss Reduction				1,000		1,000	2,000
CFL			1,500				1,500
LED			430				430
Energy Audits/Analysis			150		50	30	230
Communication and Education			1,000				1,000
Program Management and Research			1,500		1,200	1,000	3,700
Total		6,400	9,970	12,600	3,230	4,400	39,530

Schedule B

Hydro One Brampton Networks Inc.

Conservation and Demand Management Plan

RP-2004-0203 / EB-2004-0533

January 11, 2005

Hydro One Brampton Networks Inc. Conservation and Demand Management Plan

Objectives

The objectives of this Conservation and Demand Management (“CDM”) plan are to:

- Contribute to creating a conservation culture in Ontario
- Help consumers and businesses manage their electricity use
- Contribute to the Province’s target of reducing energy demand
- Support community-based programs and foster co-operation among municipal local distribution companies

Strategy

Choice of Program Concepts

In developing the Hydro One Brampton Networks Inc. (“Brampton”) CDM plan, the following criteria were used to identify specific programs:

- Customer Needs – The program meets the needs of Brampton’s customer base.
- Benefit Allocation – Benefits arising from the planned initiatives to be distributed across Brampton’s customer base.
- Benefit Assurance – Programs were selected based on their potential to realize energy savings and cost of delivery.
- Leveraging Partnerships – We will engage in partnerships that will make use of economies associated with greater scale of delivery and existing delivery channels.
- Activities Support Minister’s Plans – The preferred concepts or initiatives fit within the activities identified in the Minister’s May 31, 2004, letter to distributors.

General Program Strategies

Brampton will:

- Rely on external expertise (consultants, contractors, etc.) to assist with research, concept design and program development and delivery where possible.
- Leverage partnerships and work with other LDCs, the EDA and Government agencies, such as NRCan and the eventual Ontario Power Authority Conservation Bureau, to more efficiently leverage our efforts with those underway or planned elsewhere in the Province.
- Continue to place a high priority on a few quickly implemented pilot programs to begin assessing customer response.

Allocation of CDM Expenditures

In addressing this issue, Brampton has endeavored to allocate CDM expenditures in proportion to our various rate classes based on total revenue by customer class. We have summarized the results based on residential and industrial/commercial customer segments.

Brampton will seek an increase in rates for the third stage of MARR and for related Payments in lieu of taxes (PILs). The formula to be applied in establishing the PILs amount that will be allowed in rates has not yet been provided to distributors. The program total provided in this plan has been developed based on a revenue increase of \$3.2 million, which is the MARR increase exclusive of any PILs adjustment.

The following chart outlines Brampton’s potential planned expenditures based on customer class and total revenue:

**Figure 21.0
CDM Spending by Customer Segment**

3rd Stage MARR Allowance \$3,236,000

Segment	HOB Total Revenue (%)	Planned Expenditure (\$)	Planned Expenditure (%)
Residential	30	1,025,000	32
Industrial/Commercial	70	2,070,000	64
LDC Efficiency	0	141,000	4
Total	100.0	3,236,000	100

Programs

Conservation and Demand Management (CDM)

Residential Mass Market Programs

1. Compact Fluorescent Light Program

Description

Compact fluorescent light (CFL) technology has evolved to the point where CFL's can be applied in a wide variety of applications. A utility-based incentive program with delivery through community based retail channels will increase penetration rates of this technology. The program can be structured in such a fashion that additional energy efficient technologies may be promoted at retail locations.

Target Market

This program is tailored to the residential market to include all residential customers in the City of Brampton.

Benefits

Compact fluorescent lights use one-quarter of the energy of a standard incandescent light. This fact makes their total impact on Brampton's distribution system, measurable. A reduction in demand and energy due to the removal of inefficient incandescent lamps is a major benefit. Also, the benefits are sustained, as a CFL light lasts up to 10,000 hours, or 10 times longer than an incandescent light.

Additional benefits include fostering an energy conservation culture among our customer base facilitated by a community approach to this initiative.

Budget: \$500,000

Figure 22.0
(\$'000s)

	2004	2005	2006	2007	Total
Compact Fluorescent Lamp Program	0	0	250	250	500

2. LED Holiday Light Exchange Program

Description

This program will increase the utilization of energy efficient holiday lights through a direct exchange program. Customers will be encouraged to bring in their old incandescent seasonal lights in exchange for efficient LED lights.

Target Market

This program is tailored to the residential market to include all residential customers in the City of Brampton.

Benefits

A reduction of both demand and energy consumption during the holiday season is the primary benefit. Customers will be encouraged to visit the utility via a direct mail campaign or bill insert. This will create a valuable opportunity for direct customer contact. This opportunity can be used for a wide variety of purposes, including providing additional C&DM information, thus further promoting a culture of conservation in Brampton.

Budget: \$100,000

Figure 23.0
(\$'000s)

	2004	2005	2006	2007	Total
LED Holiday Light Exchange Program	0	0	50	50	100

3. Customer Communications and Education Program

Description

We will continue to communicate with our customers through various media.

- Brochures – We will produce a series of brochures for distribution at community events and at our offices, addressing various energy consuming items in the home. These would be made available through the Brampton web-site as well. Brochures would cover topics such as: Lighting, Air Sealing and Insulation, The Home Office, Appliance Use, Efficient Heating, Efficient Cooling and possibly other topics.
- Web-site – Providing customers the tools and information they require through the use of this medium is essential. Items such as general information on conservation, energy consumption calculators, simple audit tools and educational information for school children will be enhanced or developed.

Target Market

This is a mass-market initiative tailored to the residential market.

Benefits

Increased awareness of residential energy efficiency options will contribute to an overall culture shift.

Budget: \$165,000

Figure 24.0
(\$'000s)

	2004	2005	2006	2007	Total
Customer Communications and Education Program	15	80	55	15	165

4. Residential Load Control Program

Description

This is a pilot program undertaken in conjunction with Hydro One Networks Inc. The objectives of this project are to assess residential customer response and the potential load impact of controlling central air conditioning, pool pumps and electric hot water heating during system peak periods through installations of load control units and interval meters in up to 450 homes. Brampton is participating with a sample of 32 of these homes.

Participants are paid a monthly incentive for participation in the pilot. To capture both winter and summer peaks, this project will run from July 2004 through August 2005.

Target Market

Residential customers with central air conditioning, electric watering heating (Brampton excluded) and/or pool pumps.

Benefits

Air conditioning and water heating are significant contributors to both winter and summer peak loads on Ontario's electrical system. Accordingly, potential demand savings from load control could contribute significantly to Brampton's demand side management effort, if results from this project indicate that expansion to a full program is warranted. Customers should experience reductions in their energy usage without a significant effect on their lifestyles.

Budget: \$80,000

Figure 25.0

(\$'000s)					
	2004	2005	2006	2007	Total
Residential Load Control Program	80	0	0	0	80

5. Real Time Monitoring Program

Description

This is a pilot program undertaken in conjunction with Hydro One Networks Inc. The major objectives of this project are to assess residential customer behaviour and quantify potential energy savings arising from the provision of real-time usage data. About 500 homes in different areas of the Province have been provided with real-time energy usage monitors and feedback devices to record their usage from July, 2004 to August, 2005, thus capturing both winter and summer system peak periods. Brampton is participating in this pilot with 45 of these homes in our service territory.

The program will test the assumption that when provided with real-time usage data, customers will change their behaviour to reduce electricity consumption. The program will also test a customer's willingness to use such technology and monitoring devices.

Target Market

This program will apply to residential customers.

Benefits

Customers will be able to track their energy consumption in kilowatt-hours and determine their estimated expenditures, as well as experience the benefits of behaviour changes and of implementing energy efficiency measures. Results from this program will help Brampton assess the potential change in customer behaviour and the energy reduction, which can be attributed to the availability of this device and the benefits of expansion to a full program.

Budget: \$40,000

Figure 26.0

(\$'000s)					
	2004	2005	2006	2007	Total
Real Time Monitoring Program	40	0	0	0	40

6. SMART Meter Pilot Program

Description

Brampton will invest in smart meters in support of the Minister of Energy's commitment to the installation of 800,000 SMART meters across Ontario by 2007.

The intent of this program is to gain experience and test the functionality and efficiency of various technologies in Brampton's service territory.

The program will be implemented once the Board has released specific guidelines.

Target Market

Residential customers

Benefits

Smart meters will be the enabler of value-added functionality. Together with appropriate rate structures, smart meters are the foundation for an energy-efficient Ontario.

Budget: \$140,000

Figure 27.0
(\$'000s)

	2004	2005	2006	2007	Total
SMART Meter Pilot Program	0	120	20	0	140

Commercial - Industrial Programs

7. Power Factor Correction Program

Description

This program will provide incentives to Brampton's commercial and industrial customers to install power factor correction equipment in their facilities. Brampton's customer base is comprised of a large manufacturing component as well as many large commercial facilities that contribute to poor power factor. This program will contribute to the improvement of Brampton's overall power factor.

Individual customer power factor analyses will determine which customers will qualify for an incentive.

Target Market

All qualifying industrial and commercial customers in Brampton.

Benefits

The major benefit will be reduction of system losses due to reduced electrical current levels in the distribution system. Other benefits include lower customer bills and increased electrical capacity on customers' premises.

Budget: \$150,000

Figure 28.0
(\$'000s)

	2004	2005	2006	2007	Total
Power Factor Correction Program	0	0	100	50	150

8. Commercial – Industrial Load Control Program

Description

In addition to the residential load management program already discussed, Brampton is committed to implementing a Load Control and Demand Response Pilot for its commercial and industrial customers. This is a pilot program undertaken in conjunction with Hydro One Networks Inc

Target Market

Commercial and Industrial General Service rate class customers, including the Municipal University, Schools and Hospital (MUSH) sector.

Benefits

Load control can contribute significantly to demand side management savings, especially at critical peak periods. A pilot project will be designed for this sector, the results of which will be assessed before expansion to a full program is warranted. Customers will experience voluntary reductions in their energy usage without a significant effect on their operations.

Budget: \$500,000

Figure 29.0
(\$'000s)

	2004	2005	2006	2007	Total
Commercial-Industrial Load Control Program	0	100	300	100	500
Pilot Component	0	100	0	0	100
Program Component	0	0	300	100	400

9. Technology Demonstration Project

Description

This program will provide an incentive to Brampton commercial, institutional or industrial customers to install emerging energy technologies. Such an initiative would serve as a new technology showcase, which could be promoted with other customers in Brampton's service territory or beyond. It would also assist in studying a number of technologies in detail and their effect on other building systems. Information gained from this initiative could be used as a basis for subsequent programs.

Target Market

Brampton's Industrial, commercial and institutional customer base. This program may also focus on new energy technologies in the residential sector.

Benefits

Technologies that are showcased will provide energy savings. A case study approach to such installations and promotion of specific technologies will increase penetration in the market place of emerging energy-efficient technologies.

Budget: \$135,000

Figure 30.0
(\$'000s)

	2004	2005	2006	2007	Total
Technology Demonstration Project	0	40	60	35	135

10. Conservation Assets Program

Description

Interval metering provides the ability to record consumption in time intervals that can be matched to price signals aligned to reflect the true cost of power. Understanding and reacting to proper pricing is an essential component to creating a conservation culture and managing customer demand.

The provincial targets for smart metering installations, established in the Minister of Energy directive, are 800,000 smart meters by 2007 and all 4.3 million meters by 2010. An integral piece of Brampton's CDM plan will be the funding of an initial deployment of smart meters in the Province.

This program will also encompass web-enabled technology that will allow all participating customers to view their consumption data on the web. The integration of smart metering and data warehousing with timely customer access to this data is essential for an improved customer understanding of consumption patterns as they occur.

Target Market

All General Service customers in Brampton with a demand greater than 50 kW that presently do not have interval meters.

Benefits

The largest benefit of smart meters is providing customers with the ability to understand their consumption patterns and make effective decisions on usage. Since LDCs do not have a supply obligation or commodity price exposure, the benefits to support expenditures reside in other areas of the market.

The infrastructure investments for smart meters can also be used as a platform for other DSM and productivity initiatives (e.g. load control). It is Brampton's intention to further study these and other potential benefits with an aim to reduce costs or increase service for customers. The CDM plan expenditures will be directed to the minimum functionality that satisfies the Minister's directive. Approval for added functionality will be presented in 2005, as proposed by the OEB working groups in their draft report.

Budget: \$1,285,000

Figure 31.0
(\$'000s)

	2004	2005	2006	2007	Total
Conservation Assets Program	0	250	750	285	1,285

11. Distribution Loss Reduction

Description

Optimization of Brampton's distribution system will be studied further, with a focus on voltage conversion, power factor correction, power system load balancing, system optimization and transformer losses.

The results of this research will dictate which aspects of Brampton's distribution system will gain the most from initiatives as listed above.

The funding also includes a pilot project.

Target Market

All Brampton customers

Benefits

Lowering the distribution system losses will reduce the overall system demand. This in turn will relieve network capacity to accommodate growth. As system losses are currently passed on to all customers, any improvement in this area will benefit all customers.

Budget: \$100,000

Figure 32.0
(\$'000s)

	2004	2005	2006	2007	Total
Distribution Loss Reduction	0	0	50	50	100

12. Research, Planning and Development

Brampton understands that the key to developing effective conservation and demand management initiatives is a commitment to research and planning. Brampton has identified several areas in which research and planning initiatives will occur.

We will conduct several customer surveys to aid the development of a portfolio of CDM programs.

These will focus on gaining a better understanding of Brampton's residential customer base by analyzing customer's load, buying behaviour, energy, and appliance information and encouraging customer feedback.

Brampton will also conduct an equipment and opinion survey of our Commercial and Industrial customers in early 2005. This will help us obtain a better understanding of market usage, opinions, interest, etc. This data will be used to help us determine what Commercial and Industrial customers will benefit from our various CDM programs.

Budget: \$36,000

Figure 33.0
(\$'000s)

	2004	2005	2006	2007	Total
Research, Planning & Development	0	20	16	0	36

13. Internal Building Efficiency

Description

This program will improve the building efficiency of Brampton’s office facilities. At the time of its construction in the early 90’s, the building was deemed to be very energy efficient and the design has won numerous awards. Various technologies have been incorporated including electronic T8 fluorescent lighting, lighting occupancy sensors, ground source heat pumps, individual fluid to air heat pumps and building automation. However, some technologies have not been incorporated in the entire building.

This program would assess the potential for a small lighting retrofit and better equipment scheduling through optimization of the building control system.

Benefit

The primary benefit is reduced energy consumption.

Budget: \$5,000

Figure 34.0

(\$'000s)					
	2004	2005	2006	2007	Total
Internal Building Efficiency	0	5	0	0	5

A Summary of Program Expenditures

Three charts summarizing Brampton’s planned CDM expenditures are provided as follows:

- Figure 35.0 – total program expenditures split by type of customer.
- Figure 36.0 – the plan and proposed expenditures grouped by customer sector and year.
- Figure 37.0 -- a breakdown of capital and operating expenditures by program and year.

**Figure 35.0
Summary of Program Expenditures**

RESIDENTIAL		
	Total (\$)	Total (%)
CFL Promotion	500,000	15
LED Holiday Light Trade In	100,000	3
Customer Education	165,000	5
Pilot Projects*	260,000	8
Residential Total	1,025,000	32

COMMERCIAL & INDUSTRIAL		
Power Factor Correction	150,000	5
C/I Load Control	500,000	15
Technology Demonstration Project	135,000	4
Conservation Assets Program	1,285,000	40
C/I Sub Total	2,070,000	64
HOB Distribution Loss Reduction	100,000	3
HOB Internal Efficiency	5,000	0
Research, Planning & Development	36,000	1
GRAND TOTAL	3,236,000	100

* A portion of this money has been allocated and spent

Figure 36.0

Program Budget and Expenditures Detail 2004-2007

RESIDENTIAL						
	Total (\$)	Total (%)	2004 (\$)	2005 (\$)	2006 (\$)	2007 (\$)
CFL Promotion						
Cost	450,000					
Program Marketing/Administration	50,000					
Total	500,000	15	0	0	250,000	250,000
Holiday Light Trade In						
Cost	70,000					
Program Marketing	20,000					
Community Events	10,000					
Total	100,000	3	0	0	50,000	50,000
Customer Education						
Website	75,000		0	50,000	25,000	0
DSM Literature	90,000		15,000	30,000	30,000	15,000
Total	165,000	5	15,000	80,000	55,000	15,000
Pilot Projects						
Real Time Monitoring Pilot*	40,000		40,000	0	0	0
Load Control Pilot*	80,000		80,000	0	0	0
Smart Meter Pilot	140,000		0	120,000	20,000	0
Total	260,000	8	120,000	120,000	20,000	0
Residential Total	1,025,000	32	135,000	200,000	375,000	315,000
COMMERCIAL & INDUSTRIAL						
Power Factor Correction						
Incentive	125,000					
Administration	15,000					
Promotion	10,000					
Total	150,000	5	0	0	100,000	50,000
Commercial Industrial Load Control						
Cost	450,000					
Administration	50,000					
Total	500,000	15	0	100,000	300,000	100,000
Technology Demonstration Project						
Capital Expenditure	100,000					
Promotion & Administration	35,000					
Total	135,000	4	0	40,000	60,000	35,000
Conservation Assets Program						
Meters	800,000					
System Costs/Installation	425,000					
Enabling Technologies for Smart Meters	60,000					
Total	1,285,000	40	0	250,000	750,000	285,000
Commercial Industrial Total	2,070,000	64	0	390,000	1,210,000	470,000
UTILITY EFFICIENCY						
Line Loss Reduction	100,000	3	0	0	50,000	50,000
RESEARCH PLANNING & DEVELOPMENT						
Residential Appliance Survey	10,000					
Commercial & Industrial Customer Survey	10,000					
DSM Program Research	16,000					
Total	36,000	1	0	20,000	16,000	0
INTERNAL EFFICIENCY						
Building Efficiency Improvements	5,000		0	5,000	0	0
GRAND TOTAL	3,236,000	100	135,000	615,000	1,651,000	835,000

* This money has been allocated and spent

**Figure 37.0
Proposed Budget and Timeline Summary**

CDM Plan Expenditures (\$000's)

PROGRAM	2004-2005		2006		2007		2004- 2007 TOTAL
	CAPEX	OPEX	CAPEX	OPEX	CAPEX	OPEX	
CFL	0	0	0	250	0	250	500
LED Holiday Light	0	50	0	50	0	0	100
Customer Communications	0	95	0	55	0	15	165
Residential Load Control	0	80	0	0	0	0	80
Real Time Monitoring	0	40	0	0	0	0	40
SMART Metering Pilots	0	120	0	20	0	0	140
PF Correction	0	0	0	100	0	50	150
C-I Load Control	0	100	300	0	100	0	500
Tech. Demonstration Project	0	40	0	60	0	35	135
Conservation Assets	250	0	750	0	285	0	1,285
Distrib. Loss Reduction	0	0	0	50	0	50	100
Research Planning Develop.	0	20	0	16	0	0	36
Internal Building Efficiency	0	5	0	0	0	0	5
Total	250	550	1,050	601	385	400	3,236