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Andrew Skalski
Director – Major Projects and Partnerships
Regulatory Affairs

BY COURIER

July 15, 2013

Ms. Kirsten Walli
Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
Toronto, ON.
M4P 1E4

Dear Ms. Walli:

EB-2013-0053 – Hydro One Networks' Section 92 – Guelph Area Transmission Refurbishment Project – Responses to Supplemental Interrogatory Questions

As per the Decision on Motion and Procedural Order 4 issued July 8, 2013, please find attached an electronic copy of responses provided by Hydro One Networks to supplemental Interrogatory questions. Two (2) hard copies will be sent to the Board shortly.

An electronic copy of the Interrogatories have been filed using the Board's Regulatory Electronic Submission System.

Sincerely,

ORIGINAL SIGNED BY JOANNE RICHARDSON FOR ANDREW SKALSKI

Andrew Skalski

Attach.

c. EB-2013-0053 Intervenors (electronic only)

Environmental Defence Supplemental Interrogatory #5(a) List 2

Original Interrogatory

Interrogatory No. 5 (a) reads as follows:

> Approximately when were (i) the OPA and (ii) Hydro One first aware of the need to take steps to ensure compliance with the ORTAC criteria described in section 5 of the OPA KWCG Report?

Supplemental Interrogatory

While the original interrogatory is as above, in the Board's July 8, 2013 Decision and Order on Motion, the Board Findings indicate the following:

> *At the hearing, the OPA stated that it became aware of the ORTAC compliance issue in 2007, the same time it began to assess the options for the KWCG area.*[1] *Upon examination by the Board Panel, the OPA undertook to further investigate and provide additional information, if any, to satisfy Environmental Defence's request in relation to when ORTAC protocols were breached*[2]*. The Board is satisfied that the OPA's response (including any additional information that can be provided by the undertaking) is sufficient and will not require anything further.*

Supplemental Response

Based on historical peak demand information, two of the subsystems in the Kitchener-Waterloo-Cambridge-Guelph ("KWCG") area (the South-Central Guelph and Kitchener-Guelph subsystems) have exceeded their load meeting capability ("LMC"), and therefore have been noncompliant with the supply capacity criteria prescribed by Ontario Resource Transmission and Assessment Criteria ("ORTAC").

Demand in the South-Central Guelph area first exceeded the area's LMC in the summer of 2004. Demand in the Kitchener-Guelph subsystem first exceeded the area's LMC in the summer of 2011; however, demand in the Kitchener-Guelph subsystem subsequently fell to below the LMC in the summer of 2012. The remaining subsystems in the KWCG area have not exceeded their LMC to date, and therefore have been compliant with the supply capacity criteria prescribed by ORTAC.

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[1] Transcript, p. 69, lines 17 – 20.

[2] *Ibid*, p.69, lines 22 – 27.

With respect to the requirement to minimize supply interruptions, to date none of the subsystems in the KWCG area have exceeded the 600 MW load level, and thus the area has been compliant with this ORTAC criteria. Additionally, while the timeframes for restoration of load at the 250 MW and 150 MW thresholds were planning guidelines in the past, in June 2007 these requirements were prescribed as ORTAC criteria.[3] The Waterloo-Guelph 230 kV and Kitchener and Cambridge 230 kV subsystems have not been compliant with this restoration criteria since the ORTAC revisions came into effect.

As noted in Exhibit I, Tab 2, Schedule 5, the OPA and Hydro One began to assess the needs and options of the KWCG area, based on the ORTAC criteria, as part of the 2007 Integrated Power System Plan ("IPSP"). While the review of the 2007 IPSP was suspended in late 2008, the OPA and Hydro One continued to proceed with the implementation of some of the key recommendations identified in the IPSP, including the implementation of the Guelph Area Transmission Refurbishment ("GATR") project. In 2009, the GATR project was put on hold while the impacts of the economic downturn were monitored; however a broader regional planning study of the KWCG area, undertaken in 2010, confirmed the need to proceed with the GATR project.

[3] http://www.ieso.ca/imoweb/news/newsItem.asp?newsItemID=3083.
http://www.ieso.ca/imoweb/consult/consult_se30.asp

Environmental Defence Supplemental Interrogatory #26(a)(b) List 2

Reference: Ex. B, Tab 1, Schedule 5, Pages 17-21

Original Interrogatory

a) Please describe and list all steps taken by the OPA to assess whether increased CDM and/or DG could avoid or defer the need for a new transmission line in the KWCG area as well as the dates that each of these steps were taken. Please include a listing of the dates and subjects of all memos and reports prepared in this regard.

b) Please provide a copy of all documentation (e.g. memos, reports, etc.) prepared by the OPA in relation to an assessment of whether increased CDM and/or DG could avoid or defer the need for a new transmission line in the KWCG area.

Supplemental Interrogatory

While the original interrogatory is as above, in the Board's July 8, 2013 Decision and Order on Motion, the Board Findings indicates the following:

> *The Board is of the view that interrogatories no. 26(a) and (b) are very broad and questions the relevance of the information that is being requested. The Board is also concerned about the considerable effort entailed in collecting and assembling the requested information. To that end, the Board notes that Environmental Defence acknowledges that its request may be construed as being too broad and agreed that the provision of only the key documents is acceptable.*
>
> *The Board also notes that in part (a), the OPA has provided a description of the planning process and the consideration of alternatives.*
>
> *The Board will require Hydro One and/or the OPA to produce any reports and "thorough analysis" (in whatever format) that they have on the very specific topic of "assessment of whether increased CDM and DG could avoid or defer the need for new transmission line in KWCG area".*[1]

[1] Environmental Defence Interrogatory No. 26 (a) and (b)

Supplemental Response

The OPA did not commission any external reports nor prepare any internal reports on whether increased conservation and demand management ("CDM") and distributed generation ("DG") could avoid or defer the need for a new transmission line in the Kitchener-Waterloo-Cambridge-Guelph ("KWCG") area. The OPA also does not have any "thorough analysis" on this topic apart from what has already been filed. The OPA's evidence found in Exhibit B, Tab 1, Schedule 5, as well as the interrogatory responses provided in Exhibits I, Tab 2, Schedules 26, 44 and 30 (Attachment 1) (the draft Kitchener-Waterloo-Cambridge-Guelph area Integrated Regional Resource Plan) is, in effect, the analysis completed by the OPA with respect to the assessment of whether increased CDM and DG could avoid or defer the need for a new transmission line in the KWCG area. However, to assist the Board in better understanding the OPA's analysis on this topic, the OPA is attaching to this interrogatory response additional relevant data that informed the OPA's analysis. This is explained below.

The OPA's analysis regarding the assessment of whether increased CDM could avoid or defer the need for a new transmission line in the KWCG area was informed by a number of factors including the OPA's experience with conservation programs as described in Exhibit I, Tab 2, Schedule 44, discussions with the Conservation Subcommittee of the KWCG Working Group, as well as the information contained in the KWCG area Local Distribution Companies' ("LDCs") CDM Strategies and CDM 2011 Annual Reports, at Attachments 1-10 to this exhibit. The CDM Strategies of the KWCG area LDCs illustrate their plans for achieving their CDM targets, and the LDC's CDM 2011 Annual Reports describe their achievement towards their CDM targets as of December 2011. Both of these reports are based on the unique composition of the LDCs' service territories. These factors influenced the OPA's view that the LDCs' 2011-2014 CDM targets are aggressive and will require a significant level of effort to achieve. This further reinforced the OPA's view that additional conservation is not a feasible means of addressing the KWCG area near- and medium-term needs.

The OPA's analysis regarding the assessment of whether increased DG could avoid or defer the need for a new transmission line in the KWCG area was informed by the OPA's recent experience with generation procurement programs, the characteristics of different generation resource types, as well as the cost analysis conducted to compare the cost of additional distributed generation to that of the recommended transmission reinforcements (as described in Exhibit I, Tab 2, Schedule 26).

Regarding the OPA's experience with generation procurement programs, as discussed in Exhibit I, Tab 2, Schedule 21, over the past year the OPA and the Ministry of Energy have been reviewing a number of initiatives, including the OPA's Combined Heat and Power Standard Offer Program ("CHPSOP") and Feed-in-Tariff ("FIT") Program, in the context of rising electricity prices and the current needs of the Ontario electricity system. The reviews of these programs highlight the considerable uncertainty associated with the development of non-contracted distributed generation facilities.

Within the KWCG area, as indicated by Environmental Defence in Exhibit I, Tab 2, Schedule 21, approximately 60 MW of potential solar, biogas and combined heat and power projects have been proposed in the City of Guelph through the CHPSOP and FIT programs.[2] As discussed in Exhibit I, Tab 2, Schedule 21, these proposed projects even if contracted, in total, are not sufficient to defer the need for the recommended transmission reinforcements. Attachment 11 to this exhibit provides more detailed information that supported the OPA's view that these projects could not address the supply capacity needs of the KWCG area.

With respect to the OPA's cost assessment of distributed generation resources, in the hope of providing further assistance to the Board and intervenors, at Attachment 12 to this exhibit, a more detailed breakdown of the OPA's cost assessment of distributed generation resources is provided. This assessment helped to inform the OPA's view that additional distributed generation is not a cost-effective means of addressing the KWCG areas near- and medium-term supply capacity needs.

Finally, in addition to the above analyses, the OPA conducted a sensitivity analysis that considered the impact of higher and lower demand scenarios. As indicated in Section 5.4 of the draft Kitchener-Waterloo-Cambridge-Guelph area Integrated Regional Resource Plan, "while lower than expected demand growth may defer the supply capacity in the Kitchener-Guelph 115 kV in the longer-term, the majority of the needs in the KWCG area will need to be addressed in the near-to-medium timeframe under the lower demand scenario" (Exhibit I, Tab 2, Schedule 30, Attachment 1). The low demand scenario complements the "thorough analysis" completed by the OPA to assess whether increased CDM and DG could avoid or defer the need for a new transmission line in the KWCG area.

[2] 30 MW of solar, 2 MW of biogas and 28 MW of combined heat and power as noted by Environmental Defence in Exhibit I-2-21.

CAMBRIDGE AND NORTH DUMFRIES HYDRO INC.
1500 Bishop Street, P.O. Box 1060, Cambridge, Ontario N1R 5X6 • Telephone 519-621-3530 • Facsimile 519-621-7420
Website www.camhydro.com

November 1, 2010

Ms. Kirsten Walli, Board Secretary
Ontario Energy Board
P.O Box 2319
2300 Yonge Street
Toronto, Ontario
M4P 1E4

Dear Ms. Walli:

Re: Cambridge and North Dumfries Hydro Inc. (OEB License ED-2002-0574)
CDM Strategy

In accordance with the Conservation and Demand Management Code for Electricity Distributors, Section 2.1 please find attached the Conservation and Demand Management Strategy for Cambridge and North Dumfries Hydro Inc.

This submission was completely jointly as the CKW Group representing Cambridge and North Dumfries Hydro Inc., Kitchener-Wilmot Hydro Inc., and Waterloo North Hydro Inc. While the body of the document references the entire CKW Group, appendices are attached with individual LDC projections.

Yours truly,

CAMBRIDGE & NORTH DUMFRIES HYDRO INC.

John W. Grotheer, CMA
President & CEO

CKW Group CDM Strategy

Prepared by:

NAVIGANT CONSULTING

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October 2010

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CKW Group Conservation and Demand Management (CDM) Strategy

The following CDM Strategy has been prepared following the template provided in the CDM Code as published by the Board on September 16, 2010.

1. Distributor's Name: CKW Group (Cambridge and North Dumfries Hydro Inc., Kitchener Wilmot Hydro Inc., Waterloo North Hydro Inc.)

The CKW Group represents the three electric distribution companies serving the Region of Waterloo. The CDM Strategy which follows describes a combined plan for **Cambridge North Dumfries Hydro Inc., Kitchener Wilmot Hydro Inc.,** and **Waterloo North Hydro Inc.**. While the three utilities have developed a co-ordinated, combined strategy in the interests of improved efficiency and effectiveness, separate information for each utility is presented in the attached appendices.

2. Total Reduction in Peak Provincial Electricity Demand (MW) Target:

See discussion and Table 1 in next section.

3. Total Reduction in Electricity Consumption (kWh) Target:

The following CDM targets for reductions in peak provincial electricity demand and electricity consumption have been proposed for the three utilities in the CKW Group. The targets shown in Table 1 are taken from the June 22, 2010 letter from the Ontario Energy Board to all licensed electrical distributors regarding "*Electricity Conservation and Demand Management Targets* (EB-2010-0216)[1].

Table 1: Proposed CDM Targets for CKW Group

LDC Name	Total Reduction in Peak Provincial Electricity Demand Target (kW)	Total Reduction in Electricity Consumption Target (MWh)
Cambridge and North Dumfries Hydro Inc.	18,000	77,000
Kitchener-Wilmot Hydro Inc.	22,000	93,000
Waterloo North Hydro Inc.	16,000	68,000
CKW Group Total	***56,000***	***238,000***

We note that the OEB has published these proposed targets for comment and has not yet established final targets for each of the LDC's.

[1] http://www.oeb.gov.on.ca/OEB/Industry/Regulatory+Proceedings/Policy+Initiatives+and+Consultations/Conservation+and+Demand+Management+%28CDM%29/CDM+Management+Targets

4. CDM Strategy

The CKW Group retained Navigant Consulting to carry out modelling and analysis of the achievable CDM potential associated with OPA-Contracted Province-Wide program initiatives and to identify additional opportunities which would enable the utilities in the CKW Group to meet their assigned CDM targets.

Navigant Consulting projected the impact of current OPA-funded province-wide CDM initiatives in the CKW Group's service area by sector for the coming 4-year period. The CKW Group intends to achieve the milestones set out in the table below through active involvement and support of these OPA initiatives. Utility specific projections for each of the members of the CKW Group are provided in Appendices A, B and C.

The estimated CDM reductions as a result of all OPA-contracted province-wide initiatives is shown below by sector. Due to overlapping coverage of some programs (i.e. *Year Round Instant Rebates* and *Bi-Annual Instant Rebate Events*) estimates of the achievable potential were not developed for specific programs.

Table 2: Energy (MWh) and Demand (MW) Milestones

CKW Group	Cumulative Energy (MWh)			
	2011	2012	2013	2014
Residential	15,479	27,893	43,501	54,369
Commercial	24,689	48,498	72,503	95,999
Industrial	9,463	17,377	26,206	35,600
Total -	***49,631***	***93,769***	***142,211***	***185,968***

CKW Group	Demand (MW)			
	2011	2012	2013	2014
Residential	5.0	9.0	12.8	16.6
Commercial	6.4	12.2	18.1	24.0
Industrial	3.8	7.4	11.1	14.9
Total -	***15.2***	***28.6***	***42.1***	***55.5***

The CKW Group intends to meet its CDM Targets over the 4-year period to 2014 by actively participating in OPA-Contracted Province-Wide programs and by developing additional Tier 2 and 3 initiatives for Board approval that will address areas of potential not covered by province-wide OPA initiatives. As additional information becomes available on OPA programs the CKW Group will review opportunities for leveraging these programs in the Region. Additional Tier 2 and 3 programs will also be developed in the coming months. Once these plans have been refined, and CDM targets are finalized, a revised CDM Strategy will be

submitted in the 2011 Annual Report for the Board's consideration which will meet the following milestones.

	2011	2012	2013	2014
Cumulative Energy (MWh)				
Tier 1 Programs	49,631	93,769	142,211	185,968
Tier 2 & 3 Programs	13,008	26,016	39,024	52,032
Total (CDM Target)	62,639	119,785	181,235	238,000
Demand (MW)				
Tier 1 Programs	15.2	28.6	42.1	55.5
Tier 2 & 3 Programs	0.1	0.2	0.4	0.5
Total (CDM Target)	15.3	28.9	42.5	56.0

Milestones for each of the utilities involved are provided in Appendices A, B and C.

5. OPA-Contracted Province-Wide CDM Programs

The following table describe the province-wide CDM programs currently offered and expected to be available to customers in the CKW Group territory. For purposes of planning a CDM Strategy for the CKW Group we have assumed that these programs will continue to be available throughout the period from 2011 to 2014. ***We note that these programs are offered at the discretion of the OPA. Decisions to cancel, expand or modify these programs are not within the control of the CKW Group.***

The OPA has released draft descriptions of the following programs to be offered by the CKW Group during the period 2011 to 2014. While a portion of these programs will be centrally managed by the OPA, the CKW Group will maintain a supporting role in their delivery.

Table 3: Proposed OPA Programs for 2011 to 2014

Residential Programs	Commercial and Institutional Programs	Industrial Programs
Year Round Instant Rebates	*Commercial and Institutional Province Wide Program*	*Industrial Accelerator*
Bi-Annual Instant Rebate Events	*ERIP Commercial*	*ERIP Industrial*
Appliance Retirement Program	*Direct Install*	*DR1 - Industrial*

Residential Programs	Commercial and Institutional Programs	Industrial Programs
Bi-Annual Appliance Exchange Events	***DR1 - Commercial***	***DR3 - Industrial***
HVAC On-line Rebates Program	***DR3 – Commercial***	
New Construction Program		
Midstream Incentives Program		
Consumer Enabling Initiatives		
Low Income Program		
Residential Demand Response Initiative		

The CKW Group intends to participate or support each of the initiatives indicated in bold/italics in the above list. The remaining two programs listed above will be operated by the OPA on a province-wide basis.

The following pages describe specific OPA-contracted province-wide programs that the CKW Group plans to participate in. For convenience the following tables summarize each program. And the CKW Group's role with respect to each program. A fuller description of the programs and the role played by LDC's is provided in the "*2011 – 2014 OPA-Contracted Province Wide CDM Programs*" Summary Guides published by the OPA in October 2010. Information on funding rules was not available for all programs when this submission was being prepared. Estimated annual budgets for the CKW Group, as well as for each specific utility will be calculated once funding information is available.

Residential Programs:

Program Name	Year Round Instant Rebates
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This program is a year round initiative that offers instant rebates to customers towards the purchase of low cost, easy to install measures. It is an enhancement to the old OPA provincial coupon initiative (aka. *EKC Power Savings Event*) which was only offered twice a year (Spring & Fall). In the past, the program was centrally managed by the OPA and promoted strictly during the months of April & October. The program has now been enhanced to offer customers the opportunity to redeem instant rebates at any time throughout the year.
CKW Group Role	Use communications and marketing opportunities to support program and educate consumers of the benefits of products covered by the rebates.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Appliance Retirement/Exchange Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This initiative is a carry forward and enhancement of ***The Great Refrigerator Roundup***. It includes free pick-up and decommissioning of old, inefficient, working, appliances: • Refrigerators that are at least 15 years old in 2011 and 2012 and 20 years old in 2013 and 2014 • Freezers that are at least 15 years old in 2011 and 2012 and 20 years old in 2013 and 2014 • Room air conditioners (only picked up if a fridge/freezer is also scheduled to be picked up at same time) • Dehumidifiers (only picked up if a fridge/freezer is also scheduled to be picked up at same time) There is also opportunity to integrate municipal appliance pick-up services (where available). LDCs may engage municipalities to see if local appliance collection programs can be integrated and the OPA will arrange for appliances that meet the Program eligibility criteria to be picked-up and decommissioned. The OPA will also work with retailers to arrange for the decommissioning of eligible appliances upon the replacement of new, the age requirements will be consistent with those identified above. The Exchange Events portion of the Program is a carry forward and enhancement of exchange events previously hosted by retailers. It includes exchange events held biannually at participating retailers for room air conditioners and dehumidifiers. The Spring exchange event will feature a $50 coupon toward the purchase of a high efficiency replacement unit; the Fall event will feature a $25 gift card. The initiative will also include local marketing and may include engagement opportunities for LDCs where LDCs can negotiate them locally. Savings from the Exchange Events will be proportionally allocated to LDCs based on the size of their residential customer base.

Program Name	**Appliance Retirement/Exchange Program**
CKW Group Role	Promote program through Customer Service contacts, communications and marketing.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**HVAC Online Rebate Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The HVAC rebates initiative has been in market since 2006 (aka. *Cool Savings Program*). The program has been enhanced to include LDC's in the delivery of the initiative and there is also a new contractor training element. As part of this initiative, consumers will be eligible for rebates on qualifying replacement of electronically commutated motors (ECMs) and central air conditioners. Training will be available for contractors to educate them on quality installation principles. LDC's will be involved in the recruitment of contractors; this will be supported by OPA recruitment efforts. The HVAC rebates will be delivered to consumers through participating contractors and will be centrally fulfilled by the OPA, as in the past.
CKW Group Role	Promote program through Customer Service contacts, communications and marketing. Communicate with local contractors to build awareness of available training and support program.
Program Budget	Not applicable.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**New Construction Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This is a new initiative. It includes incentives for builders to construct new, single family homes that include energy efficiency standards that are above current building codes. It includes incentives for: • Prescriptive measures: o "All-off" Switches o ECM Motors o SEER 15 CAC o Lighting Control Products o Energy Efficient Lighting Fixtures o Residential Demand Responses Devices (subject to results of the pilots) • Custom Projects (incentive will be based on a per $/kW or per $/KWh subject to eligibility criteria) (i.e. solar hot water heating where it can be demonstrated as a cost-effective measure) • Performance Incentives: o EnerGuide 83 o EnerGuide 85 • Enabling Initiatives: o Training on Energy Efficiency Building Techniques and Practices o Consumer Education (no incentives) The initiative will be delivered by LDCs, including local marketing, approvals, data collection, and reporting. LDCs will also be responsible for local engagement of builders; with support from OPA air cover driving builders to their LDCs for additional information (possible air cover options include trade publications, Home Builders Associations etc.). The OPA will be responsible for payments, as well as enabling initiatives including builder training and consumer education.
CKW Group Role	Engage local contractors and developers through new service application process and local homebuilder and contractor associations. Marketing Review and approve applications to the program and provide site verifications.
Program Budget	Not available at this time.
Projected Reduction in	Reductions not estimated on a program-specific basis.

Program Name	**New Construction Program**
Peak Provincial Electricity Demand (kW)	
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Midstream Incentives Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This is a carry over and enhancement of the midstream television incentive from the Power Savings Event. In addition to providing incentives for retailers to promote energy efficient televisions, it will include incentives for satellite and cable providers to use high-efficiency set-top boxes and network configurations. It will also include pool pumps, providing contractors with incentives to install "right sized" pool equipment. Savings from the midstream initiatives will be proportionally allocated to LDCs based on the size of their residential customer base.
CKW Group Role	Promote program to relevant local contractors and service providers.
Program Budget	Not applicable.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis..

Program Name	**Low Income Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This is a new program that has been specifically developed to meet the needs of the low income consumer. This is a comprehensive program that involves a variety of activities intended to improve the energy efficiency of low income homes. The program is intended to reduce electricity demand, provide consumers with the information they need to manage their energy use and influence behaviour change that will support these outcomes. The program will pay 100% for the purchase and installation of the electricity saving products. The process begins with an in-home audit which will identify the opportunities within the home. The installation measures range from basic measures (CFL's, weather-stripping, water heater blanket and more) to a full list of extended measures (light fixtures, air conditioning units, freezers, refrigerators, dehumidifiers, draft-proofing and insulation).
CKW Group Role	Promote availability of program through Customer Service contacts and through relationships with community partners.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Residential Demand Response Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This is a re-design of *peaksaver®*, the residential demand response initiative. Existing program features will continue to be offered through June 30, 2011 pursuant to existing agreements between the OPA and participating LDCs. The OPA and the Residential Demand Response Work Group are currently conducting pilot projects to test new technologies for use in the future province wide residential demand response initiative with an anticipated start of July 1, 2011. Further details will be provided at the conclusion of pilot in December 2010. The initiative has been designed to include two options available to consumers: **Option A: Participation with Demand Response** – under this option, four end-uses will be eligible for load control participation: • central air conditioners • electric water heaters • room air conditioners • pool pumps Participants will get load control devices (Home Energy Interface (HEI)) installed free and they will have access to real time consumption and price information. This information can be accessed on an in-home device (IHD) or on-line, depending on the customer's choice. When developed, a Dashboard will also be available under Option A. A Dashboard is a single device that includes load control capabilities and IHD. Consumers will receive subsidized Dashboards. **Option B: Participation without Demand Response** – under this option, customers have the opportunity to access price and real-time consumption information. Participants get a subsidized amount toward a HEI and can opt for an IHD or on-line display.
CKW Group Role	Promote program through Customer Service contacts, communications and marketing.
Program Budget	Not available at this time.

Program Name	**Residential Demand Response Program**
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Commercial and Institutional Programs:

Program Name	Commercial and Institutional Program
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The C&I Program is designed to offer financial incentives to customers for upgrading to energy efficiency measures. This program builds on the success of the current ***Electricity Retrofit Incentive Program (ERIP)*** being offered to Commercial, Industrial, Institutional and Agricultural customers, and the ***Power Savings Blitz (PSB) Program*** offered to small commercial customers with less than 50kW of average monthly demand. This program will offer turn-key lighting and electric hot water heater retrofits for small businesses, and financial incentive payments of up to $400/kW or $0.05/kWh for lighting measures, $800/kW or $0.10/kWh for all other measures; to maximum of 40% of project costs for all other General Service customers. The *Electricity Retrofit Incentive Program* (ERIP), initially developed for the business markets, promoted energy efficiency measures for lighting and high efficiency motors. The 2011-2014 program has been enhanced to include program elements such as feasibility studies and roving Energy Managers to maximize energy savings potential.
CKW Group Role	Build and expand upon existing relationships with local businesses to promote awareness of incentives and benefits of resulting energy reductions. Provide technical assistance to customers to identify and assess energy savings opportunities and overcome barriers to implementation.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand(kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Demand Response 1 - Commercial**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	DR1 is a demand response initiative for industrial and commercial customers, of 50 kW or greater and with interval meters, to reduce the amount of power being used during certain periods of the year. This initiative has a schedule of 1600 hours per year where activations of up to 100 hours may occur with no obligation on customers to participate. This initiative makes payments for actual load reduction only. There are no payments or set-offs associated with a participant deciding not to participate, or where a participant has indicated willingness to perform and then not followed through. The program is managed by a centrally procured third party program administrator. Marketing of the program and customer registration may be done by both Demand Response Providers and the LDC. The LDC will be responsible for promotion of the DR1 initiative and for registering customers.
CKW Group Role	Leverage and build upon existing relationships with local businesses to build awareness of program, an understanding of program rules and the benefits of participation. Assist customers in identifying and assessing demand reduction opportunities and linking to Aggregators.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis. Combined commercial and industrial participation in DR1 program to 2009 has resulted in a load reduction of 5.5 MW.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Demand Response 3 - Commercial**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The DR3 program is open to commercial and industrial customers with a peak demand greater than 50 kW. In comparison to the DR1, which is a voluntary program, the DR3 program is a contractual resource that provides significant financial benefits for participants, reliability and operational benefits for the electricity system, and financial benefits for all electricity customers as it is an economic alternative to procurement of new generation capacity. The DR3 Initiative comes with specific contractual obligations requiring commercial and industrial participants to reduce their use of electricity relative to a baseline when called upon. This initiative makes payments for participants to be on standby and energy payments for the actual energy reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year. The program is delivered by Demand Response Providers, under contract to the OPA, with the LDCs providing important marketing and customer outreach support in a collaborative approach with Demand Response Providers.
CKW Group Role	Leverage and build upon existing relationships with local businesses to build awareness of program, an understanding of program rules and the benefits of participation. Assist customers in identifying and assessing demand reduction opportunities and linking to Aggregators.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Industrial Programs:

Program Name	The Industrial Accelerator
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The Industrial Accelerator Initiative is an energy management program that includes both financial incentives for capital projects and enabling initiatives. It is open to industrial companies that are customers of an Ontario electric LDC and are not insolvent. This initiative offers industrial customers the opportunity to access capital incentives to assist with the implementation of system optimization projects. The incentives are available through the LDC. The initiative is open to distribution connected industrial and commercial customers with projects or portfolio projects that are expected to generate at least 350 MWh of annualized electricity savings or, in the case of Micro-Projects, 100 MWh of annualized electricity savings. The capital incentive for this initiative is up to $200.00/MWh for eligible costs with a cap of 70% of projects costs or a one year pay back. This level is based on an analysis of typical capital costs for large system optimizations and the propensity for industry to pursue projects with a one year simple payback. This program will be delivered by the LDCs with technical support provided by a centrally procured technical resource.
CKW Group Role	Build and expand upon existing relationships with local industries to promote awareness of incentives and benefits of resulting energy reductions. Provide technical assistance to customers to identify and assess energy savings opportunities and overcome barriers to implementation.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Electricity Retrofit Incentive Program – Industrial ERIP**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The ERIP Program is designed to offer financial incentives to customers for completion of energy efficiency measures. The program aims to maximize opportunities to improve the energy efficiency of new and existing buildings, empower owners, operators, tenants of these buildings and the supply chains that serve them to better manage their electricity use. These objectives are accomplished through a customer-focussed approach that provides facility owners, operators, and their supply chains with a focussed, yet comprehensive offering which treats the building as a system, and not a collection of end uses. By pursuing a multi-faceted, comprehensive approach that focuses not only on equipment and technology, but also on the development of people, policies, and processes within Ontario businesses, the goal of further developing a culture of conservation and achieving market transformation will be realized. The program provides payments of up to $400/kW or $0.05/kWh for lighting measures, $800/kW or $0.10/kWh for all other measures; to maximum of 40% of project costs. ERIP is offered to industrial, commercial, agricultural and multi-family buildings. However, given the Industrial Accelerator (IA) Program is best suited to evaluate complex industrial energy efficiency applications, industrial projects with an annual savings exceeding 100MWh per year must apply to the Industrial Accelerator Program. ERIP custom applications that exceed the 100 MWh limit, will be referred to the IA program, unless approval is received from the LDC to proceed under ERIP.
CKW Group Role	Build and expand upon existing relationships with local industries to promote awareness of incentives and benefits of resulting energy reductions. Provide technical assistance to customers to identify and assess energy savings opportunities and overcome barriers to implementation.
Program Budget	Not available at this time.

Program Name	**Electricity Retrofit Incentive Program – Industrial ERIP**
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Demand Response 1 - Industrial**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	DR1 is a demand response initiative for industrial and commercial customers, of 50 kW or greater and with interval meters, to reduce the amount of power being used during certain periods of the year. This initiative has a schedule of 1600 hours per year where activations of up to 100 hours may occur with no obligation on customers to participate. This initiative makes payments for actual load reduction only. There are no payments or set-offs associated with a participant deciding not to participate, or where a participant has indicated willingness to perform and then not followed through. The program is managed by a centrally procured third party program administrator. Marketing of the program and customer registration may be done by both Demand Response Providers and the LDC. The LDC will be responsible for promotion of the DR1 initiative and for registering customers.
CKW Group Role	Leverage and build upon existing relationships with local businesses to build awareness of program, an understanding of program rules and the benefits of participation. Assist customers in identifying and assessing demand reduction opportunities and linking to Aggregators where appropriate.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand(kW)	Reductions not estimated on a program-specific basis. Combined commercial and industrial participation in DR1 program to 2009 has resulted in a load reduction of 5.5 MW.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Demand Response 3 - Industrial**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The DR3 program is open to commercial and industrial customers with a peak demand greater than 50 kW. In comparison to the DR1, which is a voluntary program, the DR3 program is a contractual resource that provides significant financial benefits for participants, reliability and operational benefits for the electricity system, and financial benefits for all electricity customers as it is an economic alternative to procurement of new generation capacity. The DR3 Initiative comes with specific contractual obligations requiring commercial and industrial participants to reduce their use of electricity relative to a baseline when called upon. This initiative makes payments for participants to be on standby and energy payments for the actual energy reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year. The program is delivered by Demand Response Providers, under contract to the OPA, with the LDCs providing important marketing and customer outreach support in a collaborative approach with Demand Response Providers.
CKW Group Role	Leverage and build upon existing relationships with local businesses to build awareness of program, an understanding of program rules and the benefits of participation. Assist customers in identifying and assessing demand reduction opportunities and linking to Aggregators where appropriate.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

6. Potential Board-Approved CDM Programs

The CKW Group has not yet developed a portfolio of potential Tier 2 and Tier 3 programs for Board approval at this time. We are awaiting finalization of the CDM targets by the Board and information from the OPA to fully identify all Tier 1 programs that will be operating over the period in order to avoid conflicting with those initiatives.

The CKW Group is working to identify gaps in program coverage in order to identify additional CDM opportunities and will develop additional CDM programs for Board approval that will enable the utilities in the CKW Group to fully meet their CDM targets..

7. Program Mix

CKW Group members participate in a range of **OPA-Contracted Province-Wide CDM Programs** which serve all significant customer types within the Region of Waterloo. Agricultural operations may participate in residential or commercial programs depending on the nature of the farming operation.

A list of CDM programs available to different customer types is presented in Table 4 below.

Table 4: CDM Program Coverage

Customer Type	Programs Available
Residential	✓ Appliance Retirement Program ✓ Year Round Instant Rebate Program ✓ Bi-Annual Instant Rebate Events ✓ HVAC On-line Rebates Program ✓ Residential Demand Response Initiative (***Peaksaver)*** ✓ Electricity Retrofit Incentive Program (ERIP) for multi-residential ✓ New Construction Program
Low Income Residential	✓ Low Income Program ✓ Appliance Retirement Program ✓ Year Round Instant Rebate Program ✓ Bi-Annual Instant Rebate Events ✓ HVAC On-line Rebates Program ✓ Residential Demand Response Initiative (***Peaksaver)***
Commercial	✓ Commercial and Institutional Province Wide Program, including: o Electricity Retrofit Incentive Program (ERIP) o Power Saving Blitz ✓ Demand Response (DR1 and DR3)

Institutional	✓ Commercial and Institutional Province Wide Program, including: o Electricity Retrofit Incentive Program (ERIP) o Power Saving Blitz ✓ Demand Response (DR1 and DR3)
Industrial	✓ Industrial Accelerator ✓ Electricity Retrofit Incentive Program (ERIP) Industrial ✓ Demand Response (DR1 and DR3)

8. CDM Programs Co-ordination

The CKW Group has co-operated in implementing CDM programs since the inception of the OPA. They have chosen to work together to co-ordinate CDM activities in the Region of Waterloo in order to improve administrative and operational efficiencies. The three utilities have a long history of working together with regards to CDM and other activities. By coming together as a group the CKW Group has been able to share many of the costs involved in the analysis of their CDM potential and in developing their CDM Strategy. By sharing marketing and communications expenditures, the CKW Group can provide a more co-ordinated message and access media which serve the Region as a whole, while minimizing spill-over that each utility would experience if proceeding alone. As a group, they are also able to co-ordinate their CDM activities with a number of key institutional and business customers which serve the Region as a whole.

All three utilities have worked with the ***Residential Energy Efficiency Program (REEP***), a non-profit environmental organization which has served the Region of Waterloo since 1999. REEP offers ecoENERGY Home Evaluations, Solar Assessments and programs for Greening Sacred Spaces, among other services. In past, the three utilities in the CKW Group have assisted REEP in promoting its services by including promotional bill inserts with their bills for residential customers. REEP has also promoted awareness of utility and OPA CDM programs as part of its services. Programs will be co-ordinated with REEP where applicable.

CKW Group members have maintained a good working relationship with energy and Facilities staff from the ***local municipalities and townships***, the ***Regional Municipality of Waterloo*** and both ***School Boards***. These working relationships will be leveraged to build on awareness of CDM program opportunities that may be of value to these organizations.

The City of Kitchener is one of only two municipalities in Ontario which have maintained their municipal franchise for natural gas distribution. It is therefore relatively unique in being the primary shareholder of the electric LDC as well as the owner of the natural gas LDC. As part of its 2005-2007 CDM Plan, Kitchener-Wilmot Hydro Inc. worked with ***Kitchener Utilities*** to offer a fuel switching program for water heaters and other appliances and explored the potential of

offering a similar program in the portion of its territory served by Union Gas. The CKW Group will continue to seek opportunities to co-ordinate its CDM activities with local natural gas and other energy suppliers.

The Region of Waterloo is a recognized hub for technology and manufacturing innovation. The CKW Group has had the unique opportunity to work with organizations that represent these important Key Accounts to foster stronger relations and promote their CDM activities. Advertising for past events and programs has been done through the Waterloo Manufacturing and Innovation Network and Communitech. In addition, the CKW Group has an excellent, ongoing relationship with Canada's Technology Triangle who represent and encourage growth for businesses in the Region of Waterloo.

In 2008 Sustainable Waterloo was founded to allow the Waterloo Region business community to be a part of the local solution to global climate change. This not-for-profit has a growing membership dedicated to reducing its carbon footprint through efficiency and waste reduction, with a heavy emphasis on electricity conservation. The CKW Group are supporters of this organization and their local events. Waterloo North Hydro is a Founding Partner.

The area served by the CKW Group is fortunate in having its own local CTV News station which has provided coverage of many CDM initiatives over the past few years. There is also a newspaper (*The Record*) which primarily covers the Region. This enables the CKW Group to reach customers in the Region using advertising and showcasing local programs with limited spill over. Six smaller community papers also serve the Region, offering affordable advertising and a high readership rate.

Appendix A: Cambridge and North Dumfries Hydro Inc.

Projected Results from Tier 1 Programs:

Cambridge & North Dumfries Hydro Inc.	Cumulative Energy (MWh)			
	2011	2012	2013	2014
Residential	5,236	8,353	12,137	14,741
Commercial	8,803	16,128	23,500	30,671
Industrial	3,938	6,870	10,348	14,094
Total -	***17,977***	***31,351***	***45,984***	***59,506***

Cambridge & North Dumfries Hydro Inc.	Demand (MW)			
	2011	2012	2013	2014
Residential	1.4	2.6	3.7	4.7
Commercial	2.2	4.2	6.3	8.3
Industrial	1.4	2.6	3.9	5.2
Total -	***5.0***	***9.4***	***13.8***	***18.2***

CDM Milestones

Cambridge & North Dumfries Hydro Inc.

	2011	2012	2013	2014
Cumulative Energy (MWh)				
Tier 1 Programs	17,977	31,351	45,984	59,506
Tier 2 & 3 Programs	4,374	8,747	13,121	17,494
Total (CDM Target)	22,351	40,098	59,105	77,000
Demand (MW)				
Tier 1 Programs	5.0	9.4	13.8	18.2
Tier 2 & 3 Programs	(0.0)	(0.1)	(0.1)	(0.2)
Total (CDM Target)	5.0	9.3	13.6	18.0

Note – negative value indicates reductions exceed CDM target.

Appendix B: Kitchener Wilmot Hydro Inc.

Projected Results from Tier 1 Programs:

Kitchener Wilmot Hydro Inc.	Cumulative Energy (MWh)			
	2011	2012	2013	2014
Residential	5,010	11,120	19,000	24,492
Commercial	7,500	16,667	25,833	35,020
Industrial	3,001	5,401	8,035	10,769
Total -	***15,511***	***33,188***	***52,868***	***70,281***

Kitchener Wilmot Hydro Inc.	Demand (MW)			
	2011	2012	2013	2014
Residential	2.2	3.9	5.6	7.2
Commercial	2.3	4.3	6.4	8.5
Industrial	1.4	2.7	4.1	5.4
Total -	***5.8***	***10.9***	***16.0***	***21.1***

CDM Milestones

Kitchener Wilmot Hydro Inc.

	2011	2012	2013	2014
Cumulative Energy (MWh)				
Tier 1 Programs	15,511	33,188	52,868	70,281
Tier 2 & 3 Programs	5,680	11,360	17,039	22,719
Total (CDM Target)	21,190	44,547	69,907	93,000
Demand (MW)				
Tier 1 Programs	5.8	10.9	16.0	21.1
Tier 2 & 3 Programs	0.2	0.5	0.7	0.9
Total (CDM Target)	6.1	11.4	16.7	22.0

Appendix C: Waterloo North Hydro Inc.

Projected Results from Tier 1 Programs:

Waterloo North Hydro Inc.	Cumulative Energy (MWh)			
	2011	2012	2013	2014
Residential	5,232	8,421	12,364	15,136
Commercial	8,387	15,703	23,171	30,308
Industrial	2,524	5,106	7,824	10,737
Total -	***16,143***	***29,230***	***43,359***	***56,181***

Waterloo North Hydro Inc.	Demand (MW)			
	2011	2012	2013	2014
Residential	1.4	2.5	3.6	4.7
Commercial	1.9	3.7	5.5	7.2
Industrial	1.1	2.1	3.2	4.3
Total -	***4.3***	***8.3***	***12.3***	***16.3***

CDM Milestones

Waterloo North Hydro Inc.

	2011	2012	2013	2014
Cumulative Energy (MWh)				
Tier 1 Programs	16,143	29,230	43,359	56,181
Tier 2 & 3 Programs	2,955	5,909	8,864	11,819
Total (CDM Target)	19,097	35,139	52,223	68,000
Demand (MW)				
Tier 1 Programs	4.3	8.3	12.3	16.3
Tier 2 & 3 Programs	(0.1)	(0.1)	(0.2)	(0.3)
Total (CDM Target)	4.3	8.2	12.1	16.0

Note – negative value indicates reductions exceed CDM target.

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Guelph Hydro
Electric Systems Inc.

November 1, 2010

Kirsten Walli
Board Secretary
Ontario Energy Board,
2300 Yonge St.
Suite 2700, P.O. Box 2319
Toronto, Ontario
M4P 1E4
Canada

Dear Ms. Walli:

Re: Guelph Hydro Electric Systems Inc.' Conservation and Demand Management (CDM) Strategy 2011-2014

In accordance with the requirements of the "Conservation and Demand Management Code for Electricity Distributors" (EB-2010-0215) issued on September 16 of 2010, and the associated "Electricity Conservation and Demand Management Targets" (EB-2010-0216), please find attached Guelph Hydro's CDM Strategy over the four-year period beginning January 1, 2011 and ending December 31, 2014.

This document outlines Guelph Hydro's strategy for achieving these Conservation and Demand Management (CDM) targets recognizing that this is based on the best available information given that program design and funding have not been concluded.

Respectfully Submitted,

Cristina Birceanu

Manager of Regulatory Affairs
Guelph Hydro Electric Systems Inc.

395 Southgate Drive,
Guelph, ON N1G 4Y1
Telephone- (519) 837-4735
Mobile- 226-218-2150
Email- cbirceanu@guelphhydro.com

EB 2010-0215
Conservation Demand Management Strategy for 2011-2014
Guelph Hydro Electric Systems Inc.

Submitted to Ontario Energy Board
November 1, 2010

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In the spirit of conservation, Guelph Hydro has prepared this report using the font "Century Gothic" which has been shown to reduce printer ink usage by up to 30%.[1]

[1] University of Wisconsin – Green Bay http://www.uwgb.edu/compserv/topics/CenturyGothicGreen.htm

CDM Strategy

1. Distributor's Name:

Guelph Hydro Electric Systems Inc.

2. Total Reduction in Peak Provincial Electricity Demand (MW) Target:

17 MW

3. Total Reduction in Electricity Consumption (kWh) Target:

83,000,000 kWh

4. CDM Strategy

a. Overview and Objectives

All of the OPA-contracted province-wide (Tier 1) programs will be offered to our customers and Guelph Hydro plans to meet its CDM targets through the delivery of these Tier 1 programs as described more fully below. In addition, Guelph Hydro plans to offer Tier 2 programs, delivered jointly with other LDCs, as well as Tier 3 programs to our customers to encourage additional conservation and demand response (DR) participation. A specific strategy to encourage our customers to participate in a DR program has been provided in this section under item d, below. The Tier 2 and 3 programs are currently under development, but several that are being considered for inclusion in Guelph Hydro's portfolio have been described in section 6 below. Additional information related to Tier 2 and 3 programs will be provided when the appropriate application is submitted to the Ontario Energy Board (OEB).

Guelph Hydro is focused on delivering programs that will help customers reduce their energy requirements. However, there is an added benefit to programs that meet this objective and also help customers to reduce their other natural resource requirements. Therefore, several of the Tier 2 and 3 programs described below are partnerships that would encourage decreased consumption of electricity as well as in water and/or natural gas.

Guelph Hydro has attached the study "*Ontario's Water-Energy Nexus: Will We Find Ourselves in Hot Water... or Tap into Opportunity?*" by Carol Maas of The POLIS Water Sustainability Project as Appendix A. This study evaluates the electricity savings that results from each cubic metre of water saved due to the reduction in upstream city water processing and distribution. Guelph Hydro intends to use this study to support including the electricity savings that result from water savings in the cost benefit analyses required for some Tier 2 and 3 programs under the *Conservation and Demand Management Code for Electricity Distributors*. In

addition, a low-flow toilet water savings program is being evaluated for inclusion in our strategy. The program description has been provided in section 6.b.ii below.

The overall results for Tier 1 programs over the period 2011-2014 are projected to be 17.02 MW and 87,071,000 kWh.

b. Annual Plan: Tier 1 Programs

The Tier 1 programs will be offered during each year in the planning period 2011-2014. In general, Guelph Hydro has assumed that residential customer participation in the Tier 1 programs will represent 0.9% of the provincial total target for each measure. In a few cases, Guelph Hydro varied from this percentage of the provincial target. For example, in the residential demand response program, Guelph Hydro assumed that there would be zero participants in the central air conditioner configurations using switch technology during 2011. Similarly, since Guelph has a much higher proportion of residences built since 2006, Guelph Hydro increased the share of the provincial target related to new home construction.

Guelph Hydro intends to apply for a Roving Energy Manager to encourage maximum participation in the CDM programs offered. Based on the acquisition of a Roving Energy Manager, business customers have been projected to participate in Tier 1 programs at a rate equal to 1.75% of the provincial targets for each program with the exception of DR 1 and DR 3. For industrial programs as well as participation by business customers in DR 1 and DR 3, Guelph Hydro projected participation based on an assessment of which customers were likely to participate in each program.

<u>2011 Plan</u>

Guelph Hydro plans to initiate a campaign to promote CDM programs with larger customers while continuing to promote residential and small business programs. Guelph Hydro intends to apply for a Roving Energy Manager to assist in meeting the targets. It is possible that some results could be delayed depending on when funding is approved for this position.

During 2011, Guelph Hydro has assumed that there will be no participation in the residential and small business DR programs for central air conditioning configurations using switch technology. Guelph Hydro has assumed a return to our standard assumptions for the remaining years (2012-2014).

<u>2012 Plan</u>

Overall, Guelph Hydro intends to evaluate the performance of each program and adjust program promotion and support to ensure the best possible results are attained. Any pilot programs initiated during 2011 will be evaluated and re-designed

as necessary. The portfolio will be evaluated to ensure that all customer segments are participating in CDM programs and, if exceptions are noted, a strategy developed to address this situation. Guelph Hydro will also evaluate new programs, including successful programs offered by other LDCs, for inclusion in the CDM portfolio.

2013 Plan

As described in the 2012 Plan section above, Guelph Hydro will evaluate the performance of each program and adjust program promotion and support to ensure the best possible results are attained.

In addition, Guelph Hydro will specifically re-evaluate the likelihood of reaching the targets by the end of 2014. If a shortfall is projected at this time, Guelph Hydro will develop a strategy to address this situation.

2014 Plan

Guelph Hydro will evaluate the success of each program in the context of designing a portfolio for the period following the end of the planning period. Guelph Hydro will give specific attention to the evaluation of the Tier 2 and 3 programs that were offered to determine whether they should be continued.

c. Annual Milestones

The focus of the plan presented below is to meet the targets set out using Tier 1 programs no later than 2014. Tier 2 and 3 programs are being evaluated for inclusion in the CDM strategy to provide assurance that Guelph Hydro's targets will be met. The Tier 2 and 3 programs may also result in exceeding the targets. Guelph Hydro has provided our targets as annual milestones in Table 1 as well as cumulative totals in Table 2 on the following page, using the OPA Resources for Conservation Portfolio Development Consumer, Business and Industrial Tools.

Table 1: Projected Tier 1 Energy Savings by Year

	2011		2012		2013		2014		TOTAL	
	MWh	kW	MWh	kW	MWh	kW	MWh	kW	MWh	kW
Consumer Tool 1 of 3	602	20	968	20	1,335	20	1,701	20	4,606	80
Consumer Tool 2 of 3	637	250	1,283	260	1,859	260	2,447	270	6,226	1,040
Consumer Tool 3 of 3	427	420	1,457	460	2,745	570	4,074	600	8,703	2,050
Business Tool 1 of 5	1,101	630	2,566	840	3,899	970	5,792	1,320	13,358	3,760
Business Tool 2 of 5	2,719	640	5,568	740	7,216	640	8,776	740	24,279	2,760
Business Tool 3 of 5	4	10	19	20	36	20	54	30	113	80
Business Tool 4 of 5	0	0	0	0	0	0	0	0	0	0
Business Tool 5 of 5	6	220	12	220	24	450	36	440	78	1,330
Industrial Tool 1 of 3	2,861	50	5,661	940	8,983	570	12,160	560	29,665	2,120
Industrial Tool 2 of 3	1	280	2	360	4	560	7	1,120	14	2,320
Industrial Tool 3 of 3	2	220	5	300	8	440	14	520	29	1,480
Total Tier 1 Programs	**8,360**	**2,740**	**17,541**	**4,160**	**26,109**	**4,500**	**35,061**	**5,620**	**87,071**	**17,020**

Totals may not add due to rounding errors

Table 2: Projected Tier 1 Cumulative Energy Savings by Year

	2011		2012		2013		2014		TOTAL	
	MWh	kW	MWh	kW	MWh	kW	MWh	kW	MWh	kW
Consumer Tool 1 of 3	602	20	1,570	40	2,905	60	4,606	80	4,606	80
Consumer Tool 2 of 3	637	250	1,920	510	3,779	770	6,226	1,040	6,226	1,040
Consumer Tool 3 of 3	427	420	1,884	880	4,629	1,450	8,703	2,050	8,703	2,050
Business Tool 1 of 5	1,101	630	3,667	1,470	7,566	2,440	13,358	3,760	13,358	3,760
Business Tool 2 of 5	2,719	640	8,287	1,380	15,503	2,020	24,279	2,760	24,279	2,760
Business Tool 3 of 5	4	10	23	30	59	50	113	80	113	80
Business Tool 4 of 5	0	0	0	0	0	0	0	0	0	0
Business Tool 5 of 5	6	220	18	440	42	890	78	1,330	78	1,330
Industrial Tool 1 of 3	2,861	50	8,522	990	17,505	1,560	29,665	2,120	29,665	2,120
Industrial Tool 2 of 3	1	280	3	640	7	1,200	14	2,320	14	2,320
Industrial Tool 3 of 3	2	220	7	520	15	960	29	1,480	29	1,480
Total Tier 1 Programs	**8,360**	**2,740**	**25,901**	**6,900**	**52,010**	**11,400**	**87,071**	**17,020**	**87,071**	**17,020**

Totals may not add due to rounding errors

d. Demand Response Strategy

Most of the C&I programs will be delivered directly by Guelph Hydro. However, the Demand Response 1 (DR 1) and Demand Response 3 (DR 3) programs are delivered through multiple parties. In order to maximize participation in the DR 1 and DR 3 programs, Guelph Hydro has developed a multi-pronged strategy. Guelph Hydro will continue to provide metering data to all DR aggregators who request assistance in this manner. In addition, Guelph Hydro has partnered with one DR aggregator and is considering partnering with two additional DR aggregators. Guelph Hydro will continue to promote DR programs during large CI&I customer visits and plans to apply for a Roving Energy Manager to assist in completing these visits as noted

below. Finally, Guelph Hydro is planning to offer DR workshops to promote DR to smaller C&I and Industrial customers. Taken together, these initiatives should maximize the DR participation by Guelph Hydro customers.

e. Roving Energy Manager

Guelph Hydro has identified a number of opportunities to increase participation on CDM programs and plans to apply for a Roving Energy Manager in order to maximize the participation rates by industrial customers. Note that Guelph Hydro also has a number of larger commercial and institutional customers that could benefit from the services of the REM. The results projected throughout the Tier 1 programs are predicated on the approval of a Roving Energy Manager.

f. Smart Meters/Time of Use Rates

Demand and energy savings related to smart meters and the implementation of Time of Use (TOU) rates have been excluded from Guelph Hydro's targets. Guelph Hydro intends to evaluate opportunities to encourage savings through smart meters and TOU rates and develop programs as warranted. Therefore, Guelph Hydro expects that savings results related to TOU and smart meters will be counted towards Guelph Hydro's targets once available. These additional savings results will supplement savings shortfalls or contribute to exceeding Guelph Hydro's savings targets.

Guelph Hydro intends to make relevant tools available to our customers to encourage conservation or load shifting, such as a 'web energy portal'.

5. OPA-Contracted Province-Wide CDM Programs

Guelph Hydro plans to participate in all the OPA-contracted province-wide CDM programs for the period 2011-2014. The following tables summarize the programs this encompasses by type of customer along with the anticipated results for each OPA Program Tool. For each of the Consumer Tools provided by the OPA, Guelph Hydro has assumed that our customer's contribution will represent 0.9% of the provincial projected targets. For non-Consumer Tools, Guelph Hydro has assumed that our customer's participation will represent 1.75% of the provincial projected targets. These percentages are higher than the assumption provided by the OPA of 0.9% and 1.49%, respectively, to take into consideration the opportunities that Guelph Hydro expects to be able to deliver at this time. *Please note that budget information is not available at this time*.

Table 3: Projected Tier 1 Program Results

OPA Tool Name	Projected Budget ($ 000)	Projected Reduction in Peak Electricity Demand (kW)	Projected Reduction in Electricity Consumption (MWh)
Consumer Tool 1 of 3		80	4,606
Consumer Tool 2 of 3		1,040	6,226
Consumer Tool 3 of 3		2,050	8,703
Business Tool 1 of 5		3,760	13,358
Business Tool 2 of 5		2,760	24,279
Business Tool 3 of 5		80	113
Business Tool 4 of 5		0	0
Business Tool 5 of 5		1,330	78
Industrial Tool 1 of 3		2,120	29,665
Industrial Tool 2 of 3		2,320	14
Industrial Tool 3 of 3		1,480	29
Total Tier 1 Programs		**17,020**	**87,070**

Totals may not add due to rounding errors

a. Low Income Programs

The Consumer programs are tailored to residential customers and will be offered to all residential customers including those categorized as Low Income. As soon as the OPA-Contracted province-wide Low Income programs are available, Guelph Hydro will offer these programs to our Low Income consumers. Contributions from Low Income programs have not been included in Guelph Hydro's results at this time as the program details are not yet available. Low Income programs, once available, will be offered in order to assist those customers who face the largest burden from electricity costs. Also, offering Low Income programs ensures customers are not discouraged from participation due to their economic circumstances.

b. Consumer Programs

The following Table 4 shows the planned results for Tier 1 Consumer Programs. A description of each program included in each Consumer Tool has been provided following the projected results table.

Table 4: Projected Tier 1 Consumer Program Results

OPA Tool Name	Projected Budget ($ 000)	Projected Reduction in Peak Electricity Demand (kW)	Projected Reduction in Electricity Consumption (MWh)
Consumer Tool 1 of 3		80	4,606
Consumer Tool 2 of 3		1,040	6,226
Consumer Tool 3 of 3		2,050	8,703
Total Tier 1 Consumer Programs		**3,160**	**19,536**

Totals may not add due to rounding errors

Consumer Tool 1 of 3 Program Descriptions:

The OPA model titled Consumer Tool 1 of 3 includes the Instant Rebates program as well as the Midstream Pool and Electronics Incentive programs.

The Instant Rebates program offers coupons and in-store rebates for energy saving items. This program is a carry forward of Power Savings Event.

The Mid-Stream Incentives program provides incentives for satellite and cable providers to use high efficiency set-top boxes and network configurations. This program is a carry forward and improvement from Power Savings Event.

Consumer Tool 2 of 3 Program Descriptions:

The OPA model titled Consumer Tool 2 of 3 includes the HVAC Rebates, Appliance Retirement, Exchange Events and Residential New Construction programs.

The HVAC Rebates program provides HVAC rebates delivered through contractors. This program is a carry forward of Cool Savings Rebate.

The Appliance Retirement program replaces old appliances with energy efficient ones. This program is a carry forward of Great Refrigerator Roundup.

Exchange Events: This is a carry-forward of previous Exchange Events previously hosted by retailers. The focus is on room air conditioners and dehumidifiers. The Spring event will feature a $50 coupon toward the purchase of a high efficiency unit and the Fall event will feature a $25 gift card.

The Residential New Construction program provides incentives for builders to build new, single family homes above Codes and Standards.

Consumer Tool 3 of 3 Program Descriptions:

The OPA model titled Consumer Tool 3 of 3 includes the Residential Demand Response program. The residential Demand Response program is a carry forward of *peaksaver*®. There are pilots in progress with a plan to redesign the program effective July 1, 2011.

c. Commercial and Institutional (C&I) Programs

The Commercial and Institutional (C&I) programs were designed to cover both existing and new buildings in all business market segments as shown below.

Business Segments covered under Commercial and Institutional Programs
(New and Existing Buildings)

Commercial Buildings	Institutional Buildings	Multi-Family Buildings	Agricultural Facilities
– Offices – Retail stores – Grocery stores – Restaurants – Other services – Hotels/motels – Warehouses	– Health care facilities – Universities, colleges, and schools – Municipal buildings	– Apartments (including low income and social/assisted housing) – Condominiums	– Livestock and poultry – Fruits and vegetables – Grains and hay – Greenhouses and nurseries

Guelph Hydro will offer services to all C&I customers. However, Guelph Hydro does not have customers in the Agricultural category in their franchise. Therefore, Guelph Hydro's plan assumes no participation from this customer category.

The overall results for the Business Tools have been provided in Table 5 below. A list of programs included in each tool along with program descriptions has been provided following the projected results table.

Table 5: Projected Tier 1 Business Program Results

OPA Tool Name	**Projected Budget ($ 000)**	**Projected Reduction in Peak Electricity Demand (kW)**	**Projected Reduction in Electricity Consumption (MWh)**
Business Tool 1 of 5		3,760	13,358
Business Tool 2 of 5		2,760	24,279
Business Tool 3 of 5		80	113
Business Tool 4 of 5		0	0
Business Tool 5 of 5		1,330	78
Total Tier 1 Programs		**7,940**	**37,827**

Totals may not add due to rounding errors

Business Tool 1 of 5

The OPA model titled Business Tool 1 of 5 includes medium and large building programs related primarily to equipment replacement incentives (ERIP). The specific programs included are: Pre-Project Assessments and Building Archetypes for the Equipment Replacement Incentive component for multi-residential condominiums, large offices and secondary schools.

The Existing Building Retrofits (ERIP) program is available for equipment replacement and there is a prescriptive, engineered or custom approach for medium and large buildings.

Business Tool 2 of 5

The OPA model titled Business Tool 2 of 5 includes Small Building programs related primarily to energy efficiency targets. The specific programs included are: Direct Install Lighting, Direct Serviced Space Cooling (an updated version of the Power Savings Blitz A/C Tune Up program) and Building Archetypes for the Equipment Replacement Incentive (ERIP) component for small offices, small retail, large retail, agricultural, multi-residential buildings (refrigerator replacement) and elementary schools.

The Direct Install Lighting program targets General Service customers with less than 50 kW of demand. It replaces the Power Savings Blitz and makes up to $1,000 available for equipment upgrades at no charge. There are standard prescriptive incentives for eligible equipment beyond the initial $1,000 limit.

The Direct Serviced Space Cooling program targets roof-top or ground-mounted air conditioning systems sized at 25 tons or less. It is mainly aimed at the General Service account category with loads less than 50 kW but some customers with loads greater then 50 kW will also be eligible. The program provides up to $750 for the cost of parts and labour to service each air-conditioning unit.

The Existing Building Retrofits (ERIP) program is available for equipment replacement and there is a prescriptive approach used for small buildings.

Business Tool 3 of 5

The OPA model titled Business Tool 3 of 5 includes the small commercial Demand Response program. This is an updated version of the *peaksaver*® program.

Demand Response: This program targets small business customers and is a re-design of peaksaver® with two options available. Participation with a Demand Response unit is available for central air conditioning units only. Participation without Demand

Response is offered where price and real-time consumption information is available via an in-home display or on-line display.

Business Tool 4 of 5

The OPA model titled Business Tool 4 of 5 is the Demand Response 1 (DR 1) program. This program focuses on large commercial customers who have an interval meter and contract to participate in demand response on a voluntary basis each time there is an event.

The Demand Response 1 (DR 1) program targets medium and large buildings. It is a voluntary demand response program with availability payments of $4,000 per month and utilization payments at the HOEP with a cap of $170 per MWh.

Business Tool 5 of 5

The OPA model titled Business Tool 5 of 5 is the Demand Response 3 (DR 3) program. This program focuses on large commercial customers who have an interval meter and contract to participate in demand response on a mandatory basis each time there is an event.

The Demand Response 3 (DR 3) program targets medium and large buildings. It is a mandatory demand response program that offers both availability and utilization payments as contracted with an aggregator.

d. Industrial Programs

The Industrial programs feature both demand response programs, DR 1 and DR 3, along with the Industrial Accelerator program. Industrial customers can also participate in the ERIP program, but will need to complete the on-line process using the C&I application provided by the OPA. A brief description of each of the Industrial programs follows the projected results by tool shown in the table below.

Table 6: Projected Tier 1 Industrial Program Results

OPA Tool Name	Projected Budget ($ 000)	Projected Reduction in Peak Electricity Demand (kW)	Projected Reduction in Electricity Consumption (MWh)
Industrial Tool 1 of 3		2,120	29,665
Industrial Tool 2 of 3		2,320	14
Industrial Tool 3 of 3		1,480	29
Total Tier 1 Programs		**5,920**	**29,707**

Totals may not add due to rounding errors

Industrial Tool 1 of 3

The OPA model titled Industrial Tool 1 of 3 includes the Industrial Accelerator and Component Replacement programs.

The Industrial Accelerator program aims to improve the efficiency of equipment and production processes.

Industrial Tool 2 of 3

The OPA model titled Industrial Tool 2 of 3 is the DR 1 program. This program focuses on industrial customers who have an interval meter and contract to participate in demand response on a voluntary basis each time there is an event.

DR 1 is a voluntary demand response program with availability payments of $4,000 per month and utilization payments at the HOEP with a cap of $170 per MWh.

Industrial Tool 3 of 3

The OPA model titled Industrial Tool 3 of 3 is the DR 3 program. This program focuses on industrial customers who have an interval meter and contract to participate in demand response on a mandatory basis each time there is an event.

DR 3 targets medium and large buildings. It is a mandatory demand response program that offers both availability and utilization payments as contracted with an aggregator.

6. Potential Board-Approved CDM Programs

Guelph Hydro is evaluating Tier 2 and 3 programs for inclusion in their strategy to exceed the targets of 17 MW and 83 GWh during the period 2011-2014. The following program descriptions are examples of the types of programs under consideration for inclusion.

a. Tier 2 Program Descriptions

Guelph Hydro will continue to evaluate opportunities to work with other LDCs to deliver conservation and demand management programs. At this time, Guelph Hydro is considering two programs for inclusion in the CDM strategy: Home Energy and Water Audits and Generation Conservation, an educational program with LED installation included as a component of the program. The projected program results and budgets will be provided upon submission of an application to the OEB for Tier 2 program funding.

i. Home Energy and Water Audits

Program Description

The Home Energy and Water Audits pilot program is in the early stages of development. However, the overall plan is to partner with Union Gas, the City of Guelph and Guelph Environmental Leadership to have trained and certified home energy efficiency staff visit residences to install basic energy efficiency measures, provide basic energy efficiency information, as well as promotion of the OPA-contracted province-wide programs described above. Initial thoughts are to have a package including items that promote energy savings initiatives and allow for simple repairs. The home energy efficiency staff would not only provide these materials at a very reasonable cost, they would also install these items in the home.

The plan is to do a pilot program in 2011 with 1,500 homes participating in order to refine the delivery mechanism, define the measure acceptance rates and revise the program and TRC as appropriate. Assuming the program is successful, Guelph Hydro plans to rollout the program across Guelph beginning in 2012. The number of homes that will be offered the program for the years 2012-2014 has yet to be determined. Including the pilot, Guelph Hydro plans to offer the Home Energy and Water Audit program for the entire planning period of 2011-2014.

Anticipated Benefits

The overall objective is for the City of Guelph to use less energy and water per capita than any comparable Canadian city.

ii. Generation Conservation

Program Description

The Generation Conservation program will in operation for the full four years with the understanding that it will be periodically refreshed to meet changing needs and emerging information.

The program is a CDM Education program that aims to build a culture of conservation through the school/home connection. Generation Conservation closes the gap in CDM Education – educating the teachers and providing the resources they need to teach their students who in turn educate their parents about the priority of electricity conservation.

Generation Conservation firstly targets grade 5 teachers who are typical middle class consumers. However, the teachers then educate youth ages 10 to 12 who learn this now and build lifelong conservation habits. The program is also designed

so that the student involves parents/guardians in assessing energy use at home and developing conservation plans. This take-home component ensures that program reaches into as many residences as there are students in grade in the service area.

We expect the new program to include Guelph Hydro, Hydro One, Orangeville, Centre Wellington, and Wellington North Hydro. As the program is promoted further, additional LDCs may choose to participate as well.

In the Guelph/Wellington County area, the program will reach 2,800 students/household each year. (There is the potential to reach up to the total of 140,000 students/households in grade 5 every year in Ontario.) The typical age of these parents (adult consumers) is between 30 and 50, which is a key target for effecting a change in consumption in the consumer base.

The program will reach all customer types as it is being implemented through the public and Catholic district school boards. The funding obtained through the OEB process will enable every child/household to access their own take-home conservation booklet, which includes a home-audit, and every teacher all necessary training and classroom materials. This program is unique in its effectiveness. It will literally reach into every home with grade 5 students no matter their social-economic status. In order to encourage conservation, one assignment will be to install a LED light bulb in a high usage area and to report back on the location selected. A second assignment will be to provide feedback on the LED light in terms of perceived lighting similarity to the previous incandescent bulb (2011) or CFL (2012 on) and other qualities that might encourage additional purchases.

Generation Conservation provides thorough hands-on learning experiences that cover all the key aspects of energy conservation in the home. The 10 lessons cover the following topics:

• how electricity is generated and how it is used
• the resources used to generate electricity
'• the environmental trade-offs and consequences of electricity generation
• measuring the electrical load of common appliances
• assessing the benefits of Energy Star appliances
• conducting a home energy audit
• assessing the value and impact of energy saving devices
• measuring phantom power and learning how to halt it
• completing a home energy diary to establish time of energy use
• understanding the connection between air quality and energy generation
• understanding the tradeoffs in the energy mix (IESO)
• examine energy peaks and exploring how to shift the load to off-peak times (smart meters/10 Smart Meter Lane)
• developing a personal energy conservation plan that suits individual circumstances.

In addition, a summer camp program will be provided that is offered through existing camp programs as a specialty program day. The children will be offered fun and educational activities focused on electricity that teaches the importance of conservation. We expect the conservation day programming to be utilized in multiple camp programs.

Finally, the Guelph Hydro website will be enhanced by adding a children's webpage that provides the Generation Conservation activities for home use.

In all aspects, this program teaches that Conservation = Generation. The more we conserve, the less we have to generate and the lower our costs – environmentally and otherwise.

Anticipated Benefits

The benefits of the program that have already been documented by the Durham Questionnaire include:

• Participants found that they understood conservation more thoroughly; particularly phantom power, the choice of new appliances and how to use electricity at home, and they knew many more strategies to conserve in ways that were easy and convenient.

• The participants understood why conservation was being promoted on the basis of environmental, societal and economic concerns, supporting the entire premise of the Green Energy Act and CDM initiatives.

• The participants took actions in their own lives to reduce the consumption of electricity and this influenced their decision making when it came to other behaviors that have an environmental impact.

• The participants understood electrical generation and learned about the complexities and costs of the generation process so that they saw electricity as a precious commodity for which they previously had little regard.

This program changes behaviours and attitudes to effectively begin to create a culture of conservation.

b. Tier 3 Program Descriptions

Similar to the Tier 2 programs, Guelph Hydro has not yet determined which Tier 3 programs will be included in the CDM strategy. However, the program descriptions for several programs under consideration have been provided below. The projected program results and budgets will be provided upon submission of an application to

the OEB for Tier 3 program funding.

i. Smart Wash

Program Description

The Smart Wash program is a continuation of an existing program and would be provided under a partnership with the City of Guelph with Guelph Hydro providing the program administration as well as a portion of the incentive. In the Smart Wash program, customers are encouraged to buy high efficiency washing machines through the provision of an incentive of $100 per washer. Guelph Hydro has requested that the City of Guelph consider committing to a four-year term in order to be able to ensure program continuity for the entire planning period of 2011-2014.

Anticipated Benefits

The Smart Wash program encourages the use of higher efficiency washing machines that leads to the consumption of less electricity as well as less water and natural gas.

ii. Royal Flush

Program Description

Assuming the OEB approves the methodology being proposed for calculating the electricity savings that result from each cubic metre of water saved in Guelph based on the study attached as Appendix A, Guelph Hydro is considering extending the partnership with the City of Guelph to reduce water consumption and the related electricity consumption using a low flow toilet incentive program. In past, the program has been offered to residential customers, but Guelph Hydro is considering expanding this program to target school boards, University of Guelph hotels, the hospitality industry and other larger accounts.

The concept is for the City of Guelph and Guelph Hydro to jointly fund an incentive payment to encourage customers to replace normal toilets with low flow toilets. Guelph Hydro would provide funding toward the incentive as well as provide the administration of the program by ensuring the processing payments to customers.

Anticipated Benefits

The Royal Flush program encourages the use of low flow toilets. This leads to the consumption of less water resulting in a lower requirement of electricity as well.

7. Program Mix

Guelph Hydro plans to meet its CDM targets using Tier 1 programs, with Tier 2 and 3 programs being considered to enable customers to use less energy and may also allow Guelph Hydro to exceed the targets. All of the province-wide OPA programs (Tier 1 programs) will be offered to our customers. In addition, a specific strategy to encourage our customers to participate in a demand response program has been developed and provided in section 4.d above.

The Consumer programs are tailored to residential customers and will be offered to all customers including those categorized as Low Income. As noted in section 5.a, Guelph Hydro plans to offer OPA-contracted province-wide programs specifically tailored to Low Income consumers once they are available.

Guelph Hydro does not have customers in the Agricultural Facilities category in their franchise. Therefore, Guelph Hydro's plan assumes no participation from this customer category.

Finally, Guelph Hydro will continue to visit larger commercial, institutional and industrial customers to promote the CDM programs that are appropriate for each customer. Approval of the Roving Energy Manager is a key component in meeting the targets described above.

8. CDM Programs Co-ordination

Guelph Hydro plans to pursue administrative efficiencies and co-ordinate its CDM activities with other electric and natural gas LDCs as well as the OPA. Partnerships are being developed with the City of Guelph and social service agencies, especially those who can identify Low Income customers and potentially assist in program delivery. The Business Improvement Agency and Chamber of Commerce are two avenues of partnership that Guelph Hydro intends to utilize to promote CDM programs to their members. Guelph Hydro plans to engage local elementary schools and the University of Guelph's Environmental Science and Sustainability Projects and other groups such as the Elora Environment Centre to encourage awareness and participation in CDM programs. Non-profit groups and property management firms will be approached, when appropriate, to identify the CDM needs of specific customer segments.

Appendix A

Please see the attached study "*Ontario's Water-Energy Nexus: Will We Find Ourselves in Hot Water... or Tap into Opportunity?*" by Carol Maas of The POLIS Water Sustainability Project

POLIS Research Report 10-01
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Ontario's Water-Energy Nexus:

Will We Find Ourselves in Hot Water… or Tap into Opportunity?

By Carol Maas

POLIS Project on Ecological Governance
watersustainabilityproject

Ontario's Water-Energy Nexus

Will We Find Ourselves in Hot Water... or Tap into Opportunity?

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Table of Contents

Preface

This research and report was inspired by an emerging interest worldwide in the water-energy nexus and, in particular, an interest in identifying opportunities for water conservation to reduce energy use. A comprehensive understanding of the water-energy nexus in Ontario has been hampered by the lack of a synthesized dataset that describes the energy used for water-related services. In recent years it became clear that a comprehensive provincial review of the energy embedded in water across all major water-using sectors was needed to provide a strong foundation for future work in this area.

The report is highly quantitative in nature and was therefore written with a technical audience in mind. The study has been structured in three pieces – an executive summary, a main report and a technical appendix. Given the importance and wide reaching implications of the water-energy nexus both the executive summary and the main report body have excluded many of the technical details and assumptions in the interest of providing a concise, accessible report and summary. The appendices have been drafted with the intention of providing a clear statement of the methodological approach, including equations used and assumptions made, for the benefit of readers looking for specific technical details or to replicate this study elsewhere for other contexts. To avoid excessive length, the narrative and graphic representation in the Appendices has intentionally been kept short and direct, with summary tables included in Appendix A.

Prior water-energy studies have typically focused on the energy used for pumping and heating water as these are prime targets of municipal water conservation programs. However, this report also includes an analysis of the energy for steam used both for manufacturing processes and space heating and the waste heat from power generation. A soft path approach to water and energy demands holistic thinking; quantifying this energy lost in cooling water or through boiler inefficiencies is a first step in understanding how innovative processes and ideas may reveal the water and energy saving opportunities that these sectors have to offer. Analyses of the energy used to pump, treat and heat water are also provided separately from the energy used to generate steam and produce power (Figure 6 for example) with the intention of offering the information required by different types of practitioners.

It is the sincere hope of the author that this report will not only help to fill this research gap, but also stimulate future dialogue on this important topic.

Introduction

What is the water-energy nexus?

Water used to produce energy and the energy used to provide water-related services together have been coined the "water-energy nexus" in recent times. Water is essential for generating energy - to power the turbines in hydro-electric facilities, for cooling in thermal or nuclear energy plants, and to extract oil from tar sands. Indeed, collectively, the energy sector is the single largest user (though not the largest consumer) of water in Canada (Environment Canada, 2007). At the same time, energy is required to pump, treat and heat water and to generate steam for urban, industrial and agricultural use and to deal with the resulting wastes. Together, the two sides of this nexus (depicted in Figure 1) are generating new research, policy proposals and public dialogue that will be critical as societies struggle to address the intersecting challenges of climate change, energy security and water scarcity.

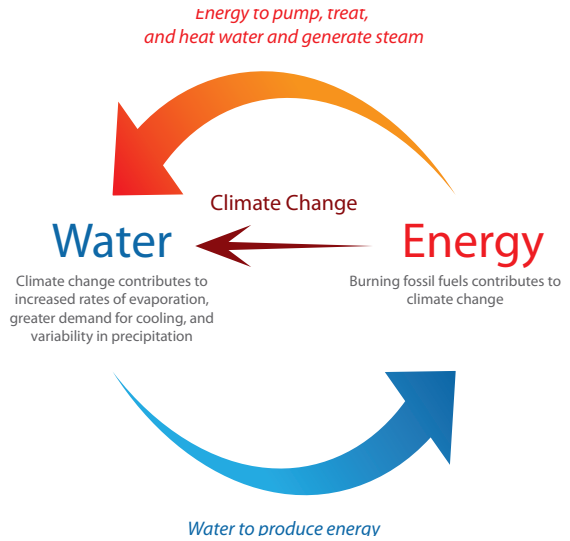

Figure 1 - The water-energy nexus in the context of climate change.

Climate Change and the Water-Energy Nexus

The water-energy nexus is deeply embedded within the context of climate change, a concern that is front and centre for many Canadians and that the Ontario Government has identified as a priority (Pembina, 2008; Office of the Premier, 2004). Burning fossil fuels to generate electricity and heat for provision of water services creates greenhouse gas emissions, heat-trapping gases that contribute to global warming and ultimately to climate change. Climate change will in turn impact water availability, increase water temperature and alter the frequency and duration of rainfall.

> *"Climate change may have been created by energy use, but it will be felt through water."*
>
> —Oliver Brandes, POLIS' Water Sustainability Project Leader

Indeed, this changing "waterscape" is likely to impact all aspects of our relationship with water and energy, as described by Thirwell *et al.* (2007) in a discussion of the water-energy nexus in Canada:

> *"It is anticipated that as climate changes, water resources will be altered; potentially reducing their quality, quantity, and accessibility. This in turn will require increased energy inputs to purify water of lower quality or pump water from greater depths or distances. Increased energy use will potentially lead to greater greenhouse gas emissions. Additionally, Canada's hydroelectricity sector could be affected forcing Canada to turn to other energy sources with higher emissions. All of this would ultimately reinforce climate change and create a vicious circle."*
>
> —Thirwell *et al*. (2007)

Warmer water temperatures will furthermore reduce the efficiency of cooling in thermal and nuclear power generating stations, and industrial settings, necessitating increased water withdrawals. A discussion of the energy associated with water use is therefore also necessarily a discussion of climate change and power generation.

Integration of Water-Energy Policy & Research

New research reveals strong linkages between water and energy consumption. A study by the Energy Policy Research Institute (EPRI) in 2002 provided a first estimate of the total energy associated with water in North America (EPRI, 2002). The report estimated that 4% of the electricity consumed in the United States is used to move and treat water and wastewater. Other studies in the U.S. have since built on EPRI's work and have suggested that energy consumption for water use is even greater. Most recently, an updated examination of the energy to pump, treat and heat water suggested that total water-related energy use is equivalent to 13% of all electricity produced in the U.S.[1] (Griffiths-Sattenspiel & Wilson, 2009). This nationwide survey reflected results from prior studies of individual states including California, where water-related services account for 19% of electricity consumption and 30% of the state's natural gas demand (Cohen *et al.*, 2004). A study in the United Kingdom revealed that 6% of the UK's annual greenhouse gas emissions are related to water, 90% of which are associated with hot water use in the home (Environment Agency, 2009).

As we elucidate the implications of the water-energy nexus, new opportunities for more integrated approaches emerge. The United States has included minimum water efficiency standards for fixtures and appliances in its Energy Policy Act since 1992 (Energy Policy Act, 1992). In October 2006, the California Public Utilities Commission (CPUC) issued a ruling which directed each energy utility to develop a one year pilot program, together with a water provider, to "implement a jointly-funded program designed to maximize embedded energy savings per dollar of program cost" (CPUC, 2006). The University of Delaware conducted a jurisdictional review of water-energy programs in other states to inform the Delaware General Assembly of how water-energy initiatives may be applied in the state (Young-Doo Wang *et al.*, 2008).

The U.S. passed the Energy and Water Research Integration Act to "ensure consideration of water intensity in the Department of Energy's energy research, development, and demonstration programs to help guarantee efficient, reliable, and sustainable delivery of energy and water resources" (Bill H.R. 3598, 2009). Most recently, the Great Lakes Commission launched a Great Lakes Energy-Water Nexus initiative that aims to better integrate water and energy decision making processes, including a new project that will develop tools to better understand the impacts of power generation on water resources (Great Lakes Commission, 2010).

Relevance of the Water-Energy Nexus to Ontario

Ontario's energy use for water services is likely to rise on a steep trajectory in coming years. A rapidly growing population means increased demands for water. Declining water quality and availability in our watersheds could require more energy intensive treatment processes, and pumping from greater distances and depths, to maintain a reliable water supply while protecting public health and the environment. In fact, the Electric Power Research Institute estimates that the energy to pump and treat a litre of water in the U.S. will increase by 5-10% over 10 years (EPRI, 2002) and the energy consumption of municipal water utilities is predicted to double within the next 40 years (Alliance to Save Energy, 2002). The anticipated rise of energy intensive treatment processes, the need to pump water greater distances and depths and population growth together suggest an exponential increase in the energy used to provide water services. Future energy use for water could conceivably outstrip our ability to provide renewable energy if wasteful water practices continue to go unchecked.

1 this estimate includes hot water uses but excludes steam

Our previous report, *The Greenhouse Gas and Energy Co-benefits of Water Conservation*, highlighted water and wastewater services as the single-largest consumer of electricity in Ontario municipalities, comprising between one to two thirds of electricity costs (Maas, 2009). The rising cost of electricity, combined with Ontario's commitment to eliminate coal-fired power and a $30-40 billion water and wastewater infrastructure deficit, suggest that communities across the province will seek to minimize their use of both electricity and water to save money and to promote environmental sustainability (RCCAO, 2006).

Higher fuel costs coupled with an increased need for cooling and irrigation could also mean steep increases in operating costs for manufacturers, farmers and homeowners. TD Canada Trust (2008) found fuel prices were a top concern of small business owners. However, a recent report by the Canadian Business for Social Responsibility revealed that businesses often fail to recognize the water-related risks within their supply chain (CBSR, 2009). Declining water quality, for example, could mean significant increases in capital and energy costs if advanced treatment or importing of water were required to manufacture materials.

The anticipated rise of energy intensive treatment processes, the need to pump water greater distances and depths and population growth together suggest an exponential increase in the energy used to provide water services.

The agricultural sector is similarly prone to water and energy related risks. Drought conditions and high fuel prices could put irrigators at increased financial risk and North America has recently seen an increasing prevalence of both. Farm fuel prices in Canada increased by 66% between 2004 and 2008 (Agriculture and Agri-Food Canada, 2009) and drought conditions plagued prairie farmers in 2001 / 2002 in what was called one of the most expensive natural disasters in Canadian history (CBC News, 2009). In seven short years these same farmers were faced with yet another year of drought in 2009. Shortt *et al*. (2004) suggest that Ontario's farmers are facing mounting pressure to irrigate, stemming from an increased frequency of low rainfall during the growing season and demands for consistent quality products. Although irrigation offers a reduced risk of crop losses, irrigators are not immune to other risks. For example, high fuel prices coupled with a drought in 2004 left cotton farmers in West Texas facing an additional $10,000 per pivot irrigator in a single growing season; this could be illustrative of times ahead in Ontario given the uncertainty of climate change impacts (Associated Press, 2004).

Rising energy costs, the imperative to reduce greenhouse gas emissions and a changing waterscape implies that water and energy conservation are fundamental to creating sustainable communities, farms and businesses in Ontario.

Opportunities for Water and Energy Savings

Encouragingly, researchers and practitioners around the globe are recognizing the potential for efficient use of water and energy to mitigate greenhouse gas emissions, work towards adapting to climate change and reduce the environmental, social and economic costs of our water use (Maas, 2009; Cohen *et al*., 2004; Griffiths-Sattenspiel & Wilson, 2009). The water-energy nexus is leading to new opportunities to save water, energy and costs. Griffiths-Sattenspiel & Wilson (2009) revealed that if every household in the U.S. installed water efficient fixtures and appliances, 38.3 million tonnes of carbon dioxide emissions could be avoided. Tellinghuisen (2009) estimated that retrofitting half of Denver's households with water efficient faucets, showerheads, dishwashers and clotheswashers could prevent 274,000 tonnes of CO_2 being released each year.

Water recycling has also been found to be highly energy efficient in places like California, where recycling wastewater is typically half of the energy consumption of new surface or ground water supplies (Cohen *et al*.,

2004). In Ontario, A recent report identified water saving opportunities that could reduce water use by 46% for the residential sector, 36% for the commercial and institutional sector, 41% for municipal water loss and 16% for the manufacturing sector (RMSi, 2009). And these estimates exclude water savings from process integration, water recycling and low impact development.

California's story of leadership on the water-energy nexus, outlined in Box 1, has led other States to follow suit and devote resources towards better understanding and acting on the conservation opportunities that lie at the nexus of energy and water.

Box 1: California - Leading the Way to New Energy Savings

Bob Wilkinson, at the University of California, Santa Barbara, first published a methodology for quantifying the energy used for water services and applied the method to California water systems in 2000 (Wilkinson, 2000). Dr. Wilkinson's report inspired the Natural Resources Defense Council and Pacific Institute to generate a joint report entitled Energy Down the Drain (Cohen *et al*., 2004). This report in turn generated sufficient interest to launch a seminal report, California's Water-Energy Relationship, by the California Energy Commission in 2005 (Klein *et al*., 2005). During this study, the CEC found that "the energy savings [from water conservation programs] would achieve 95 percent of the savings expected from the 2006-2008 energy efficiency programs, at 58 percent of the cost."

Energy efficiency programs have historically been funded to a much greater extent than water efficiency programs in North America. In recognizing this inequity, the CEC was able to direct funds to energy saving, economical water conservation projects and reduce costs. Water-energy studies and reports are increasing in number, reinforcing the notion that energy used for water services, and the potential for conservation of both, is significant beyond California (Young-Doo Wang, 2008; Tellinghuisen, 2009; Griffiths-Sattenspiel & Wilson, 2009; Pourkarimi, 2007; Young and Koopman, 1991; Iowa Association of Municipal Utilities, 2002; Cheng, 2002).

Purpose & Overview of Methodology

This study provides a first estimate of the total energy required for water-related services in Ontario. Specifically, it aims to quantify the energy to heat, treat, deliver, and remove water from communities, farms, businesses, institutions and power plants. The purpose of this research was to illuminate the energy inputs to water in Ontario, Canada, and to provide a platform for future research into opportunities for water and energy conservation.

Five broad sectors were examined in this study: residential, commercial/institutional (CI), manufacturing, agriculture and power generation. The municipal sector was also examined in terms of the energy used to pump and treat water. A detailed technical description of the methodology employed for calculating energy demands for water is presented in Appendices B through J. The base year for the analysis was 2006.

Water Use

Annual water and wastewater volumes for each sector were determined using the analysis completed by Resource Management Strategies Inc. for the Province of Ontario (RMSi, 2009: Table 36). Water withdrawals for each sector were then further disaggregated to assess the volume of water that was heated and the volume of water that was discharged as wastewater. Water withdrawal volumes reported by RMSi (2009) were cross-checked with the Great Lakes Data Regional Water Use Database and found to vary considerably in certain sectors; however the Great Lakes data have not been updated since 2000 (Great Lakes Commission, 2009). Since 2008, actual water takings

in Ontario must be reported through the provincial permit to take water system and so it is likely that a more accurate re-assessment of the energy demands for water can be conducted when these data become available. A summary of estimated water takings by sector in 2006 is presented in Table 1.

Table 1 - Water withdrawals by sector in Ontario, 2006

	Sector	Water Withdrawals in 2006 (m^3/d)
Municipal Supply	Residential	966,600,000
	Commercial/Institutional	132,300,000
	Manufacturing	1,647,188,790
	Municipal Water Loss	374,466,653
Private Supply	Power Generation	26,687,000,000
	Agriculture - Irrigation	108,210,000
	Agriculture - Livestock	61,500,000
	Agriculture - Aquaculture	39,192,000
	Residential	171,700,000
	Manufacturing	1,622,811,210
	TOTALS	**31,810,968,653**

Energy Use

The energy intensity, i.e., the energy applied (in kWh) to 1 m^3 of water, was determined for each of pumping, treating and heating water within each of the given sectors. Total energy demand was estimated for each sector by multiplying the energy intensity by the applicable volume of water. For example, the energy intensity to heat water from 12°C to 60 °C was estimated using basic heat calculations and then multiplied by the volume of water heated.

Where either the energy intensity or the respective volume of water used was unavailable, a combination of assumptions and alternative methodologies were employed. In particular, the energy estimates for hot water use and steam were primarily extracted from the Comprehensive Energy Use Database published by the Office of Energy Efficiency within Natural Resources Canada (NRCan, 2007).

The energy used to drive turbines in nuclear and thermal electric power plants is first applied to water to generate steam and then released as waste heat into cooling water and into the atmosphere. The waste heat energy from generating steam in power plants was estimated using an assumed thermal efficiency and the annual power output and crosschecked using the known differential between the ambient lake temperature and the cooling water discharge.

Given the heavy reliance on a national database of energy use, and conservative estimates for the majority of remaining assumptions, the energy estimates presented herein are anticipated to represent a reasonably accurate first estimate of energy used for water-related services in Ontario and should be considered a mid-range approximation at this time.

Total Energy Used for Water Services in Ontario

The total energy consumed in Ontario for water-related services, including pumping, treating and heating water and generating steam (including steam used to generate electricity) was estimated to be 976 Petajoules per year (PJ/yr or 271,600,000 MWh/yr).[2]

What does 976 PJ/yr of Energy Input to Water Look Like?

Figure 2 disaggregates the 976 PJ/yr of energy that is applied to water in Ontario annually into energy used for steam, hot water and pumping and treatment. The energy used to pump treat and heat water and to generate steam could heat every home in Canada.[3] The waste heat from generating steam in nuclear and fossil-fuel fired power plants accounts for approximately half of this energy.

The energy used to pump treat and heat water and to generate steam could heat every home in Canada.[3]

However, as discussed in later sections, the energy for heating water, pumping and treating water and wastewater and generating steam in other sectors should not be overlooked. Consider the energy demand used to provide hot water, cold water and steam services in all sectors except power generation (460 PJ/yr); if this energy were provided by electricity alone, water-related services would consume all power produced by every hydro-

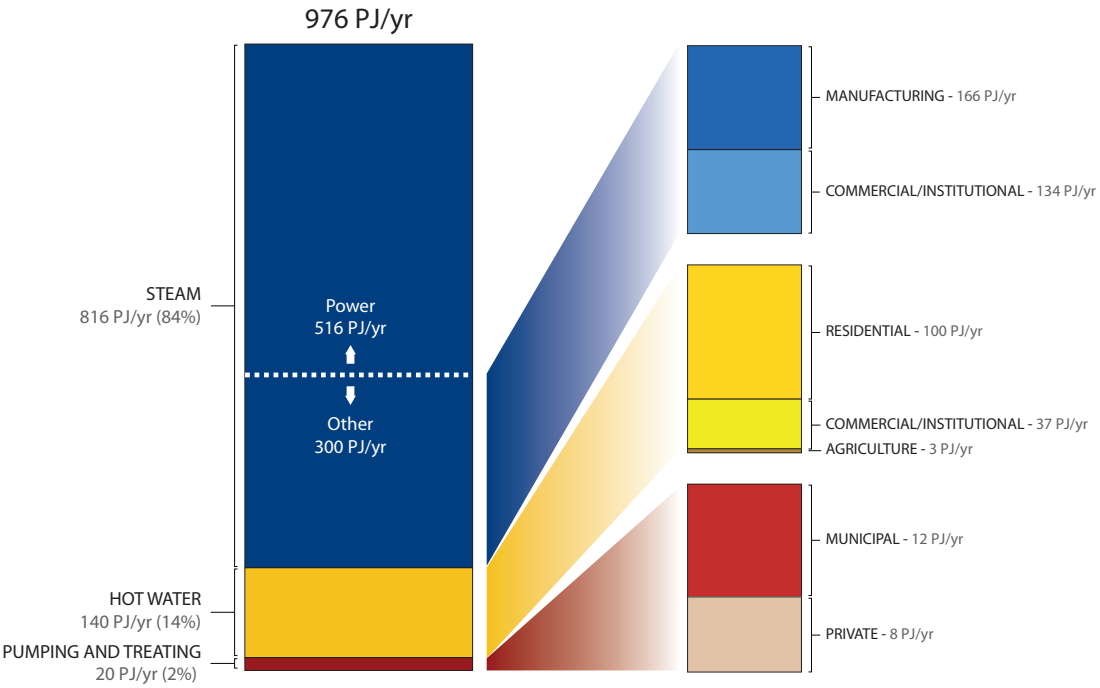

Figure 2 – Summary of energy inputs to water, including (left) and excluding (right) the power sector.

2 Note that for clarity, reported energy numbers excluded line and production losses, estimated at 6% for electricity and as much as 10% for other fuels.

3 Space heating in the residential sector consumed 805 PJ/yr in Canada in 2006 (NRCan, 2006)

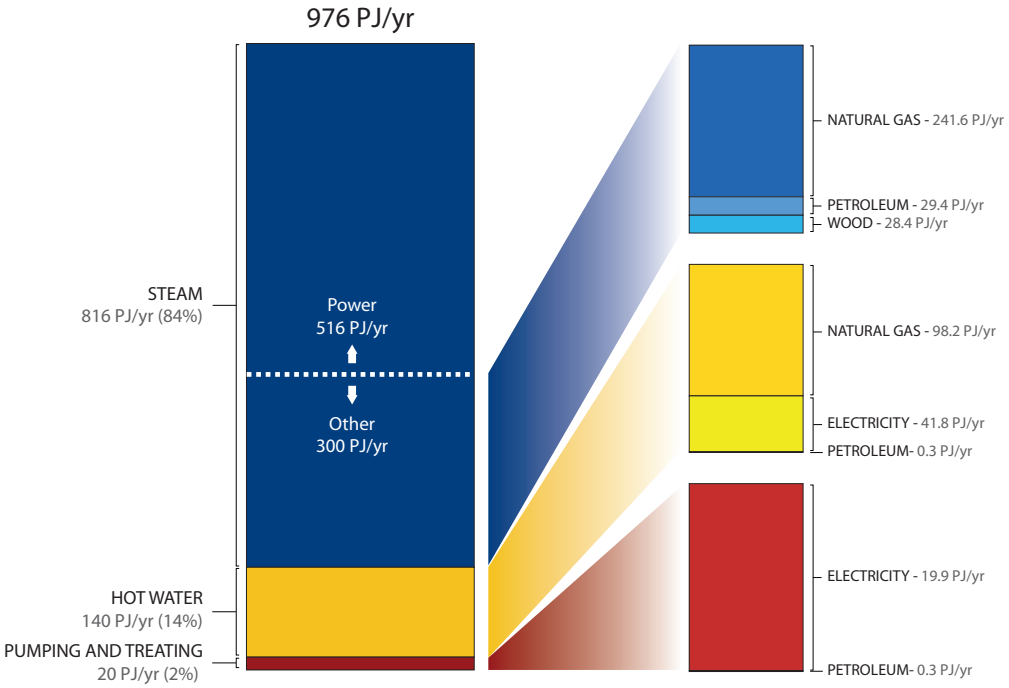

Figure 3 – Fuel type for each use of water.

electric, coal and nuclear power plant in Ontario.[4] Importantly, 80% of this energy is actually provided by fossil fuels largely as a result of Ontario's heavy reliance on natural gas for firing boilers to produce steam and hot water as illustrated in Figure 3 (refer to Table A.2 in Appendix A for further details of energy use by fuel type).

When steam was excluded entirely, the energy for pumping, treating and heating water alone was estimated at 161 PJ/yr. In fact, pumping, treating and heating water in Ontario's homes businesses, institutions and farms consumes significantly more energy than the power produced by the largest coal-fired power plant in North America.[5]

How Does Energy Used for Water Services Compare with Other Sectors?

Powering pumps, treatment plants, hot water heaters and boilers was found to consume 12% of Ontario's total demand for electricity and 40% of the natural gas demand.[6] This corresponds well with California's use of energy for water services, estimated at 19% of electricity and 30% of natural gas use (Cohen *et al.*, 2004).

Economic sectors such as agriculture, commercial/ institutional, industry and transportation individually represent between 3% and 47% of the total demand for natural gas and between 1% and 37% of the electricity demand in Ontario. Energy consumption for water

Pumping, treating and heating water in Ontario's homes businesses, institutions and farms consumes significantly more energy than the power produced by the largest coal-fired power plant in North America.[5]

4 490 PJ/yr of electricity were produced in Ontario in 2008 (OPG, 2008)
5 Nanticoke power generating station in operating at full capacity produces 115 PJ/yr (OPG, 2010a)
6 Note that these values exclude the energy for steam in the power sector. 840 PJ/yr of natural gas energy is used in Ontario by all sectors (NRCan, 2007); 339 PJ/yr is used for water

intersects each of these economic sectors; however it is interesting to note that on a percentage basis water-related energy usage is comparable in magnitude to the energy consumed by individual economic sectors. For example, Figure 4 illustrates the breakdown of natural gas use in Ontario by economic sector. Clearly, the relative volume of natural gas used for water-related services, 40% of total demand, is comparable to the individual residential, commercial, institutional and manufacturing sector's fraction of natural gas demand in Ontario. Arguably, the energy used for water services is sufficiently large to warrant consideration of water as a "sector" of sorts. Investigation of opportunities to conserve water across traditional economic sectors could elicit innovative ideas and programs with new opportunities for reduction of energy use.

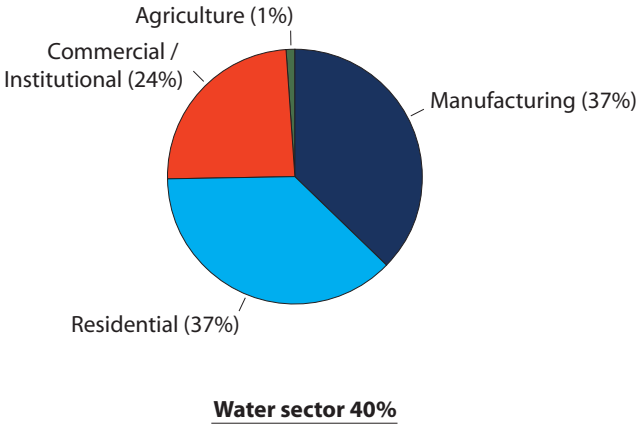

Figure 4 – Ontario's natural gas demand by sector, contrasted with the natural gas demand for water-related services.

Embedded vs. End-use Energy

The energy input upstream of the end-use, primarily the energy for pumping and treatment[7], is commonly referred to as the embedded or embodied energy of water. Energy input at the point of use is defined as end-use energy and for the purpose of this report is generally the energy to heat water and generate steam. End-use energy may also be applied for water cooled chillers and on-site treatment systems such as water softeners and UV disinfection.

End-use energy is often under private control, whereas embedded energy inputs tend to be publicly managed – at least in the case of municipally supplied water services. For example, a homeowner can install a water efficient clothes washer (hot water / end-use energy), while only a municipality can reduce leakage in the water distribution system (pumping / embedded energy). Energy inputs for hot water and steam also tend to employ a wider variety of fuels such as natural gas and petroleum products in comparison to pumping and treatment, which generally rely on electricity. In addition, though the embedded energy may appear small in comparison to end-use energy, the energy consumption for water-related uses relative to other activities may still be significant to an individual or sector. For these reasons, a separate examination of embedded and end-use energy is warranted. As illustrated in Figure 2, steam (including waste heat from power generation) accounts for 84%, hot water use 14%, and pumping and treatment 2% of total energy inputs to water in Ontario.

Hot Water & Steam (End-Use Energy)

The energy for heating water and generating steam together was estimated to be 440 PJ/yr in the residential, CI and manufacturing sectors, with an additional 516 PJ/yr of energy stemming from nuclear and fossil-fuel inputs to generate steam in the power sector, as previously illustrated in Figure 2. The energy

The energy for heating water alone, 141 PJ/yr, could keep close to half of all Ontarians warm in the winter.[8]

7 energy for manufacturing of chemicals may also be considered, but a study by Maas (2009) suggested that this energy was negligible in comparison to pumping and treatment.

for heating water alone, 141 PJ/yr, could keep close to half of all Ontarians warm in the winter.[8]

Pumping & Treatment (Embedded-Use Energy)

Despite the predominance of energy for heating water and generating steam in the water-energy nexus, as depicted in Figure 2, the electrical energy[9] required for pumping and treatment is not inconsequential. In fact, the 20 PJ/yr required for pumping and treating Ontario's water could light every home in the province.[10] About half of this embedded (electrical) energy for water in Ontario is used to power municipally operated water and wastewater systems across the province.

The 20 PJ/yr required for pumping and treating Ontario's water could light every home in the province.[10]

Box 2: Hot!!! Water Savings

The second largest consumer of energy - and producer of GHG emissions - in both the residential and commercial sectors, is hot water (NRCan, 2007). Importantly, with a payback period of 0-3 years for a number of measures, hot water savings are readily available for residential and commercial end-uses such as showering/bathing, clothes-, dish- and vehicle-washing (SeeLine Group Inc., 2005).

The economic rationale for including hot water conservation is seen in programs such as Manitoba Hydro's provincial commercial clothes-washer rebate (Manitoba Hydro, 2010), the U.S. Energy Policy Act (1992) that establishes minimum standards for pre-rinse spray valves and the free showerhead retrofits and boiler audits offered by gas companies.

New opportunities to save hot water are continually emerging such as hot water recirculation within homes and recycling and reuse of hot washwater in farms, car-washes and industry (Ally *et al*., 2002; Vickers, 2001). Washwater reuse and recycling in milking operations, for example, have been demonstrated to save 65% of water, 60% chemicals and 40% of energy (Havard, 2002).

Energy Used for Water Services by Sector

The total energy and water use in the province of Ontario was disaggregated by sector in Figures 5a and 5b respectively and Table A.1 in Appendix A includes additional details. The power generation, residential, commercial/institutional and manufacturing sectors clearly dominate the energy demand for water because of the large amounts of energy required to heat water and generate steam. The municipal sector represents the energy for pumping and treatment of public water supplies, including water losses.

Given the large amounts of energy used for steam in the manufacturing, commercial / institutional and power generation sectors - and the general exclusion of steam from traditional water conservation programming - it can be helpful to separate steam from other end-uses of water to better illustrate the energy required for heating, pumping and treating water. Figure 6 excludes steam and disaggregates the energy required for pumping, treating

8 Hot water heating includes both residential and commercial sectors. Residential space heating in Ontario used 310 PJ/yr in 2006 (NRCan, 2006)

9 For the purpose of this report, all water and wastewater pumping is considered embedded energy, even if the water is being pumped from a well on the property.

10 Residential lighting in Ontario consumes 20.8 PJ/yr (NRCan, 2007)

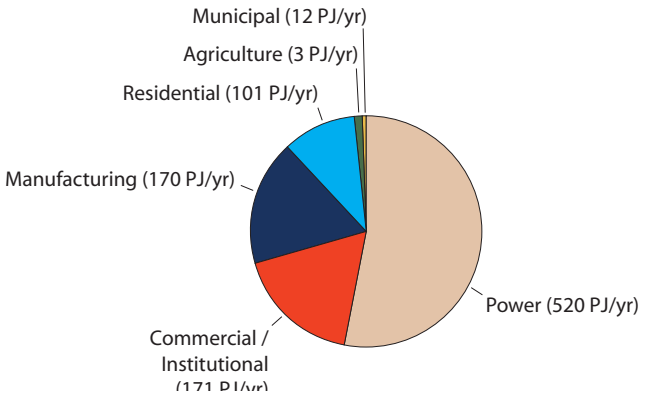

Figure 5a – Energy used for water services in Ontario, 2006, PJ/yr.

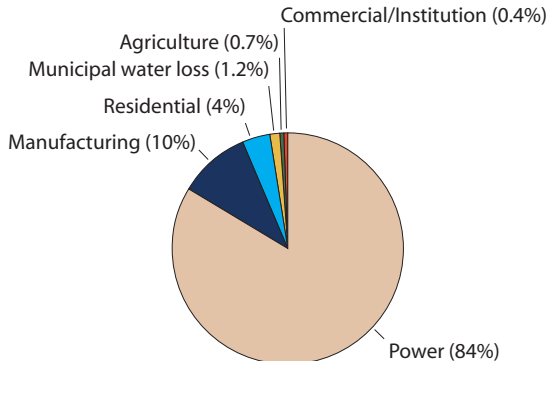

Figure 5b – Water withdrawals in Ontario, 2006, m^3/yr.

and heating water by sector.

Residential

The residential sector in Ontario uses an estimated 1,138,300,000 m^3/yr of water (RMSi, 2009). Water-related energy consumption in the residential sector is predominantly used to heat water for clotheswashers, showers and faucets (101 PJ/yr), with the remaining energy (0.25 PJ/yr) used for pumping from private wells, which supply 15% of Ontario's homes with water (RMSi, 2009).

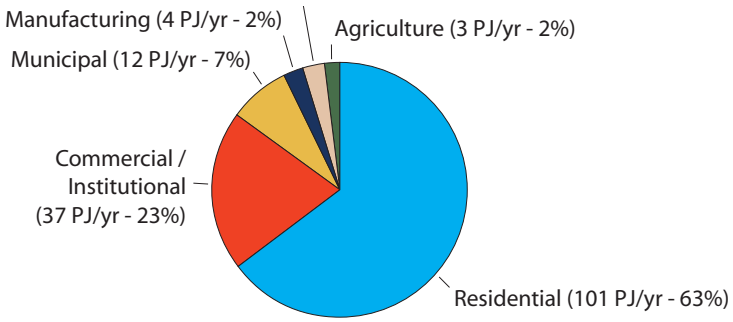

Figure 6 – Energy used for water services, by sector, excluding steam.

The residential sector was estimated to heat approximately 30% of its total water use. Residential water heating consumes more energy than appliances, lighting and space cooling combined, 70% of which is provided using natural gas (NR Can, 2007; NR Can, 2003). Not surprisingly then, greenhouse gas emissions for water heating in the residential sector are second only to space heating.[11]

Commercial / Institutional

The commercial sector in Ontario includes businesses, hotels, golf courses and restaurants while the institutional sector includes hospitals, schools, universities and government buildings among others. Together, commercial and institutional facilities use an estimated 132,300,000 m^3/yr of water (RMSi, 2009). Energy for water within the commercial institutional (CI) sector fuels the hot water required for kitchens, laundry, car washing, showering,

11 A portion of space heating energy is assumed to be provided by boilers in the residential sector. However, no information about boiler use in residences was available for Ontario, so this energy for water was excluded at tthis time. 4.6 million tonnesCO_2/yr emitted from residential hot water heating (NRCan, 2006)

cleaning and steam generated in boilers in addition to cold water services such as process cooling, toilets and irrigation (Vickers, 2001).[12]

Energy for hot water heating in the CI sector was estimated at 36.9 PJ/yr based on NRCan (2006) estimates. Approximately 47% of hot water energy is fueled by natural gas, making it the second largest source of GHG emissions in the CI sector (NR Can, 2006). Steam generation for space heating was estimated to consume 133.7 PJ/yr based on an assumed 56% of heating energy supplied by boilers (CIBEUS, 2003). The heavy dependence on boilers in Ontario can be explained by Ontario's relatively large number of universities, large corporations and other institutions that rely on steam for both space and water heating.

Manufacturing

Manufacturing consumes an estimated 3,270,000,000 m^3/yr in Ontario, 20% of which is used for generating steam (RMSi, 2009). Water is used to replace steam lost through leakage, blowdown[13] and other losses in applications where steam is not fully condensed and returned to the boiler. Griffin and Johnson (2006) identified the automotive, pulp-and -paper, petrochemical, food and beverage and steel industries as particularly large steam users in Ontario. In the United States, major industrial energy users such as food processing and pulp and paper devote 20-80% of their fossil fuel consumption to steam production (Einstein *et al*., 2001).

Steam generation in Ontario was estimated to consume 20% of the total energy demand of the manufacturing sector.[14]

In fact, generating steam to provide process heat, hot water for process reactions and space heating, consumes between 20-45% of industrial energy use in the United States, the Netherlands and by extension other industrialized countries (ETSAP, 2009; Blok and Worrell, 1992; Ellis *et al*., 2009; US DOE, 2009). Ontario's manufacturing sector is anticipated to have similar energy use patterns, and a recent study reported that steam and hot water use

Box 3: Steaming Hot Opportunities

97 Ontario Steam Saver audits were completed between 1997 and 2005 by Enbridge Gas, which identified natural gas savings of 156 million m^3/yr with an average project payback period of only 1.2 years (Griffin & Johnson, 2006). Significant reductions of both water and energy can be achieved by increasing the rate of condensate return in boiler systems, however these improvements may, in some cases, be more expensive than other measures (payback period of 5.9 years) (Marbek, 2009). Lower cost measures that save both water and energy include optimizing and automating blowdown rates and improving feedwater treatment to reduce the frequency of blowdown (North Carolina, 2010). The Hamilton, Ontario based company Day and Campbell provides an excellent example of the water and energy savings potential of steam audits:

> Day and Campbell have been producing autoclaved concrete for over 60 years. An energy audit by Union Gas revealed an opportunity to re-circulate steam condensate from the autoclaves to the boiler. The wastewater from the auto-clave was too contaminated for the storm sewers and too hot to discharge to sewer. Re-circulating the steam therefore seemed an ideal solution, except the water was too contaminated to return directly to the boiler without treatment. Union Gas then engaged water specialists, who proposed a cost effective treatment solution, with a total retrofit payback period of only 2.5 years. The energy cost savings were $103,000 annually, water and sewer charges were reduced 70%, and water treatment costs were reduced by 25%. Greenhouse gas savings from the project were equivalent to removing 568 cars from the road.
>
> ***Excerpted from Enercase: Condensate and Flue Gas Heat Recovery (Union Gas, 2010)***

12 CIBEUS (2003) estimated that 47% of CI buildings utilized central chillers, but no additional information was available on the type of chillers employed. Water cooled chillers are known to be energy intensive, but were excluded at this time because of a lack of information about their use in Ontario.

13 blowdown refers to the discharge of water from a boiler to remove built up contaminants that reduce boiler efficiency

Box 4: Brewing Up Savings

The Energy Guide for the Brewers Association of Canada suggest that inefficiently operated breweries could reduce their water consumption from a ratio of 20 L of water purchased per L of beer produced down to a ratio of less than 4.5:1 with efficient practices. "Breweries usually pay for water twice: in purchase costs and in sewer chargers. A large brewery with a water-to-beer ratio of 9:1 had an incoming water temperature of 9 °C, but the combined effluent temperature averaged 28 °C. The use of water in a brewery has a strong energy consumption connotation. It makes sense to save these costs through conservation measures that can normally be accomplished more easily than direct energy-saving activities."

Excerpted from the Brewers Association of Canada's Energy Guide (1998: pp40)

consume 34% of the natural gas used in Ontario's industrial sector (Marbek, 2009). Steam generation in Ontario was estimated to consume 20% of the total energy demand of the manufacturing sector.[14]

Approximately 50% of manufacturing water in Ontario is obtained by private withdrawals of nearby groundwater, lakes and rivers. Annual electrical energy demands of 4.28 PJ/yr are required for industries such as paper, coal and petroleum and primary metals manufacturing that rely on privately-supplied sources of water.

Agriculture - Irrigation

An estimated average of 108,210,000 m^3/yr is used for irrigating crops, greenhouses, sod and nurseries (RMSi, 2009). In Ontario, irrigated crops primarily include field fruits and vegetables, tobacco, and greenhouse floriculture and vegetables (RMSi, 2009; Shortt, 2010: PC). Irrigation of crops is highly dependent on weather patterns and can vary greatly year to year. Irrigated water for non-greenhouse crops is primarily delivered using overhead (60%) and drip (40%) irrigation powered

Although the energy for irrigation is only 5% of the total energy use in the agricultural sector[16], the impact of wasted energy and water for individual farmers can be significant given the rising costs of fuel.

Box 5: Saving Energy by Managing Irrigation

The state of Idaho is paying farmers to not irrigate crops during hot afternoons when peak energy demand is highest. This measure has been estimated to shave 5% of peak electricity demands, with the potential to save water by reducing evaporative losses by irrigating when temperatures are cooler (Galbraith, 2009). Other examples corroborate the agricultural water-energy link illustrated in Idaho:

"A Kansas study found that irrigation scheduling reduced water use by 20% while also reducing energy, fertilizer, and labor costs. The study found that the benefits of irrigation scheduling exceeded the costs, with a net return of nearly $13 per acre (Buchleiter *et al.* 1996). Kranz *et al.* (1992) found that irrigation scheduling reduced the applied water by 11% and energy use by 17% while improving yields by 3.5%."

Excerpted from Cooley, H., J. Christian-Smith and P. Gleik (2009) Sustaining California Agriculture in an Uncertain Future, Pacific Institute pg. 46.

14 166 PJ/yr for steam generation; 844 PJ/yr for all end-uses in manufacturing sector (NRCan, 2006)

Box 6: "Hot"house Savings

Over half of Canada's greenhouses are located in Ontario, making the province North America's largest greenhouse sector (Enbridge Gas, 2010). Fuel for heating, primarily delivered using steam or hot water, comprises more than 15-35% of a growers operating budget. Enbridge Gas has a dedicated greenhouse program offering to cover 50% of energy audits and a $0.05-0.10/m3 of gas saved as an implementation incentive (Enbridge Gas, 2010). Growers, such as Albert Grimm- the head grower at Jeffery's Greenhouses in St. Catharines, Ontario – are recognizing the relevance of water conservation to their bottom line:

> "In some very arid climates, the cost of irrigation water is beginning to exceed the cost of fuel, and I would speculate that water efficiency is going to be one of the keywords in the future of crop production. I believe that major trends for the future of greenhouse technology are going to be revolving around water conservation technology, especially because this is going to be a very profitable business".
>
> ***Excerpted from Grimm (2010) Irrigation Water Quality Challenges. Greenhouse Canada.***

by diesel fuel, whereas electricity is generally used to power irrigation systems in greenhouses (Shortt, 2009: PC).[15] Energy use for crop irrigation in Ontario was estimated at 0.18 PJ/yr. Although the energy for irrigation is only 5% of the total energy use in the agricultural sector[16], the impact of wasted energy and water for individual farmers can be significant given the rising costs of fuel.

Heating water in greenhouse operations is likely the most significant energy input related to agricultural irrigation. The energy used for heating water in greenhouses, 1.75 PJ/yr, was estimated by assuming all water withdrawals for irrigation were heated to 20 °C. This particular estimate is preliminary in nature, and should be refined when improved water use estimates and additional information on boiler use in the greenhouse sector become available.

Agriculture - Livestock

Livestock operations in Ontario include beef, dairy, swine and poultry with smaller operations of goat and sheep (OMAFRA, 2009). Water use requirements for livestock operations were estimated at 62,031,000 m^3/yr, and are generally used for drinking (80%), sanitary and equipment washing (10%) and animal cooling (1%) (RMSI, 2009: Table 60). Spillage and losses are reported to account for another 9.5% of total water use. An annual electricity demand of 0.03 PJ/yr was required to pump water given livestock operations were assumed to be privately supplied.

Energy requirements for heating water have been recognized as significant in livestock operations such as milking. Half of the water used for sanitary washing and cleaning was assumed to be heated based on a study of dairy farms, resulting in an estimated energy demand of 1.0 PJ/yr (OMAFRA, 2006).

15 Greenhouses, sod and nursery were assumed to be irrigated using the same energy intensity as drip irrigation in the absence of sector specific data. Land-based aquaculture was excluded because of both low energy inputs and lack of data on pumping energy.

16 Total agricultural energy consumption is 48 PJ/yr (NRCan, 2007)

Aquaculture

Water withdrawals for land-based aquaculture of rainbow trout, tilapia and other fish species in Ontario were estimated to be 39,192,000 m^3/yr in the Water Taking Reporting System (Ministry of the Environment, 2009).[17] The vast majority of land-based aquaculture relies on gravity flow surface water sources or artesian wells to minimize the energy costs of pumping (Naylor, 2010:PC). A first estimate of the energy use for aquaculture was obtained by estimating the water pumped from groundwater sources, assuming all surface water takings required negligible energy inputs. Estimates of actual groundwater takings for land-based aquaculture were 13,925,000 m^3/yr in 2008.

The electrical energy demand for water pumping in aquaculture was then estimated to be 0.01 PJ/yr. However, the water and energy demands reported herein provide only a first estimate given the known inaccuracies in both water use estimates and energy assumptions (refer to Appendix I for details).

Power Generation

Ontario Power Generation supplies approximately 70% of Ontario's electricity needs. Forty-five percent of this energy is supplied by nuclear, 34% by hydroelectric and 22% by fossil fuelled generating stations (OPG, 2008). Both thermal and nuclear power generation require large volumes of water for cooling, an estimated 86% of the total withdrawals in Ontario today (RMSi, 2009). Cooling water is withdrawn with large, highly efficient, axial flow (propeller) pumps that have lower energy intensities than, for example, municipal pumps where a higher lift

Box 7: Powering into the Future

Kalundborg, Denmark is considered the gold standard of industrial ecology practices internationally. Over a period of 20 years, this community increased synergistic linkages between power generation, industry, greenhouses and heating of homes and businesses. Since 1987, cooling water has been piped from an oil refinery to the coal-fired power plant to be used as boiler make-up water. Steam from the power plant was piped to both the oil refinery and a pharmaceutical manufacturing plant in 1982, a 2 mile pipeline that paid for itself in two years. Reuse of the steam reduced thermal pollution from the power plant in a nearby fjord. In 1991 the same oil refinery began treating wastewater to a sufficient quality that the power plant could utilize this water for cleaning purposes. Overall this innovative approach has been estimated to save 1,200,000 m^3 of water every year, and avoided 130,000 tonnes of carbon dioxide emissions (Ehrenfeld & Gertler, 1997).

Closer to home, the Bruce Energy Centre in Tiverton, Ontario, has been applying the concept of industrial ecology since 1998. Steam from the Bruce Nuclear Power plant is used within local industries such as an ethanol and biodiesel plant, a food processor and a biodegradable plastics manufacturer. Bruce Tropical Produce Inc. uses low grade steam for space heating of an 8-acre greenhouse, after which the cold water condensate is recycled to the power plant (Canadian Eco Industrial Network, 2010). Greenhouses have been identified by a number of studies as an ideal user of waste heat from cooling water, which could utilize the energy for space heating (Connecticut Academy of Science and Engineering, 2009; Lawrence National Centre for Policy and Management, 2009). Depending on the configuration, using greenhouses or other industries to "cool" the cooling water could simultaneously reduce the volume of raw water withdrawn from local ecosystems.

(pressure) is required (OPG, 2010b: PC). The energy associated with pumping cooling water in power plants in Ontario was estimated to be 3.6 PJ/yr.

17 RMSi (2009) estimated aquaculture water withdrawals at 96,200,000 m^3/yr based on an Ecologistics (1993) study. However, Steve Naylor (2010:PC) suggested that both the volume of water withdrawn for land-based aquaculture may have decreased since 1993.

An estimated 35-48% of energy inputs in nuclear and fossil-fuel fired power plants are converted to electricity, the remaining energy is converted to waste heat that is lost to the atmosphere and cooling water (Roth, 2005). The energy associated with steam generation in the power sector was difficult to ascertain. However, the energy for steam was approximated by estimating the energy lost as waste heat in Ontario's nuclear and thermal power generation facilities (refer to Appendix J for methodology). The energy associated with generating steam was found to be approximately 516 PJ/yr. This energy cannot necessarily be directly reduced through efficiency, however many places in the world have demonstrated innovative ways to capture this waste heat for use in district heating of homes and businesses, greenhouses and in other industrial processes while simultaneously reducing water use (refer to Box 7).

The energy associated with water loss in municipal infrastructure incurs an estimated $15,000,000 every year in electricity expenditures.[19]

Municipalities

Municipalities supply water to the CI sector and a portion of the residential and manufacturing sectors. The energy for pumping and treatment of water and wastewater is typically provided by electricity, and the associated energy intensity for water treatment and distribution and for wastewater treatment and collection was assessed in detail in a prior study (Maas, 2009). Municipally provided water was estimated at 3,120,555,443 m^3/yr with a total electrical energy use estimated at 11.6 PJ/yr.

Box 8: Municipal Dollars in the Bank

The existing water conservation programs in Ontario, involving a wide range of measures ranging from toilet rebate programs to industrial capacity buy-back programs, saved approximately 6,500,000 m^3 of water each year in 2006 (RMSi, 2009: Table 130). If investment in conservation continues at the current rate, in 10 years these municipalities will reduce electricity use by 44,000,000 kWh and save $2.6 million municipal dollars in energy costs each year across the province for pumping and treatment alone (see assumptions below); a cumulative savings over ten years of 243,000,000 kWh and $15 million in energy costs. Importantly, the residents of these communities also benefit by decreasing their home and business energy costs (if hot water or steam use is reduced), keeping water rates low by avoiding new water infrastructure and reducing their carbon footprint.

The opportunities for reduction of water losses in the municipal distribution system were estimated at 40% (RMSi, 2009). Water loss management techniques in municipalities can include water audits, leak detection and repair and pressure management. At only a fraction of the cost per litre saved of typical toilet rebate programs, water loss management is known to be a highly cost effective water conservation measure for municipalities (RMSi, 2009). Energy savings from infrastructure upgrades may be further amplified by the reduced friction losses as corroded pipes are replaced and the lower pressure requirements as leaks are minimized (Lahlou, 2001).

Assumptions: 0.68 kWh/m^3 water saved from (Maas, 2009); today's electricity prices $0.06/kWh

Municipal water providers have to contend with water loss through treatment plants and distribution piping estimated at 12% of municipal water takings in Ontario (Environment Canada, 2007) representing an average annual volume of 374,500,000 m^3. [18] The energy associated with water loss in municipal infrastructure incurs an estimated $15,000,000 every year in electricity expenditures.[19]

18 Note that this estimate differs from RMSi (2009) due to a difference in assumed total municipal volume. See Appendix for details

19 0.91 PJ/yr of electricity lost (252,000,000 kWh/yr) and assumes an electricity rate of $0.06 / kWh

Recommendations & Conclusion

This study offers the first provincial estimate of the total energy used for water-related services in Canada. In Ontario, an estimated 976 PJ/yr of energy was used for all water-related services in 2006. Excluding the power generation sector, water-related services were found to consume 40% of our natural gas usage and 12% of our electricity use in the province. And the energy for pumping, treating and heating water alone would require North America's largest coal-fired generating station running all day, every day to supply an equivalent amount of energy.[20] Clearly, the energy used for water-related services is both significant and worthy of future investigation into synergistic opportunities to save water and energy simultaneously.

Natural Resources Canada already evaluates the energy consumed in residential and commercial/institutional sectors for water heating. Expanding the measurement and reporting of energy consuming activities to include water-related activities such as generating steam, heating water and pumping and treatment for all sectors including manufacturing, agriculture and power generation would help to build the capacity to investigate solutions that benefit both water and energy resources. The energy use for water was found to be comparable in magnitude to the energy used by individual economic sectors[21]. This suggests that consideration of a "water sector" might offer a new lens with which to integrate energy reporting, research and conservation strategies across traditional economic sectors.

Consideration of a "water sector" could offer a new lens with which to integrate energy reporting, research and conservation strategies across traditional economic sectors.

An encouraging number of studies have revealed how water conservation and efficiency can reduce energy demands and provide a myriad of co-benefits including reduced infrastructure costs, maintenance costs and greenhouse gas emissions (Maas, 2009; Cohen *et al*., 2004; Griffiths-Sattenspiel & Wilson, 2009; Tellinghuisen, 2009). By seizing water conservation and efficiency opportunities, Ontario could reduce energy consumption, free up funds for struggling municipalities and greatly contribute to Ontario's fight against climate change. While many of these opportunities are available at minimal cost and with payback periods of less than two years, barriers

Box 9: Opportunities for Integrated Thinking and Action on Water and Energy

1. **CHOOSE THE WATER AND ENERGY SOFT PATH** by prioritizing conservation of water and energy over new infrastructure. Recognize the impacts of new water infrastructure on energy use, and new energy infrastructure on water.
2. **BETTER INTEGRATE** water and energy monitoring, reporting, management and efficiency programs. Examine energy use and efficiency opportunities across economic sectors through a "water sector" lens that includes cold water, hot water & steam.
3. **COLLABORATE** by bringing together water and energy expertise together to encourage development of innovative, synergistic solutions.
4. **INFORM** the public, policy makers and practitioners of the mutual benefits of reducing water and energy use.

20 actual energy used for water services is provided by a variety of sources including natural gas and electricity
21 sectors are defined as residential, manufacturing, commercial/institutional, agricultural and power generation

remain for homeowners, business owners and municipalities alike. New thinking and action is therefore required to increase participation in conservation programs and thereby build a more resilient future for Ontarians.

Linking water and energy conservation efforts offers one such new way of thinking. Box 9 highlights several opportunities to encourage a more integrated approach to water and energy.

This research offers a comprehensive depiction of the energy inputs to water in Ontario, offering a basis for future work to identify measures, policies and programs that offer both water and energy savings. The energy inputs to water in Ontario suggests that water conservation and efficiency is likely to be the next frontier of energy saving opportunities in Ontario. Furthermore, the simultaneous water and energy impacts that stem from development of new water treatment plants and new power plants emphasize that energy conservation remains the best fuel and water conservation the best source of new water.

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The POLIS Project

Created in 2000, the POLIS Project on Ecological Governance is a research-based organization housed at the University of Victoria in British Columbia. Researchers who are also community activists work together at POLIS to dismantle the notion of the environment as merely another sector, and to make ecological thinking and practice a core value in all aspects of society. Among the many research centres investigating and promoting sustainability worldwide, POLIS represents a unique blend of multidisciplinary academic research and community action.

Visit www.polisproject.org to learn more.

Water Sustainability Project

The Water Sustainability Project (WSP) is an action-based research group that recognizes that water scarcity is a social dilemma that cannot be addressed by technical solutions alone. The project focuses on three themes crucial to a sustainable water future:

- Water Conservation and the Soft Path
- Water-Energy Nexus
- Water Law, Policy and Governance

WSP works with industry, government, civil society and individuals to develop and embed water conservation strategies to benefit the economy, communities and the environment. WSP is an initiative of the POLIS Project on Ecological Governance at the University of Victoria.

Visit www.poliswaterproject.org to learn more.

POLIS Project on Ecological Governance

watersustainabilityproject

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Susan Frank
Vice President and Chief Regulatory Officer
Regulatory Affairs

BY COURIER

November 1, 2010

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
Toronto, ON M4P 1E4

Dear Ms. Walli:

Hydro One Networks Inc. Filing of CDM Strategy and Application for Board-Approved CDM Programs

Please find attached two paper copies of the confidential version and redacted version of Hydro One Networks Inc.'s CDM Strategy and Application for Board-Approved CDM Programs. In order to uphold the integrity of the RFP process, Hydro One Networks Inc. ("Hydro One") asks for confidential treatment of the unredacted version of the Strategy and Application, specifically Exhibit C, Tab 1, Schedule 1 and 2.

On September 16, 2010, the Ontario Energy Board ("OEB" or "Board") issued the final Conservation and Demand Management ("CDM") Code for Electricity Distributors under Section 70.2 of the *Ontario Energy Board Act, 1998* ("the Act"). The Board developed the new CDM Code ("the Code") in accordance with the Minister of Energy and Infrastructure's directive dated March 31, 2010, that was issued to the Board under sections 27.1 and 27.2 of the Act.

Hydro One understands that the Code is an important component of the Board's efforts to promote CDM consistent with the Government of Ontario's policies. The purpose of the Code is to set out the obligations and requirements with which licensed distributors must comply in relation to the CDM targets to be set out in their licences, including the filing of a CDM Strategy. The Code also sets out the conditions and rules that licensed distributors are required to follow if they choose to use Board-Approved CDM Programs to meet the CDM Targets.

The attached Plan ("the Plan") combines Hydro One's CDM Strategy and Application for OEB-Approved CDM Programs. It is the result of extensive involvement in the design of programs with the Ontario Power Authority and the Electricity Distributors Association. The Board has directed all electricity distributors to use the proposed CDM targets set out in a letter dated June 22, 2010, and Hydro One's Plan complies with the Board's proposed targets set out therein. The Plan includes a description of how Hydro

One intends to achieve its CDM Targets of 210 MW and 1,014 GWh over the period 2011-2014. The Plan includes all components required by the Code for submission of a CDM Strategy and Board-Approved CDM programs and will help ensure that Hydro One meets its CDM targets in a cost-effective manner and provides value to ratepayers.

The redacted version of the Plan has been filed through the Board's Regulatory Electronic Submission System ("RESS"). After receiving an acknowledgment letter from the Board confirming that the CDM Strategy is complete, Hydro One will make its CDM Plan available for public review at its main office at 483 Bay Street and on its website.

For more information please contact Anne-Marie Reilly at 416-345-6482.

Sincerely,

ORIGINAL SIGNED BY ALLAN COWAN FOR SUSAN FRANK

Susan Frank

EXHIBIT LIST

Exhibit	Tab	Schedule	Contents
A			**Administration**
	1	1	Exhibit List
		2	Application
B			**Evidence**
	1	1	2011 to 2014 Conservation and Demand Management Plan Summary
		2	2011 to 2014 Conservation and Demand Management Strategy
	2	1	2011 to 2014 Conservation and Demand Management Budget for Board-Approved Programs and Cost Recovery
C			**Supporting Material**
	1	1	Detailed Description of OPA-Contracted CDM Programs
		2	Detailed Description of Board-Approved CDM Programs

ONTARIO ENERGY BOARD

IN THE MATTER OF *the Ontario Energy Board Act, 1998*;

AND IN THE MATTER OF an Application by Hydro One Networks Inc.
For an Order or Orders confirming the 2011 to 2014 Conservation and Demand Management Strategy and approving funding for the 2011 to 2014 Board-Approved Conservation and Demand Management Programs

APPLICATION

1. The Applicant is Hydro One Networks Inc. ("Hydro One"), a subsidiary of Hydro One Inc. The Applicant carries on the business, among other things, of owning and operating distribution facilities in Ontario.

2. Hydro One hereby applies to the Ontario Energy Board (the "Board"), pursuant to section 78 of the Ontario Energy Board Act, 1998 ("the OEB Act"), for confirmation of the 2011 to 2014 Conservation and Demand Management Strategy ("CDM Strategy"). A Board confirmation of Hydro One's CDM Strategy will endorse:
   a. the suite of Conservation and Demand Management Programs that Hydro One put forward to achieve its 2011 to 2014 Conservation and Demand Management Targets; and
   b. Hydro One's anticipated energy and peak demand savings achievements for OPA-Contracted and Board-Approved CDM Programs for the 2011 to 2014 period.

3. Hydro One also seeks approval of the 2011 to 2014 Board-Approved Conservation and Demand Management Programs Application for 2011 to 2014 in accordance with the Conservation and Demand Management Code for Electricity Distributors. The six Board-Approved Conservation and Demand Management Programs included in this application are Community Education, Neighbourhood Benchmarking, Monitoring and

Targeting, Small Commercial Energy Management and Load Control, Municipal and Hospital Energy Efficiency Performance, and Double Return Plus.

4. Hydro One seeks approval of its Board-Approved Conservation and Demand Management Application which will provide $32.0 million to fund the six Board-Approved CDM programs that are listed above during the 2011 to 2014 period. The Board's approval will enable payments from the Independent Electricity System Operator (the "IESO") in accordance with section 78.5(1) of the *OEB Act*.

5. Hydro One also requests approval of a variance account that will be used to record the difference between the funding awarded for Board–Approved Conservation and Demand Management Programs and the actual spending incurred to carry out these programs.

6. Hydro One requests a written hearing on this application.

7. The written evidence filed with the Board may be amended from time to time prior to the Board's final decision on the Application. Further, the Applicant may seek meetings with Board Staff in an attempt to identify and reach agreements to settle issues arising out of this Application.

8. Hydro One requests that a copy of all documents filed with the Board by each party to this Application be served on the Applicant and the Applicant's counsel as follows:

a) The Applicant:

Ms. Anne-Marie Reilly
Senior Regulatory Coordinator – Regulatory Affairs
Hydro One Networks Inc.

Address for personal service: 8th Floor, South Tower
483 Bay Street
Toronto, ON M5G 2P5

Mailing Address: 8th Floor, South Tower
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Telephone: (416) 345-6482
Fax: (416) 345-5866
Electronic access: Regulatory@HydroOne.com

b) The Applicant's counsel:

Mr. Michael Engelberg
Assistant General Counsel
Hydro One Networks Inc.

Address for personal service: 15th Floor, North Tower
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Telephone: (416) 345-6305
Fax: (416) 345-6972
Electronic access: mengelberg@HydroOne.com

DATED at Toronto, Ontario, this 1st day of November, 2010.

HYDRO ONE NETWORKS INC.

By its counsel,

ORIGINAL SIGNED BY Michael Engelberg
Michael Engelberg

2011 TO 2014 CONSERVATION AND DEMAND MANAGEMENT PLAN SUMMARY

On September 16, 2010, the Ontario Energy Board ("OEB" or "Board") issued the final Conservation and Demand Management ("CDM") Code for Electricity Distributors under Section 70.2 of the *Ontario Energy Board Act*, *1998* ("the Act"). The Board developed the new CDM Code ("the Code") in accordance with the Minister of Energy and Infrastructure's directive dated March 31, 2010, that was issued to the Board under sections 27.1 and 27.2 of the Act. The directive set out the total of the CDM Targets that the must be allocated to respective distributors. A reduction of 1,330 MW and 6,000 GWh is required on a Province-wide basis by the end of 2014.

Hydro One Networks Inc. ("Hydro One") understands that the Code is an important component of the Board's efforts to promote CDM consistent with the Government of Ontario's policies. The purpose of the Code is to set out the obligations and requirements with which licensed distributors must comply in relation to the CDM targets to be set out in their licences, including the filing of a CDM Strategy. The Code also sets out the conditions and rules that licensed distributors are required to follow if they choose to use Board-Approved CDM Programs to meet the CDM Targets.

Hydro One's Plan ("the Plan") combines Hydro One's CDM Strategy and Application for Board-Approved CDM Programs. It leverages Hydro One's extensive experience in developing, implementing and managing CDM programs in Ontario. It also leverages Hydro One's extensive involvement in the design of programs with the Ontario Power Authority and the Electricity Distributors Association, as well as consultations with the Coalition of Large Distributors, Enbridge Gas Distribution and Union Gas Limited. The Plan includes a description of how Hydro One intends to achieve its CDM Targets of 210 MW and 1,014 GWh over the period 2011-2014. The Plan includes all components required by the Code for submission of a CDM Strategy and Application for Board-

Approved CDM programs. (More information on the filing requirement is attached to this exhibit as Appendix A.) The Plan provides a detailed roadmap to ensure that Hydro One meets its CDM targets in a cost-effective manner and provides value to ratepayers.

Hydro One will take full advantage of the OPA-Contracted CDM Programs, which are expected to achieve approximately 80% of Hydro One's CDM targets. To achieve the remaining 20%, Hydro One will undertake Board-Approved CDM programs. Figure 1 summarizes Hydro One's anticipated peak savings, and energy savings achievements for OPA Contracted and Board-Approved CDM Programs for the 2011 to 2014 period.

Figure 1 - Annual Peak and Energy Savings from OPA-Contracted and Board-Approved CDM Programs

Savings	2011	2012	2013	2014	Total (2011-2014)
Peak (kW) cumulative savings	42,000	94,000	150,000	210,000	210,000
Annual Energy savings (MWh)	96,000	216,000	324,000	437,000	1,073,000

Figure 2 summarizes annual milestones for the combination of OPA-Contracted and Board Approved CDM Programs and shows that 100% of Hydro One's targets will be reached by the end of 2014.

Figure 2 – Annual Milestones

Milestone	2011	2012	2013	2014
Stage	Stage 1 - Program launch	Stage 2 - Program settle/provide fine tuning	Stage 3 – Program matures	Stage 4 – Program full performance
% of target MW	20%	45%	71%	100%
% of target MWh	9%	29%	59%	100%

The stages that are identified include initiative launch, fine tuning, settling and full performance.

The forecasted budget requirement for OPA-Contracted and OEB-Approved programs is $181 million and $32.0 million respectively.

Currently, Hydro One has not included any CDM benefits that may result from the implementation of Time-of-Use pricing and the High Five Proposal for its customer base. Hydro One may revise its forecast to reflect CDM benefits in the future when more information is available on the CDM impacts of Time-of Use pricing and the High Five Proposal.

Hydro One is applying for six Board-Approved programs:

- Community Education
- Neighbourhood Benchmarking
- Monitoring and Targeting
- Small Commercial Energy Management and Load Control
- Municipal and Hospital Energy Efficiency Performance
- Double Return Plus

The costs of the above programs are reflected in this Application. Detailed information on each proposed Board-Approved Program can be found at Exhibit B, Tab 1, Schedule 2, Section 4 and Exhibit C, Tab 1, Schedule 2.

In addition, Hydro One has a number of potential Board-Approved CDM programs that are currently under development. These include the Residential Voltage Reduction, Electric Thermal Storage, Home Energy Retrofit and Compressed Air programs. While this set of potential Board-Approved Programs is not included as part of the Application at this time,

Hydro One may file a Board-Approved CDM Program application for these and other potential Board-Approved Programs at a future date, if required.

Hydro One views the proposed Board-Approved CDM Programs as a key element for meeting its distributor licence condition. These proposed programs are cost-effective, as they have all passed both the Total Resource Cost ("TRC") Test and the Program Administration Cost ("PAC") Test. In addition to quantifiable energy and peak demand savings, they will provide additional benefits such as customer satisfaction, CDM sustainability, market transformation and engagement of all customer types.

APPENDIX A

FILING REQUIREMENT

The final Conservation and Demand Management ("CDM") Code issued by the Board on September 16, 2010, sets out the filing requirements for both the CDM Strategy and the Board-Approved CDM Programs Application. This 2011 to 2014 Hydro One CDM Plan was prepared in accordance with the filing requirements set out by the CDM Code. The Plan combines the Company's CDM Strategy and Application for the Board-Approved CDM Programs and includes all components required by the CDM Code.

Table 1 and Table 2 illustrate that all components required by the CDM Code are addressed in this Hydro One CDM Plan:

Appendix A
Page 2 of 3

Table 1 – Filing Requirements for CDM Strategy

Filing Requirement from CDM Code	Hydro One's CDM Plan			
CDM Strategy Template -				
	Exhibit	Tab	Schedule	Section
1. Distributor's Name:	A	1	2	
2. Total Reduction in Peak Provincial Electricity Demand (MW) Target:	B	1	2	
3. Total Reduction in Electricity Consumption (kWh) Target:	B	1	2	
4. CDM Strategy				
4.1 Provide a high level description of how the distributor plans to meet its CDM Targets over the 4-year period. The description must include the following elements:				
(a) a division of the CDM Strategy into a year by year plan; and	B	1	1 & 2	
(b) a statement of the annual milestones the distributor plans to achieve.	B	1	1 & 2	
5. OPA-Contracted Province-Wide CDM Programs				
5.1 Describe, to the extent known, the OPA-Contracted Province-Wide CDM Programs the distributor plans to undertake from 2011-2014. The following information must be provided for each program				
(a) program name;	C	1	1	
(b) year(s) of operation for the program;	C	1	1	
(c) program description (i.e., purpose of the program, target customer type(s));	C	1	1	
(d) where the information is available, the projected budget;	B	1	2	3
(e) where the information is available, the total projected reduction in peak provincial electricity demand (kW); and	B	1	2	3
(f) where the information is available, the total projected reduction in electricity consumption (MWh).	B	1	2	3
6. Potential Board-Approved CDM Programs				
6.1 Describe, to the extent known, the potential Board-Approved CDM Programs the distributor plans to undertake from 2011-2014. The following information must be provided for each program:				
(a) program name;	C	1	2	
(b) year(s) of operation for the program;	C	1	2	
(c) program description (i.e., purpose of the program, target customer type(s));	C	1	2	
(d) where the information is available, the projected budget;	C	1	2	
(e) where the information is available, the total projected reduction in peak provincial electricity demand (kW); and	C	1	2	
(f) where the information is available, the total projected reduction in electricity consumption (MWh).	C	1	2	
7. Program Mix				
7.1 Provide a description of how the distributor will ensure that CDM Programs will be offered for all customer type(s), including low income customers, in the distributor's service area, as far as is appropriate and reasonable having regard to the composition of the distributor's customer base. If the distributor will not offer any CDM Programs to a particular customer type, the distributor must provide the rationale for why it is appropriate and reasonable not to have CDM Programs for that type of customer.	B	1	2	5
8. CDM Programs Co-ordination				
8.1 Describe, where applicable, how the distributor will pursue administrative efficiencies and co-ordinate its CDM activities with other distributors, natural gas distributors, social service agencies, any level of government, government agencies, and the OPA.	B	1	2	6

Table 2 – Filing Requirements for Board-Approved CDM Programs Application

Filing Requirement from the CDM Code	Hydro One's CDM Plan		
Section 3.1.4. from the CDM Code	Exhibit	Tab	Schedule
A distributor's application for a proposed Board-Approved CDM Program must include the following:			
(a) a program evaluation plan, based on the OPA's EM&V Protocols, for each program;	C	1	2
(b) a benefit-cost analysis of each program which shall be completed by using the OPA's Cost Effectiveness Tests;	C	1	2
(c) a detailed explanation of the program's objective(s) and method of delivery;	C	1	2
(d) the types of customers targeted by the program;	C	1	2
(e) a forecasted number of participants that the distributor expects will participate in the program;	C	1	2
(e) the total projected peak demand savings (kW) and electricity savings (kWh) per year, or if the program is for less than one year, the total projected peak demand savings (kW) and electricity savings (kWh) for the duration of the program;	C	1	2
(f) a complete projected annual budget for each of the distributor's CDM Programs, including the following information:			
(i) projected expenditures incurred on an annual basis, for each year of the CDM Programs, separated into customer incentive costs and program costs;	C	1	2
(ii) a division of program costs into Marginal Costs and Allocable Costs incurred as a result of program implementation;	C	1	2
(iii) information on the allocation of total expenditures incurred by targeted customer types for each direct projected expenditure; and	C	1	2
(iv) total projected expenditures for each program evaluation conducted; and	C	1	2
(g) a statement that confirms that the distributor has used the OPA's Measures and Assumptions Lists or if the distributor has varied from the OPA's Measures and Assumptions Lists, the distributor must:			
(i) appropriately justify the reason for varying from the OPA's Measures and Assumptions Lists in the application;	C	1	2
(ii) provide the technical assumptions and substantiating data that the distributor used; and	C	1	2
(iii) provide a statement that the distributor has followed the OPA's EM&V Protocols for custom measures not included in the OPA's Measures and Assumptions Lists.	C	1	2

2011 TO 2014 CONSERVATION AND DEMAND MANAGEMENT STRATEGY

1.0 INTRODUCTION

The specific CDM energy and peak savings targets allocated by the Board to Hydro One are 1,014 GWh and 210 MW respectively. The Hydro One Conservation and Demand Management ("CDM") Strategy provides a description of how Hydro One intends to achieve its CDM Targets over the 2011–2014 period. It provides a basis for the activities required to achieve the Hydro One CDM targets, while also aligning with the Company's strategic drivers of Innovation, Stewardship, Excellence and Safety. This Strategy is also consistent with the Ontario Government's vision of a conservation-oriented and more environmentally-conscious Province.

The Strategy addresses the following:

- Factors considered in developing the Hydro One CDM Strategy
- An overview of the OPA-Contracted Programs that Hydro One will undertake
- An overview of the proposed OEB-Approved Programs that have been developed
- How CDM programs will be offered to all customer types
- How Hydro One coordinated with other LDCs and Stakeholders
- How Hydro One plans to monitor and control the programs

2.0 FACTORS CONSIDERED IN DEVELOPING THE HYDRO ONE CDM STRATEGY

Hydro One has taken into account a number of factors in developing the Hydro One CDM Strategy. The following section discusses the key aspects that were considered by Hydro One to ensure that the CDM Strategy is comprehensive and prudent:

Identify and Understand CDM Potential

The first step in developing the CDM strategy was to examine Hydro One's service territory and customer base from a CDM perspective. Hydro One extended its end-use analysis to further understand its customer base. Customer surveys were also conducted to gain a better understanding of Hydro One customer perspectives on CDM. The results of these surveys provided insight into what energy efficiency measures have already been undertaken by customers, what measures they are planning to take in the near future, and what type of CDM programs would be of interest to them. Also, a third party consultant was retained to prepare an analysis of CDM potential in Hydro One's service territory. The consultant's analysis indicated that approximately 71% of Hydro One's CDM target can be achieved through OPA-Contracted Programs and that the implementation of Board-Approved Programs is essential for Hydro One to achieve its allocated CDM targets. In addition, the consultant study provided a list of potential CDM measures that are suitable for Hydro One's service territory and demographics. All of the information gathered was used to build the mix of OPA-Contracted and OEB-Approved programs that are best-suited to achieve the mandated CDM Targets.

Develop Non-Duplicative Board-Approved Programs

The CDM code stipulates that distributors cannot apply for Board-Approved programs that duplicate existing OPA-Contracted CDM programs.

Hydro One has acquired extensive understanding of the OPA-Contracted CDM Programs through its participation in the OPA design working groups. This knowledge, coupled with a comprehensive understanding of Hydro One's customers within its service territory, allowed Hydro One to identify the CDM potential that is not addressed by the existing OPA-Contracted CDM programs.

All Board-Approved CDM programs proposed in this Application are designed to target these "untapped" areas and they are not duplicative of the existing OPA-Contracted CDM programs. The distinctions between these Board-Approved Programs and the existing OPA-Contracted CDM Programs are further discussed in section 4 of this exhibit. Detailed descriptions of both the OPA-Contracted Programs and the requested Board-Approved Programs can be found at Exhibit C, Tab 1, Schedules 1 and 2, respectively.

Leverage Extensive Experience and Proven Success

Hydro One has extensive experience in developing, implementing and delivering CDM initiatives. Since 2005, Hydro One has actively and effectively served its diverse customer base through a range of CDM programs and initiatives that addressed their diverse needs. Hydro One brought over 25 CDM programs/initiatives to over one million customers across all sectors. These programs achieved annualized savings of 284 GWh and resulted in over 67 MW in peak demand savings over the period to March 2008. In 2008 and 2009, Hydro One developed and submitted custom CDM programs to the OPA, of which Double Return was implemented and has proven to be a great success. Many of these programs were considered as leading edge and have been emulated by other utilities throughout North America. This success has also been shared across Ontario, as several of Hydro One's programs have been adopted by the Ontario Power Authority as LDC-delivered or OPA-delivered programs.

In 2010, Hydro One participated in every Province-wide working group for designing the OPA Province-Wide Contracted Programs. Hydro One's expertise has been instrumental in the development of these programs. While developing the 2011 to 2014 CDM program portfolio, Hydro One built on its extensive CDM experience to produce a set of CDM programs that will meet the needs of its diverse set of customers and deliver sustainable peak and energy savings in a cost-effective manner.

Achieving Cost Effectiveness

Cost effectiveness is an important element of Hydro One's CDM program portfolio, which consists of both OPA-Contracted Province-Wide and Board-Approved CDM Programs.

The cost effectiveness of all OPA-Contracted CDM Programs has been verified by the OPA. Hydro One plans to take full advantage of all these cost effective OPA-Contracted CDM programs, which are expected to help achieve approximately 80% of the Hydro One CDM targets.

Hydro One plans to achieve the rest of the CDM target (approximately 20%) by designing and implementing Board-Approved CDM Programs. All requested Board-Approved CDM programs included in this Application are cost-effective, as required by the CDM Code. They have passed both the Total Resource Cost ("TRC") Test and the Program Administration Cost ("PAC") Test. The results of the TRC and PAC tests for each Board-Approved Program can be found at Exhibit C, Tab 1, Schedule 2. In addition, Hydro One has monitoring and control processes in place to help ensure that the cost-effectiveness results remain in line with estimates.

Maximize Administrative Efficiency

Hydro One is a member of both the Electric Distributors Association ("EDA") and the Coalition of Large Distributors ("CLD") and has been working closely with both organizations on this current CDM Strategy.

During the program design stage, Hydro One considered opportunities to maximize administrative efficiencies and synergies (e.g. working with gas distributors, electricity distributors, social service agencies, joint RFP, deployment, delivery). Therefore, all current requested Board-Approved CDM programs in this Application have the flexibility

built in to allow uptake by distributors and other agencies. This list of potential Board-Approved CDM programs has also been shared with all CLD members. Hydro One expects material uptake from other distributors, as a number of members have already expressed interest in these programs.

All currently requested Board-Approved CDM Programs are economic, as they have passed the cost-effectiveness tests (TRC and PAC). To the extent that there is future uptake from other distributors, that future uptake will increase overall administrative efficiency and improve the cost-effectiveness measures for these programs. Any subsequent material reduction in future program expenditures will be reported to the OEB as part of the annual CDM report submission.

Ensure CDM Program Coverage for All Customer Types

Hydro One has ensured that CDM programs are offered for all customers types, including low income customers, in its service area. In addition to the existing OPA-Contracted CDM programs, a suite of distinct Board-Approved CDM programs was developed to address Hydro One's specific customer types and segments. This rich mix of programs (both OPA-Contracted and Board-Approved) will ensure that the diverse needs of all Hydro One's customers are met. Please refer to Figure 6 in Section 5 of this Exhibit, which shows the extensive coverage for residential, commercial and industrial customers.

Ensure that Potential Risks can be Mitigated

Hydro One is fully committed to achieving its CDM target. Risk mitigation is essential to ensuring success. Hydro One has identified the following activities that are intended to mitigate potential risks:

- Hydro One has relied on its extensive experience and proven success to identify and design effective programs.

- An ongoing tracking and review process has been developed to provide early detection of differences between program plans and actual experience.
- Hydro One has developed a diverse CDM program portfolio that covers multiple customer segments and demographics to minimize the risk of differences between program plans and actual experience.
- Hydro One will implement design adjustment plans, leveraging existing tools, to promptly address any differences between program plans and actual experience.
- In addition to the requested Board-Approved CDM Programs that are included in this Application, Hydro One is developing other potential Board-Approved CDM Programs that can be implemented if required.

3.0 OPA-CONTRACTED PROGRAMS

Hydro One intends to take full advantage of the OPA-Contracted Programs, which are expected to deliver approximately 80% of the Hydro One CDM target. This estimate was achieved through a customer-based analysis approach to ensure the integrity of the estimate. As mentioned in Section 2.0 of this document, Hydro One further commissioned a third party consultant to undertake a CDM potential analysis. The results of the consultant's study supported the Company's analysis indicating that, to achieve its target by 2014, Hydro One will need to rely on both OPA-Contracted and OEB-Approved Programs.

Figure 3 provides an overview of the OPA-Contracted programs which Hydro One intends to undertake. Included in the figure are estimates of the projected budget, estimates of total projected reduction in peak demand and total projected reduction in electricity consumption for each of the programs.

The amounts for each OPA-Contracted initiative were derived by applying the estimated percentage of Hydro One participation to the total OPA provincial budget. The OPA is in the process of finalizing the funding mechanism. Any potential changes to the funding

mechanism are not expected to be material. As a result, any changes to the requested Board-Approved CDM programs will not be significant and will be handled through the proposed variance account.

Figure 3: OPA-Contracted Province-Wide Programs to be Undertaken by Hydro One

	***Projected Budget	Total Projected Reduction in Peak Provincial Demand (MW)*	Total Projected Reduction in Electricity Consumption (GWh)*
Residential Program 2011-2014			
1. Year Round Instant Rebates (Conservation Card / Coupon Booklet)	18,200,000	2	95
2. Bi-Annual Instant Rebate Events (Retailer Events)			
3. Appliance Retirement Initiative		3	65
4. Bi-annual Appliance Exchange Events			
5. HVAC On-line Rebates Initiative		9	53
6. New Construction Initiative		1	11
7. Midstream Incentives Initiative		1	14
8. Customer Enabling Initiatives**		n/a	n/a
9. Low Income Initiative	$15,000,000	1	27
10. Residential Demand Response Initiative	$40,500,000	35	101
Total Residential Program 2011-2014	**$73,700,000**	**51**	**366**
Commercial Program, 2011-2014			
11. Commercial and Institutional Initiative	$78,800,000	65	399
12. DR1 Commercial		6	0
13. DR3 Commercial		7	0
Total Commercial Program, 2011-2014	**$78,800,000**	**78**	**399**

Industrial, 2011-2014			
14. DR1 Industrial	$25,000,000	8	0
15. DR3 Industrial		12	0
16. Industrial Accelerator		9	98
17. Industrial ERIP	$3,400,000	3	31
Total Industrial Program, 2011-2014	**$28,400,000**	**32**	**129**
Total	***$181,000,000***	***161***	***894***

** Numbers may not add up due to rounding*

*** Customer Enabling Initiatives are educational and drive results for the other residential initiatives*

**** Estimated budgets are allocated as a percentage of estimated customer segment participation for each of the individual initiatives within the province-wide programs. They include costs and incentives paid directly by the distributor.*

The $181 million is based on the OPA's projected budget for all three CDM programs. The total budget has been divided between the costs for which the LDCs are responsible (60% Consumer, 88% Commercial, 88% Industrial) and those for which the OPA is responsible (40% Consumer, 12% Commercial, 12% Industrial). The LDC portion is then expressed on a $/kW basis. These rates were then applied to the projected savings which Hydro One expects to achieve in all three programs. This produces a budget of $166 million.

A total budget of $181 million was established after adding another $15 million for the Low Income Program. The OPA budget for low income is not yet finalized. The $15 million budget for low income is based on Hydro One's percentage of the number of customers in the Province.

Please refer to Exhibit C, Tab 1, Schedule 1 for detailed program descriptions of the OPA-Contracted Programs.

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	21	52	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

enhance the "one stop shop" concept with customers and to increase customer engagement and cost efficiency.

The Program mix of the proposed OEB Approved Programs is essential for Hydro One to meet its CDM target. These programs offer a range of benefits including engagement of all customer sectors, CDM sustainability, and market transformation.

The requested Board-Approved programs also address customer needs that are not currently met by the OPA-Contracted Programs. These programs are expected to help pave the way for a new level of CDM commitment for LDCs, as envisioned by the *Green Energy and Green Economy Act.* OEB-Approved Programs are a key component for Hydro One to meet its CDM requirements as set out by its distributor's licence conditions.

The requested Board-Approved programs address all customer segments of residential, commercial of various sized-businesses, and industrial. In addition to the cost-effectiveness and demand and energy savings of the proposed programs, several other factors were also considered. For example, the Community Education program addresses customers in "hard-to-reach" areas with low customer densities such as rural communities, while the Neighborhood Benchmarking program is the only program that addresses behavioural changes based on peer comparisons and influence.

Other programs, such as the Double Return Plus, empower customers to manage and reduce their own peak demand (as compared to other dispatchable demand response programs). This program will achieve reductions that stem from the customer's behavioral change, and promise persistent results that are expected to go beyond the life of the program. The Double Return Plus program will achieve high TRC and PAC ratios. It is intended to meet most of the untapped potential for customers to reduce their peak demand.

The Small Commercial Energy Management and Load Control program will provide programs for small commercial customers. The small commercial customer group requires a robust program to encourage them to participate in CDM initiatives. This program represents a threshold investment to engage this group of customers.

A key feature of the requested Board-Approved programs is integrating conservation and demand management in customers' day-to-day operations as individuals and as businesses irrespective of their size. These program features are expected to help transform the CDM market in general as well as assist Hydro One to better address its customers' CDM needs and achieve its mandated CDM targets.

Figure 5 provides an overview of the annual MW and MWh savings and the projected cost budgets for the Board Approved Programs.

Figure 5: Board-Approved CDM Programs (Annual Results and Budget)

	2011	2012	2013	2014	Total
Peak (MW) cumulative savings	12	25	37	49	49
Annual Energy savings (MWh)	19,000	43,000	54,000	64,000	179,000
Total Budget ($M)	$6.0	$8.3	$8.9	$8.8	$32.0

Please refer to Exhibit C, Tab 1, Schedule 2 for the program descriptions for all of the OEB-Approved Programs.

4.2 Non-duplication with OPA-Contracted Program Initiatives

All Board-Approved CDM programs proposed in this Application were designed to target customer segments and/or customer needs that have not been addressed by the existing OPA programs and therefore they are not duplicative of the OPA CDM programs. Detailed descriptions of both the OPA Programs and the requested Board-Approved Programs can be found in Exhibit C, Tab 1, Schedule 1 and 2. As compared to OPA-Contracted Programs, Hydro One's proposed OEB-Approved Programs have the following distinct value proposition to Hydro One's customers.

Community Education

The OPA-Contracted programs do not provide an initiative similar to the Community Education Program. This program focuses on customer education and promotes the exchange of information between the utility and its customers at local community events. This program relies on a face-to-face interaction with the customer, which has proven successful in changing social norms and influencing customer behavior for Hydro One customers. This approach is especially needed to address customers in "hard-to-reach", low customer density (i.e. rural communities) areas.

The OPA-Contracted Consumer Enabling Initiative offers online educational tools and does not address face-to-face interaction. Only approximately 50% of Hydro One's customers have high-speed online services at home.

Neighbourhood Benchmarking (also known as Social Benchmarking)

Neighbourhood Benchmarking is non-duplicative from all OPA-Contracted Program, as it is the only program that addresses behavioural changes based on peer comparisons and influence. This program provides customers with a customized home energy report that offers

insights about their individual energy use as well as a comparison with their neighbourhood energy use. Customer load profile data collected from the smart meter will be used to help identify areas of opportunity for conservation and recommendations will be specifically tailored to meet the needs of the specific customer.

Neighbourhood Benchmarking has proven successful in other jurisdictions, where pilots/programs have shown that significant savings can be achieved from "benchmarking" individuals' consumption relative to that of their neighbours.

Monitoring and Targeting (M&T)

This program is non-duplicative of OPA-Contracted Programs, as it provides a monitoring and targeting system to customers with less than 15 GWh consumption. This customer segment has been excluded from participating in the Industrial Accelerator Program. M&T offers software which measures energy efficiency per unit of production. This provides a baseline against which improvements are measured. By continually monitoring energy efficiency, customers are enabled to track and adjust their consumption.

The proposed M&T program provides funding for the adoption of a monitoring and targeting system that helps medium-sized commercial and industrial customers to better understand their energy performance, to benchmark their consumption against other similar businesses for best practices, and to achieve sustainable proactive behavioural and process changes. Under the Industrial Accelerator OPA Program, M&T equipment is provided only to industrial customers with energy consumption of at least 15 GWh and with average peak load of 200 kW and above. This program extends the sustainable behavioural change to industrial customers who would not have access to M&T systems under the Industrial Accelerator Program. The M&T educational and coaching approach aims at influencing the leaders and the middle management of the respective organizations to support CDM, an approach that is provided only by this program to achieve sustainable results.

Small Commercial Energy Management and Load Control

The Small Commercial Demand Response Program is distinct from other OPA-Contracted programs as it targets small commercial customers (between 50kW and 200kW) that are not currently provided with load control and energy management offerings from other programs.

This program will also be extended to smaller commercial customers (below 50 kW). The needs of this distinct customer segment will not be met under the enhanced OPA Province-Wide program (which is designed to meet residential needs) as supported by the projected uptake of just 1% by the small commercial customer segment.

Under this program, customers are offered Energy Management System (EMS) devices that are activated with a programmable feature that meets their business needs during business hours.

The business needs of the small business customer are sensitive to time-of-use ("TOU") rates. Accordingly, this program allows the customer to shift and/or reduce their load from on-peak to off-peak periods to take advantage of the TOU rate structure.

Municipal and Hospital Energy Efficiency Performance

The Municipal and Hospital Energy Efficiency Performance Program provides financial rewards to Municipal and Hospital customers for overall electrical energy efficiency reductions within facilities and across their portfolio of accounts. This program is not duplicative of the OPA Commercial CDM Programs because it focuses on overall energy efficiency performance whereas the OPA Commercial CDM Programs focus on savings achieved solely by technology efficiency or equipment replacement. The program will offer the key elements required to assist this financially constrained sector in the pursuit of

sustained and deeper energy savings beyond traditional or proposed Province-wide CDM programs.

As a program participant, the customer is committed to, and incented for continuous energy efficiency actions and improvements year over year. Participants will be required to sign a Memorandum of Understanding ("MoU") committing to the development of a comprehensive Energy Conservation Action Plan and are asked to commit to participation in the program until December 31, 2014. The program will assist participants to develop and implement energy management processes that include ongoing electrical consumption benchmarking, as well as employee engagement and training, behavioural changes and commitment from all levels of the organization. The focus on continuous energy management process is expected to produce sustainable behavioral change with persistent energy and demand savings. The comprehensive approach of this program is expected to transform these segments of the broader public sector by going beyond technology based incentives to embed energy efficiency and conservation as a core best practice among management, operations and employees.

This program could be further extended to the other public sector institutions.

Double Return Plus

The Double Return Plus Program is not duplicative of the OPA Demand Response Programs because it is based on non-dispatchable load control and it also aims at reducing energy consumption. By contrast, the OPA Province-wide Demand Response programs are based on dispatchable load control and, as a result, have minimal energy savings. Non-dispatchable load control means that it is left to the customers' discretion whether they wish to reduce their peak demand and the time at which they reduce demand given the customers business needs and production cycles. Dispatchable load control, on the other hand, means that the customer must respond to the IESO's request that they curtail a contracted amount

of their load or face penalties (e.g., under Demand Response 3) for not doing so. Another difference between the two programs is that the Double Return Plus initiative provides an incentive to customers for reducing their own peak demand which may occur at a different time than the system peak demand. The OPA Demand Response programs specifically target system peak demand. Further, a key requirement of the Double Return Plus program is that it excludes those customers who have signed up for either the OPA Demand Response 1 or Demand Response 3 programs.

The proposed Double Return program is a commercial and industrial (C/I customers with average demand above 200kW) demand response and energy efficiency initiative that attempts to reduce the system peak load and energy consumption through behavioural changes and/or a load balancing system. This program also provides participants with a range of behind-the-meter customer services, including energy efficiency education, site-specific technical assistance, employee engagement tools, and customer specific online load tracking information. The objective of this program is to allow the customer to reduce their own peak demand which may occur at a different time than the system peak demand. This approach provides the customers with more flexibility and options to manage their facilities and therefore it is expected to improve energy efficiency, encourage behaviour changes, produce more sustainable and persistent energy and demand savings, and lower the overall system peak demand.

It should be noted the OPA had already approved the Double Return Program as a Custom Program distinct from the OPA's Demand Response 1/Demand Response 3 programs, and all three programs coexisted in the marketplace in 2008 and 2009.

5.0 PROGRAM MIX

Hydro One currently serves approximately 1.2 million customers. Although there is a diverse mix of urban, rural, and remote customers in Hydro One's service territory, most of them can be classified as rural. Hydro One's distribution facilities are the backbone of Ontario's electricity system and cover 75% of the Province's geography and serve about 25% of the Province's customers. Based on Hydro One's customer database, there are approximately 1.1 million residential customers (930,000 year round and 160,000 seasonal) and 110,000 general service customers in its service area (approximately 100,000 below 50 kW and 10,000 above 50 kW).

Unlike most distributors in Ontario, Hydro One is a winter-peaking utility due to a relatively higher penetration of residential electric space and water heating and lower usage/saturation of air conditioning.

Hydro One's Diverse CDM Program Portfolio

Hydro One's CDM program portfolio provides offerings to all customer types in its service area. In addition to the existing OPA-Contracted CDM programs, a suite of distinct Board-Approved CDM programs was developed to address Hydro One's specific customer types and segments. This rich mix of programs (both OPA-Contracted and Board-Approved) will help ensure that the diverse needs of all Hydro One's customers are met.

Hydro One's portfolio of 2011-2014 Residential Programs encourages customers, including low-income customers, to purchase and install energy efficient products and empowers them with the tools they need to reduce energy and save money. These programs will help drive the homes of the future toward being smart, integrated and efficient.

Hydro One's portfolio of CDM programs also cater to the unique needs of its business customers. For example, the OPA "Commercial Program" is directed at Hydro One's small business customers and, also offers specific technologies to Hydro One's agricultural customers. In addition, Hydro One's portfolio includes an innovative program for the institutional sector, based on energy performance that rewards municipalities and hospitals for their energy efficiency efforts.

Hydro One's industrial programs provide operational improvements for energy efficiency, as well as peak demand reductions.

As part of the tracking and review process, all CDM programs will be monitored closely on an ongoing basis. Performance issues related to specific customer types or segments will be corrected by adjusting current programs and/or implementing additional programs or delivery strategies. This will ensure complete coverage of all Hydro One's customer base.

Figure 6 provides a summary of Hydro One's CDM Program Portfolio coverage by customer type:

Figure 6: CDM Program Coverage by Customer Type

CDM Programs / Customer Types	Residential		Commercial *(includes Agricultural)*	Industrial
	Regular	*Low Income*		
OPA Programs				
1 Year Round Instant Rebates (Conservation Card / Coupon Booklet)	√	√		
2 Bi-Annual Instant Rebate Event (Retailer Event)	√	√		
3 Appliance Retirement Initiative	√	√		
4 Bi-annual Appliance Exchange Events	√	√		
5 HVAC On-line Rebates Initiative	√	√		
6 New Construction Initiative	√	√		
7 Midstream Incentives Initiative	√	√		
8 Customer Enabling Initiatives*	√	√		
9 Low Income Initiative		√		
10 Residential Demand Response Initiative	√	√		
11 Commercial and Institutional Initiative			√	
12 Demand Response 1 - Commercial			√	
13 Demand Response 3 - Commercial			√	
14 Demand Response 1 - Industrial				√
15 Demand Response 3 - Industrial				√
16 Industrial Accelerator				√
17 Industrial ERIP				√
Board-Approved Programs				
1 Community Education	√	√		
2 Neighbourhood Benchmarking	√	√		
3 Monitoring and Targeting			√	√
4 Small Commercial Energy Management and Load Control			√	
5 Municipal and Hospital Energy Efficiency Performance			√	
6 Double Return Plus			√	√

First Nations and Métis Customers

According to the OPA target allocation methodology (see "Appendix B - Advice to the Ontario Energy Board: CDM Target Allocation for Ontario LDCs" from the Board's Memo to all distributors, dated June 22, 2010), the aggregate Local Distribution Company ("LDC") Provincial CDM savings target (6,000 GWh and 1,330 MW) does not include the savings from the OPA–funded Aboriginal Conservation Program. The OPA is responsible for delivering the OPA-funded Aboriginal Conservation Program to Ontario's First Nations and

Métis population. Distributors are not responsible for achieving the savings from this program.

Hydro One currently has over 20,000 First Nations and Métis customers in its service territory, and they consume about 1.5% of the total electricity delivered. While all residential CDM programs will be offered to this group of customers, Hydro One does not plan to design and deliver any "First Nation-specific" CDM programs in its service area since the OPA has the accountability to do so.

6.0 COORDINATION

Hydro One's Past CDM Involvement

Over the past years, Hydro One has played a key role in shaping and guiding the development of conservation activities and initiatives in Ontario. Hydro One has been able to assemble a portfolio of innovative and successful conservation programs, many of which are considered as leading edge and have been emulated by other utilities throughout North America.

This success has been shared across Ontario as several of Hydro One's programs have been adopted by the Ontario Power Authority as LDC-delivered or OPA-delivered programs. In 2004/2005, Hydro One embarked on the design of its CDM initiatives which formed a portfolio of programs funded under Market Adjustment Revenue Requirement ("MARR"). The portfolio consisted of a mix of CDM programs across all sectors and some were considered as leading-edge. For example, Hydro One implemented an innovative demand response technology consisting of a web-enabled residential setback thermostat. This technologically innovative concept (SmartStat) was subsequently adopted by the OPA and was offered across the Province, as part of the Province-wide PeakSaver initiative. Other examples of leading edge programs which were originally introduced by Hydro One are real-time monitors or In Home Display ("IHD").

Hydro One continued to show leadership by working with other distributors in an effort to enhance the MARR programs. In 2006 Hydro One worked cooperatively with the CLD Group and embarked on an overhaul and redesign of the PowerSaver Business Incentive Program. This program was revamped to include many new measures, including, for the first time, conservation measures for the agricultural sector. This program was welcomed by many of Hydro One's customers in the farming community.

Hydro One's concepts and pilot programs helped shape the Province-wide OPA-Contracted programs. Hydro One continues to work closely with the OPA in an effort to improve existing programs. In a collaborative effort, improvements were made which related to program governance, rules, and incentive levels, as well as the inclusion of new technologies.

Hydro One's Current and Future CDM Involvement

Hydro One has been and continues to be an active participant in all five OPA/LDC working groups. These working groups are tasked with the joint responsibility of a full redesign of the existing OPA-Contracted programs for deployment in 2011 – 2014. Working closely with the EDA, CLD Group and gas companies, Hydro One continues to provide valuable input and is playing an instrumental role as "leaders of change", helping to reshape conservation programs and influence the final outcome of the individual program designs.

In June 2010, Hydro One and the gas companies formally joined the Coalition of Large Distributors (CLD) in an effort to seek synergies and cost efficiencies in the delivery of CDM/DSM programs to customers of both gas and electricity across Ontario.

Several CLD electricity distributor members have asked Hydro One to share its proposed OEB-Approved Programs. Hydro One has shared its proposed initiatives, and several LDCs have expressed interest in implementing these programs in their territories.

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 enhance the "one stop shop" concept with customers and to increase customer engagement and cost-effectiveness.

To date, Hydro One has demonstrated its leadership role in the development and implementation of CDM initiatives as well as introducing innovation to the CDM portfolio in Ontario. Key to this role was Hydro One's collaborative approach with other stakeholders including the CLD and other LDCs, gas companies, and the OPA. Hydro One will continue to work with other stakeholders to further the CDM portfolio and to meet the needs of its customers.

7.0 MONITOR AND CONTROL

Hydro One plans to closely monitor ongoing and projected CDM expenditures and accomplishments. Deviations from plans will be identified and corrective action will be taken. Program variances will be reviewed on a regular basis. Any significant change in circumstances will be reported to the OEB as part of the annual CDM report submission. In the event that fund transfers in excess of 30% are required, Hydro One will make an application to the Board as required by section 3.2 of the CDM Code.

2011 TO 2014 CONSERVATION AND DEMAND MANAGEMENT BUDGET FOR BOARD-APPROVED PROGRAMS AND COST RECOVERY

1.0 BOARD APPROVAL OF FUNDING AND VARIANCE ACCOUNT

Hydro One seeks approval of CDM funding for Board-Approved CDM Programs of $6.0 million for 2011, $8.3 million for 2012, $8.9 million for 2013 and $8.8 million for 2014.

In accordance with the CDM Code, Hydro One follows all of the Board's accounting polices and procedures specified for CDM activities. A fully-allocated costing methodology will be followed, in accordance with Appendix A of the CDM Code, for all CDM programs. Program funding and program expenditures from all Board-Approved CDM Programs will be kept separate from Hydro One's distribution operations.

After Board approval, payments from the Independent Electricity System Operator (the "IESO") in accordance with section 78.5(1) of the *Ontario Energy Board Act, 1998* will provide $32.0 million to fund Board-Approved CDM programs during the 2011 to 2014 period.

Hydro One also seeks approval for a Board-Approved CDM Program Variance Account which will be used to record any differences between the funding awarded for Board-Approved CDM Programs and the actual spending for these programs.

2.0 PROPOSED FUNDING PROCESS

In order to enable the completion of the Board Approved Programs, Hydro One requires funding. To achieve the required funding, Hydro One proposes that the funding for 2011 –

2014 Board-Approved CDM Programs be provided at the beginning of each month, over a four-year period starting January 1, 2011.

The following table provides the breakdown of Hydro One's CDM funding requirement for Board-Approved CDM Programs, by year:

Figure 7: Hydro One's Funding Requirement for Board-Approved CDM Programs

	2011	2012	2013	2014	Total 2011-2014
Funding to be provided annually	$6,000,000	$8,300,000	$8,900,000	$8,800,000	$32,000,000
Corresponding monthly payments	$500,000	$690,000	$740,000	$740,000	

The proposed monthly payments are determined by dividing the projected annual budget requirement by 12.

The Board-Approved CDM Program Variance Account will be used to record the difference between the funding awarded and the actual spending incurred. Hydro One proposes that the disposition of any balance in this variance account be dealt with at the end of 2014.

This variance account will be managed in the same manner as existing Hydro One variance accounts. It will be updated monthly and interest will be applied at the Board-approved rate. Hydro One will make an application to the Board to address the balance in the variance account if it exceeds $5 million dollars during the 2011 to 2014 period.

HYDRO ONE INITIATIVES UNDER OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAMS

Residential Programs

1. Year Round Instant Rebates
2. Bi-Annual Instant Rebate Events
3. Appliance Retirement Initiative
4. Bi-Annual Appliance Exchange Events
5. HVAC On-line Rebates Initiative
6. New Construction Initiative
7. Midstream Incentives Initiative
8. Consumer Enabling Initiatives
9. Low Income Initiative
10. Residential and Small Commercial Demand Response Initiative

Commercial and Institutional Programs

11. Commercial and Institutional Province Wide Initiative
12. Demand Response 1 (“DR1”) - Commercial
13. Demand Response 3 (“DR3”) – Commercial

Industrial Programs

14. DR1 - Industrial
15. DR3 – Industrial
16. Industrial Accelerator
17. Industrial ERIP

OPA – CONTRACTED PROVINCE-WIDE CDM PROGRAMS

RESIDENTIAL PROGRAMS

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

RESIDENTIAL PROGRAM

Initiative Number: 1

Initiative Name: YEAR ROUND INSTANT REBATES

Conservation Card / Coupon Booklet

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Year round

Target Customer Type(s): Residential Customers

Initiative Description:

This is an energy efficiency initiative that provides customers with year round instant rebates at participating retailers for a variety of low cost, easy to install measures.

Background:

This is a year round initiative that offers instant rebates to customers towards the purchase of low cost, easy to install measures. The distribution of a series of product rebate coupons directly to each home presents the opportunity for customers to redeem these rebates at any time throughout the year.

Note: There will also be an opportunity for customers to take advantage of instant rebates during bi-annual retailer promotions (see *Bi-Annual Retailer Events Initiative*).

Initiative Elements:

- Consumers are eligible for year round instant rebates at participating retailers for a variety of low cost, easy to install measures
- Measures purchased are traceable to the customer and the LDC service territory via a coding mechanism

- Initially the initiative will be launched using a coupon booklet, and then there are plans to transition to a Conservation Discount Card
- OPA RFP process to support the transition from coupons to Conservation Discount Card (process pending)
- The following incentives will be offered under this initiative:

Year Round Measures	Incentives 2011 - 2014
ENERGY STAR qualified Standard CFLs (2011 only)	$1.00 (packages of 3 or less) $3.00 (packages of 4 or more)
ENERGY STAR qualified Specialty CFLs	$3.00 (packages of 2 or less) $5.00 (packages of 3 or more)
ENERGY STAR qualified Fixtures (including ENERGY STAR ceiling fans)	$10.00 (3+ sockets, ceiling fan) $3.00 (less than 3 sockets)
Lighting Control Products (Hard wired)	$3.00
Hot Water Pipe Wrap	$0.50 for three
Electric Water Heater Blanket	$4.00
Weatherstripping	$2.00 (V Strip or Foam Tape) $3.00 (Door Kit)
Heavy Duty Plug In Timer	$4.00
Advanced Powerstrips	$4.00
Clotheslines	$5.00
Baseboard Programmable Thermostats	$10.00 (packages of 2 or less) $30.00 (packages of 3 or more)

Purpose of the Initiative:

- Maximize participation – ease of transaction for consumer, accepted at a wide range of retailers, year-round availability of rebates
- Maximize LDC goodwill and profile with consumer – multiple touch points/uses that connect the offer with the LDC for the consumer
- Optimize cost effectiveness – processing costs, rebates payable (i.e. to those consumers who have been influenced by the marketing and promotion)
- Track savings and allocate appropriately to each LDC – product purchases are traceable back to the LDC customer (traceable to the LDC) rather than where they are purchased (location of retail store)

- Data benefits of Conservation Card - each consumer's energy efficient purchasing behavior can be tracked enabling cross-promotion of additional initiatives in which the consumer might be interested based on past purchases and participation
- Development of a loyalty initiative to reward consumers who participate in multiple initiatives (based on data collected from Conservation Card)

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

RESIDENTIAL PROGRAM

Initiative Number: 2

Initiative Name: BI-ANNUAL INSTANT REBATE EVENTS

Retailer Events

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Bi-annual events (Spring & Fall)

Target Customer Type(s): Residential Customers

Initiative Description:

Utilities and retailers will work together to promote the *Instant Rebates Program* by holding bi-annual retailer events (Spring and Fall). Twice a year, participating retailers will host month-long rebate events. The events are intended to promote instant rebates for low cost measures and capture the attention of the "impulse shopper".

Background:

This offer is a carry-forward of the *Every Kilowatt Counts, Power Savings Events*. The initiative has been enhanced to include local marketing and engagement by LDCs. The bi-annual retailer events are intended to capture the attention of the "impulse buyer" who is already engaged in the sales cycle. The events will highlight the value of the instant rebates and prompt the customer to take action and use in-store coupons (or the Conservation Card when available) to purchase eligible products. The bi-annual retailer events will now provide an opportunity for LDCs to have an in-store presence at retailer locations throughout their community(s).

Initiative Elements:

- Bi-annual promotion of instant rebates at local retailer sites (during months of April & October)

- Each promotion will be a month long event
- Customers are encouraged to take advantage of the instant rebates through in-store coupons available for a variety of low cost, easy to install measures
- The product list for the bi-annual events and the year-round rebates will be the same, as will the rebate amounts
- This initiative is targeted to the impulse buyer who is already engaged in the sales cycle (shopping at retailer location)
- In-store customers will be encouraged to take advantage of the instant rebates which are also available year round (using in-store coupons or Conservation Card)
- The following incentives will be offered (please note that from within this product list there will be different products promoted in the Spring vs. Fall events, in cases where product usage is seasonal in nature):

Year-Round Measures	**Incentives 2011 - 2014**
ENERGY STAR qualified Standard CFLs (2011 only)	$1.00 (packages of 3 or less) $3.00 (packages of 4 or more)
ENERGY STAR qualified Specialty CFLs	$3.00 (packages of 2 or less) $5.00 (packages of 3 or more)
ENERGY STAR qualified Fixtures (including ENERGY STAR ceiling fans)	$10.00 (3+ sockets, ceiling fan) $3.00 (less than 3 sockets)
Lighting Control Products (Hard wired)	$3.00
Hot Water Pipe Wrap	$0.50 for three
Electric Water Heater Blanket	$4.00
Weatherstripping	$2.00 (V Strip or Foam Tape) $3.00 (Door Kit)
Heavy Duty Plug In Timer	$4.00
Advanced Powerstrips	$4.00
Clotheslines	$5.00
Baseboard Programmable Thermostats	$10.00 (packages of 2 or less) $30.00 (packages of 3 or more)

Purpose of the Initiative:

- Capture the attention of consumers who are shopping at their local retailer and encourage them to purchase energy efficient products that they would not otherwise have intended to purchase
- Encourage retailers to change their product assortment and promotional strategies to place increased emphasis on energy efficient product alternatives
- Encourage retailers to allocate resources to undertake additional promotional activities that encourage consumers to purchase and install the energy efficient products featured in the instant-rebate initiative (as well as any other energy saving products that the retailer may wish to promote)
- Educate retail staff on the features and benefits of energy efficient products so they can increase consumers' understanding of these products and their energy efficiency potential
- Encourage retailers to work with their LDCs to educate consumers on the features and benefits of energy efficient products

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

RESIDENTIAL PROGRAM

Initiative Number: 3

Initiative Name: APPLIANCE RETIREMENT INITIATIVE

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Year round

Target Customer Type(s): Residential Customers

Initiative Description:

This is an energy efficiency initiative that offers FREE pick up and decommissioning of old refrigerators, freezers, room air conditioners and dehumidifiers.

Background:

This initiative was originally launched in 2007 by the OPA as a Province-wide initiative (aka *Appliance Retirement Program* or *Great Refrigerator Round-Up Program*). The initiative has been enhanced to include a municipal pickup element, where applicable, and a retail channel for pick-up upon replacement.

Initiative Elements:

- Customers are offered FREE pickup and decommissioning of old appliances (old refrigerators, freezers, room air conditioners and dehumidifiers)
- Customers can book appointment online (electronically) or by phone
- Centralized call centre operated by OPA for scheduling of appointments (toll-free line)
- OPA contracted third-party handles pickup and decommissioning process
- Secondary appliances must be 15 yrs old, capacity of 10 – 27 cubic feet and must be in good working condition

- Coordination with local municipal appliance pickup is encouraged, where feasible, at the LDC's initiative
- Coordination of pickup of old fridge/freezer by retailers will be undertaken - at time when retailer delivers a new appliance to customer
- OPA provides report of initiative results specific to LDC territory
- The following is an outline of the customer incentives:

Appliance Retirement Measures	Incentives 2011 - 2014
Refrigerator	Free Pickup and Decommissioning
Freezer	Free Pickup and Decommissioning
Room Air Conditioner (secondary)	Free Pickup and Decommissioning
Dehumidifier (secondary)	Free Pickup and Decommissioning

Purpose of the Initiative:

- Achieve energy and demand savings through the retirement and/or replacement of old, inefficient refrigerators, freezers, window/room air conditioners and dehumidifiers
- Discourage the use of old, inefficient appliances
- Facilitate environmental benefits through proper decommissioning and recycling of old appliances

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

RESIDENTIAL PROGRAM

Initiative Number: 4

Initiative Name: **BI-ANNUAL APPLIANCE EXCHANGE EVENTS**

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Bi-annual events

Target Customer Type(s): Residential Customers

Initiative Description:

This initiative involves bi-annual, appliance exchange events. Exchange events are held at local retail locations and customers are encouraged to bring in their old *room air conditioners and dehumidifiers* in exchange for coupons/discounts towards the purchase of new energy efficient equipment.

Background:

This initiative was originally launched in 2007 (aka *Keep Cool Program*) and the exchange events were managed primarily by the OPA. Customers were encouraged to visit participating retailers on pre-scheduled dates and "trade-in" or exchange their old appliances. Customers who participated received an incentive (coupon or discount) towards the purchase of new, energy efficient equipment. The initiative has been enhanced to include local marketing and provides an opportunity for LDCs to become more involved by having an in-store presence at retailer locations within their respective communities.

Initiative Elements:

- Bi-annual exchange events will be held at local retailers (Spring & Fall)
- Retailers solicited at the head office level by the OPA

- Customers encouraged to bring in their old room air conditioners and dehumidifiers to participating retailer locations in exchange for rebates
- For the Spring Event, the rebate will be a coupon towards the purchase of a high efficiency replacement unit ($50 Replacement Coupon)
- For the Fall Event, the rebate will be in the form of a gift card ($25 Gift Card)
- A gift card will be offered during the Fall event, as replacement units are typically not stocked during this time of the year
- Appliances are decommissioned in an environmentally friendly manner; decommissioning process is centrally managed by the OPA
- The following incentives will be offered:

Exchange Event Measures	**Incentives 2011 - 2014**
Room Air Conditioner	$50 Replacement Coupon (Spring) $25 Gift Card (Fall)
Dehumidifier	$50 Replacement Coupon (Spring) $25 Gift Card (Fall)

Purpose of the Initiative:

- Achieve energy and demand savings through the retirement and/or replacement of old, inefficient window /room air conditioners and dehumidifiers
- Discourage the reuse of old, inefficient appliances
- Facilitate environmental benefits through proper decommissioning and recycling of old appliances

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

RESIDENTIAL PROGRAM

Initiative Number: 5

Initiative Name: HVAC ON-LINE REBATES INITIATIVE

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Year round

Target Customer Type(s): Residential Customers

Initiative Description:

This is an energy efficiency initiative that provides rebates for the replacement of old heating or cooling systems with high efficiency furnaces (equipped with electronically commutated motors) and Energy Star qualified central air conditioners.

Background:

The HVAC rebates initiative has been in market since 2006 (aka *Cool Savings Program*). The initiative has been enhanced to include LDCs in the delivery of the initiative and there is also a new contractor training element. As part of this initiative, consumers will be eligible for rebates on replacement of qualifying furnaces with electronically commutated motors and central air conditioners. Training will be available for contractors to educate them on quality installation principles. LDCs will be involved in the recruitment of contractors; this will be supported by OPA recruitment efforts. The HVAC rebates will be delivered to consumers through participating contractors and will be centrally fulfilled by the OPA, as in the past.

Initiative Elements:

- Customers will be eligible for rebates on qualifying HVAC equipment
- Rebates available for replacement of central air conditioners and furnaces with electronically commutated motors

- Customers can book appointment online or by phone
- Rebates will be available through online process which will be centrally managed and fulfilled by the OPA
- Contractor training will be available to support quality installation (including initial assessment to ensure right-sizing of equipment)
- OPA will provide a report of the initiative results specific to the LDC territory
- The following is an outline of the customer incentives:

HVAC Measures	**Incentives 2011 - 2014**
High Efficiency Furnaces equipped with ECM	$250
ENERGY STAR qualified Central Air Conditioner	$250 (SEER 14.5) $400 (SEER 15)

Purpose of the Initiative:

- Resource acquisition will be achieved by encouraging consumers to purchase and install energy efficient HVAC equipment when replacing existing equipment
- The new energy efficient HVAC equipment will generate both energy and peak demand savings
- Capability building will be achieved by training contractors on quality installation principles

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

RESIDENTIAL PROGRAM

Initiative Number: 6

Initiative Name: NEW CONSTRUCTION INITIATIVE

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Year round

Target Customer Type(s): Residential Customers

Initiative Description:

This is an energy efficiency initiative that provides incentives to homebuilders for constructing new homes that are efficient, smart and integrated (applicable to new single family dwellings).

Background:

This is a new initiative under the Consumer Program and will be offered for the first time in the market, beginning January 2011. The objective of this initiative is to ensure that single family homes of the future are constructed to be efficient, smart and integrated. The initiative encourages and rewards homebuilders for constructing efficient, smart and integrated single family homes. Consumers are also informed through education about the value of purchasing an energy efficient, smart and integrated home (including increased comfort, lower energy costs and environmental benefits).

Initiative Elements:

- Homebuilders are offered incentives to promote the construction of new homes that are "efficient, smart and integrated"
- Incentives are provided in four key categories, as follows:
    1. Incentives to install electricity efficiency measures as determined by a prescriptive list and via a custom option

2. Incentives for installing devices for demand response (phased implementation anticipated)
3. Incentives for homebuilders who meet or exceed aggressive efficiency standards using the EnerGuide performance rating system
4. Incentives for training on energy efficiency building techniques and practices

- Measures target end-users with the highest potential for electricity savings and demand reduction including lighting, cooling coupled with electronically commutated furnace motor, as well as plug loads
- The initiative will capture and fund fossil fuel savings (i.e. natural gas, oil, propane) to encourage market transformation through improving the building envelope to achieve higher EnerGuide performance ratings
- The initiative will be delivered by LDCs throughout the Province
- Local engagement of builders will be the responsibility of the LDC and will be supported by OPA air cover driving builders to their LDC for additional information
- LDCs will be responsible for reviewing and approving applications and conducting site verifications
- Data collection and reporting will also be the responsibility of the LDC
- OPA will be responsible for rebate fulfillment
- The following is a list of the measures which will be incentivized for builders:

New Construction Measures	**Incentives 2011 - 2014**
All-off Switch	$50.00
ECM Motors	$50.00
SEER 15 CAC	$30.00
Lighting Control Products	$3.00
Fixtures (single socket, multi-socket, niche)	$15.00 (niche) $10.00 (3+ sockets) $3.00 (less than 3 sockets)
Custom Project	TBD
EnerGuide 83 Whole Home	$500/Home
EnerGuide 85 Whole Home	$1,000/Home
Residential Demand Response Devices	TBD
Training	TBD

Purpose of the Initiative:

- To motivate builders to incorporate electric energy efficient technologies in the design and construction of new homes
- To drive market awareness through advertising and other mediums
- To educate the builder and consumer on the benefits of energy efficiency in the home
- To increase consumer awareness and trigger increased consumer demand
- To overcome builders' concerns about trained and available trades to install the technologies and to overcome the trades concerns about liability with the installation of the technologies (training programs to be developed and offered to both)

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

RESIDENTIAL PROGRAM

Initiative Number: 7

Initiative Name: MIDSTREAM INCENTIVES INITIATIVE

Retailers, Cable & Satellite TV Providers & Pool Contractors

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Year round

Target Customer Type(s): Retailers, Cable & Satellite TV Providers & Pool Contractors

Initiative Description:

This is an incentive program for midstream channel partners who can directly influence the consumers' product selection. Midstream incentives will be provided to retailers, cable and satellite providers and pool contractors to encourage them to stock and promote energy efficient equipment.

Background:

This is an incentive initiative for midstream electronics retailers, cable and satellite providers and pool contractors. The initiative is meant to encourage midstream providers to change their product selection, assortment and promotional strategies to place increased emphasis on energy efficient product alternatives. Incentives for retailers will encourage them to stock and promote high-efficiency televisions. Incentives for cable and satellite television service providers will encourage the adoption of set-top boxes and network configurations that deliver energy-efficiency gains. Incentives for pool contractors will encourage proper selection and right-sizing of pool equipment.

Initiative Elements:

- Retailers will be encouraged to gear their offerings and promotions to feature the most energy efficient alternatives to consumers who have already decided to purchase new equipment
- OPA will be responsible for developing relationships with retailers, cable and satellite TV providers
- OPA will also be responsible for hiring a Program Manager for this initiative
- OPA will be responsible for contractor training, i.e. pool contractors
- OPA will be responsible for providing incentives to retailers, cable and satellite TV providers
- LDCs will be responsible for educating consumers about the benefits of purchasing energy efficient equipment
- The midstream incentives will include:

Midstream Measures	**Incentives 2011 - 2014**
Pool measures	$50 (2011 – 2012) $30 (2013 – 2014)
Televisions	$20
Set-top boxes	$12

Purpose of the Initiative:

- A midstream rather than downstream consumer incentive will be employed to avoid creating additional demand for and proliferation of televisions in households
- Encourage retailers and cable/satellite distributors to change their product assortment and promotional strategies to place increased emphasis on efficient product alternatives
- Educate pool contractors on the benefits to their customers of right-sizing a pool pump to maximize energy efficiency
- Increase awareness of energy consumption of devices among consumers at point of sale through staff knowledge and signage

- Increase retailer/service provider promotion of energy efficient product alternatives

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

RESIDENTIAL PROGRAM

Initiative Number: 8

Initiative Name: CONSUMER ENABLING INITIATIVES

Online Energy Audit Tool / Online Customer Education Program

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Year round

Target Customer Type(s): Residential Customers

Initiative Description:

Consumer enabling initiatives will provide the consumer with the web-based information they need to make informed decisions. The online tools will help educate consumers about the benefits of conservation and help promote the Consumer Conservation Programs. The consumer enabling initiatives include:

a) Online home energy audit
b) Online consumer education

Background:

The enabling initiatives are intended to provide the residential consumer with the information and the tools that they need to "get started" and help them make informed decisions. These online tools will be accessible to customers via the local utility website.

Initiative Elements

- An online energy audit tool **(**examining both gas and electricity usage) will be made available to consumers. An online calculator will enable the consumer to rapidly assess their home's energy usage/performance and direct them to energy efficiency initiatives that will be of most benefit to them
- LDCs will be able to host the audit tool on their website through an interface.

- The data entered by the consumer will be saved and the information will be available for market research purposes for each LDC to enhance their understanding of their customer base and their behaviours
- A robust **online education component** will be produced and will be integrated into all applicable elements of the marketing materials and on-line audit tool

Purpose of the Initiative:

- To provide consumers with the information they need to make informed choices.
- To move to a *customer centric model (*i.e. move the focus from the end-use to the *end-user*)
- To introduce a holistic approach to energy management
- To ensure that consumers are empowered to take steps towards energy efficiency and influence behavioural change
- To build a consistent thread that brings together the conservation efforts at home, at work, and in the community, to further the culture of conservation in Ontario

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

RESIDENTIAL PROGRAM

Initiative Number: 9

Initiative Name: LOW INCOME INITIATIVE

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Year round

Target Customer Type(s): Residential Customers

Initiative Description:

This is a turnkey initiative for low income customers. It offers residents the opportunity to take advantage of FREE, TURNKEY installation of energy efficient measures that improve the comfort of their home, increase efficiency and help them save money.

Background:

This is a new initiative that has been specifically developed to meet the needs of the low income consumer. This is a comprehensive initiative that involves a variety of activities intended to improve the energy efficiency of low income homes. The initiative is intended to reduce electricity demand, provide consumers with the information they need to manage their energy use and influence behaviour change that will support these outcomes. The initiative will pay 100% of costs for the purchase and installation of the electricity saving products.

The process begins with an in-home audit which will identify the opportunities within the home. The installation measures range from basic measures (CFLs, weatherstripping, water heater blanket and more) to a full list of extended measures (light fixtures, air conditioning units, freezers, refrigerators, dehumidifiers, draft-proofing and insulation).

Initiative Elements:

OUTREACH

The initiative leverages five customer outreach channels, as follows:

1. **Blitz Participants**. Households come into the initiative via a *neighbourhood blitz*, whereby neighbourhoods are targeted by income and/or propensity for electric heat. Households who agree to participate via the *neighbourhood blitz* move to the basic audit process
2. **Self-Initiated Respondent.** Households responding to air coverage, print media, or via word-of-mouth referrals may opt in to the initiative. Households opting into the initiative will contact an intake center, flow through the outbound pre-screening protocol, and be scheduled for a referral audit
3. **Community Partner Referral.** Households receiving social assistance via a government agency, community-based organization, or non-profit who pass through the initiative referral screen are queued for outbound pre-screening. Examples of community referral partners include: social service providers, local housing agencies, food banks, etc.
4. **LDC Priority Referral.** Households struggling with utility bill affordability, at-risk for utility service disconnect, and/or have pending high-bill complaints may be considered an LDC Priority account. When LDC Priority accounts pass through the initiative referral screen, these households are queued for outbound pre-screening
5. **Extended Measures Referral.** In 2012, a gas initiative linkage is envisioned (independent of desired integration). This linkage promotes a Gas Audit Extension; whereby, qualifying low-income households are screened for electric savings. *Qualifying households* that pass an extended measures selection protocol are scheduled for an extended measures visit. Examples include referrals from Enbridge's TAPS program and Union Gas Helping Homes Conserve Program

GAS COMPANY ENGAGEMENT

The initiative design includes coordinating efforts with gas utilities, as follows:

1. **Gas Audit Extension.** An extension to the gas utility DSM audit allowing for the installation of basic measures II in homes that participate in the gas utility initiatives.
2. **Electric Audit Extension.** An extension to the basic audit delivered by the LISFH program to allow for the installation of basic measures III (gas utility measures).

IN HOME AUDITS

Three types of energy audits will be offered to low income consumers, as follows:

1. **Basic Audit.** An in-home consultation offered to households passing the health and safety protocol. The in-home consultation uses basic measure screening protocols to determine which basic measures will be installed and facilitates eligibility verification. For homes with natural gas service, basic measures III will be installed in program years 2012 forward (pending coordination of Low Income Single Family Home (LISFH) program with gas utility initiatives). For *qualifying households* the in-home consultation continues with extended measures selection and a weatherization opportunity screening. Customers are advised of the pending work orders for an extended measures visit and a weatherization audit. As part of the basic audit, each home will be screened for eligibility in the gas-utility weatherization program and utility-led DR and Home Energy Management Systems programs. If the home is eligible for these programs, a DSM program referral and/or LDC program referral will be made with customer consent as provided for within the energy education.
2. **Weatherization Audit.** An in-home consultation proceeds with air infiltration measure installation and envelope measures selection. In homes requiring envelope treatment, a home weatherization visit work order is created and the customer is advised of a pending weatherization visit.
3. **Referral Audit.** An in-home consultation offered to households passing the health and safety protocol. The in-home consultation provides basic measures and facilitates eligibility verification. For *qualifying households* the in-home consultation continues

with extended measures selection and a weatherization audit. Where opportunities have been identified, customers are advised of the pending work orders associated with a pending extended measures visit and/or home weatherization visit.

INSTALLATION MEASURES

The initiative will offer consumers several energy efficiency and demand reduction measures. Different packages of measures will be offered based on eligibility determined during the audit. These packages include:

1. **Basic Measures I.** A prescriptive set of measures that include energy education and information (how-to-use measures, conservation behaviours, energy management vis a vis time-of-use rates), low-cost weatherization measures, and the installation of the following energy efficiency measures: CFLs, DWH pipe wrap, DWH blanket, low flow faucet aerators, low-flow showerheads, engine block timers, and powerbars with integrated timers.
2. **Basic Measures II.** An incremental set of electric measures that compliment the electric measures provided within the gas DSM audit. The anticipated measures include powerbars with integrated timers, CFLs, and engine block timers.
3. **Basic Measures III.** The installation of programmable thermostats for gas furnaces (would be funded by gas utilities).
4. **Extended Measures Visit.** Delivery agents responding to an extended measures work order will schedule appointments with the customers, deliver the specified measures, remove existing equipment/appliances, and install the specified measures. The current list of extended measures includes the following set of Energy Star qualified measures: light fixtures, air conditioning units, freezers, refrigerators, and dehumidifiers. Programmable thermostats will be reviewed as a potential measure for inclusion in 2012 for baseboard systems. At the end of the visit, customers will be notified of a possible quality assurance visit that would be scheduled within the next 30 days.

5. **Home Weatherization Visit.** Delivery agents responding to a home weatherization work order will follow the air infiltration measure installation protocol to provide draft proofing along with the requested attic, wall, and basement insulation. Following the completion of home weatherization, customers will be notified of the need for a quality assurance visit to be scheduled within the next 30 days.

HEALTH & SAFETY MEASURES

There are two aspects to health and safety which will be addressed in this initiative:

1. the safety of initiative delivery staff working in the home; and
2. the state of repair of the home itself and the impact of this state of repair on opportunities for conservation retrofits.

QUALITY ASSURANCE / MONITIORING & VERIFICATION

- Once the installation of measures has been completed in a participating home, the participant will receive a follow-up call or visit to a) confirm his or her satisfaction with the initiative, and b) gather information for initiative EMV.

DEMAND RESPONSE

- The initiative will also consider the feasibility and potential savings that could be achieved by funding the cost of In Home Display measures for low-income customers who want to participate in the Residential Demand Response initiative but a) do not qualify for a device at no-cost and b) cannot afford to pay the incremental cost of the device themselves.

Purpose of the Initiative:

- Assist low income customers in managing electricity costs
- The initiative employs a “house as a system” approach, providing opportunities for electric energy efficiency in each area of the home

- Install energy efficiency measures in low income homes that will produce long-term, sustainable energy savings – i.e. reduce provincial electricity demand and consumption
- Physical installation of energy efficiency measures provide long-term sustained financial savings to consumers and this will help reduce the reliance on financial assistance programs
- Enhance the social safety net for low income consumers

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

RESIDENTIAL PROGRAM

Initiative Number: 10

Initiative Name: RESIDENTIAL AND SMALL COMMERCIAL DEMAND RESPONSE INITIATIVE

Year(s) of Operation for the Initiative: July 2011- December 2014

Initiative Frequency: Year round

Target Customer Type(s): Residential customers

Initiative Description:

This is an initiative that provides residential customers the tools they need to actively manage their energy use in a time-of-use (TOU) environment. The initiative provides customers with access to price and real-time consumption data and offers an option to participate in demand response load control.

Background:

This initiative offers a free programmable thermostat (or load control switch) and offers a financial incentive for allowing load control of central air conditioners and electric water heaters during peak times. This program has been enhanced to include window air conditioners and pool pumps.

The initiative has been further enhanced for 2011 – 2014 to take advantage of recent policy changes, market developments and technology advancements. The new demand response devices will be able to accommodate the use of smart plugs, smart strips, smart appliances and more emerging technologies.

The initiative will now offer residential customers two participation options, as follows:

1. **Participation with demand response**
2. **Participation without demand response**

While general service customers under 50kW are eligible to participate in the PeakSaver Program; so far less than one per cent of this customer group has participated in the program. This is primarily due to the fact that PeakSaver Program is designed to respond to the needs of residential customers.

The above mentioned enhancements were designed for the residential sector; accordingly, penetration of small commercial sector continues to be at an assumed 1% only.

Initiative Elements:

- Participation with demand response will offer higher incentives, higher levels of subsidization and more participation options (due to fact that demand response yield higher avoided costs)
- All participants will receive access to price and real-time consumption information

CUSTOMER OPTIONS:

The following is an outline of options available for customers who choose to participate in the initiative but with NO demand response:

Non-Demand Response Offers

Device(s)	Charge / Incentive to Participant
HEI	[redacted]
HEI + IHD	[redacted]

Note: Definitions: HEI = Home Energy Interface, IHD = In Home Display

The following is an outline of the options available for residential customers who choose to participate in the initiative WITH demand response:

Demand Response Offers

Device(s)	Charge / Incentive to Participant
HEI + Switch	**Without IHD –** [redacted]
	With IHD – [redacted]
HEI + Thermostat	**Without IHD –** [redacted]
	With IHD – [redacted]
Dashboard	[redacted]

Note: Definitions: HEI = Home Energy Interface, IHD = In Home Display

Purpose of the Initiative:

- To build demand response capacity in the residential sector to achieve maximum cost-effective peak demand reduction
- To empower residential participants by providing them with price and real-time electricity consumption information and equip them with tools to actively manage their energy use in a TOU environment
- To increase conservation and demand response awareness in the residential sector through improved education on the benefits of peak demand reduction, reduced energy consumption, TOU pricing and energy management tools
- This program has not been redesigned to address the business needs of business customers

OPA – CONTRACTED PROVINCE-WIDE CDM PROGRAMS

COMMERCIAL AND INSTITUTIONAL PROGRAMS

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

COMMERCIAL AND INSTITUTIONAL PROGRAM

Initiative Number: 11

Initiative Name: COMMERCIAL AND INSTITUTIONAL INITIATIVE

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Year round

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Description:

The C&I Initiative offers financial incentives to customers for the upgrade of existing equipment to energy efficient equipment. The program also promotes the inclusion of energy efficient measures in new buildings through the New Construction element included with this initiative.

This initiative builds on the success of the current Electricity Retrofit Incentive Program (ERIP) being offered to Commercial, Industrial, Institutional and Agricultural customers. Financial incentive payments of up to $400/kW or $0.05/kWh for lighting measures, $800/kW or $0.10/kWh for all other measures; to maximum of 50% of project costs are available to customers.

The direct install initiative, marketed as Power Savings Blitz (“PSB”) under this program is offered to small commercial customers with less than 50kW of average monthly demand. This initiative will offer turnkey lighting and electric hot water heater measures with a value up to $1,000 at no cost to qualifying small businesses. Small businesses are also able to take advantage of a turnkey cooling maintenance offering as well as ERIP incentives for measures not covered by the standard direct install initiative.

Background:

The Electricity Retrofit Incentive Program ("ERIP"), initially developed for the business markets, promoted energy efficiency measures such as lighting, HVAC, high efficiency motors and agri-business measures. The 2011-2014 initiative has been enhanced to include initiative elements such as energy audits and roving Energy Managers in order to increase customer participation.

The PSB program addresses many of the barriers small business owners have, such as lack of conservation knowledge and access to capital. An opportunity exists to assist in a market transformation by advancing the change from T12 to T8 fluorescent lighting.

Initiatives directed medium to large facilities will include design and delivery elements such as account management, and application administration support.

Initiatives directed at smaller facilities, on the other hand, will be based on prescriptive approaches to measures and incentives, typically featuring standardized application forms.

Specific initiative elements include:

Equipment Replacement (ERIP)

The ERIP initiative primarily focuses on equipment replacements. Equipment replacement projects have traditionally been categorized in ERIP as either Prescriptive or Custom. The Prescriptive approach utilizes a list of specific measures for which the incentive is prescribed. The Custom approach requires a more sophisticated, and in some cases complex, process to determine the potential for demand reductions or energy savings.

The Program will continue these two approaches, but will also include an Engineered approach.

- The Engineered approach will provide the customer with potential for additional incentives for the equipment to be installed and will provide a more straightforward process than the Custom approach, with simplified calculations of energy and demand savings. The incentives available under the Engineered approach are the same as for the Custom approach, but the actual amount would be based on data provided by the customer

Incentives for Engineered and Custom projects are:

- $400/kW or $0.05/kWh for lighting measures (whichever is higher) to a maximum of 50% of the project costs
- $800/kW or $0.10/kWh for non-lighting measures (whichever is higher) including lighting controls to a maximum of 50% of the project costs

Participant incentives for Prescriptive projects are as per the Prescriptive forms/worksheets which specify the dollar amount per unit installed, with no maximum amount payable for the project.

Direct Installed Lighting – Power Savings Blitz ("PSB")

The Direct Installed Lighting initiative targets customers in the General Service <50kW account category. Participation for the existing version of this initiative, the Power Savings Blitz, has been very high. In addition to offering eligible customers up to $1,000 in equipment upgrades at no charge, standard prescriptive incentives will now be available for eligible equipment beyond the initial $1,000 limit. There will also be a similar initiative for servicing of space cooling equipment, as described below.

Customers can participate in this initiative one of three ways:

1. Door-to-door approach: An LDC representative, Assessor or Lighting Contractor would visit potential participants and, where the customer is determined to be eligible for the component, the assessment would proceed directly or be scheduled. This is the approach commonly used for the Power Savings Blitz.
2. Self-selection approach: Through the new on-line registration system (iCon), by creating a user profile for this Program and choosing to apply for this initiative. Upon submission the application would be forwarded to the LDC that services the customer's business location as determined by postal code. The LDC would instruct a service provider (i.e., an Assessor or Lighting Contractor) to contact the customer to schedule an on-site assessment.
3. Referral approach: In connection with the Direct Serviced Space Cooling initiative, an LDC representative, Assessor, or HVAC Contractor may identify an opportunity for a customer to participate in the Direct Installed Lighting initiative. Should the customer desire to participate, the customer would proceed as per either the self-selection approach or the door-to-door approach.

Direct Serviced Space Cooling

The Direct Serviced Space Cooling initiative is available to customers with roof-top or ground-mounted air conditioning systems with a capacity of 25 tons or less. The initiative is intended to target the same customer base as the Direct Installed Lighting initiative, although in some cases customers in the General Service >50 kW account category will also be eligible. Basing the eligibility criteria on air conditioner size is intended to simplify the determination of possible participants by HVAC Contractors. This initiative provides for up to [redacted] of services and labour to service the customer's air-conditioning unit(s).

Customers participate in this initiative as per the Direct Installed Lighting initiative.

To be eligible, customers must confirm that they do not have an existing service agreement for the air-conditioning unit and that the unit was not serviced during the previous calendar year.

Existing Building Commissioning

Any customer in the General Service >50 kW or Large User account categories with single buildings/premises greater than 50,000 square feet in size and with chilled water plants will be eligible to participate in the Existing Building Commissioning initiative of the Program. The services that would qualify include (i) the development of a plan for commissioning activities, (ii) the procurement of devices and/or software associated with commissioning activities and (iii) third party services for building commissioning.

A building owner participates in this initiative by hiring a Commissioning Agent, who must provide two references from past projects OR be certified (by the Association of Energy Engineers, American Society of Heating, Refrigerating and Air Conditioning Engineers, or Building Commissioning Association).

New Construction – All Buildings and Customer Types

The New Construction initiative of the C&I Program will provide incentives for new buildings to exceed existing codes and standards for energy efficiency. Similar to the Equipment Replacement initiative, the New Construction initiative utilizes both Prescriptive and Custom approaches.

Participant incentives for Prescriptive projects are as per the Prescriptive forms/worksheets, which specify the kW and kWh assumption per unit installed, and determine the resulting incentive at a rate of $250/ kW. For new multi-family buildings, incentives for appliances are determined on a dollar amount per unit installed. Incentives for Custom will depend on the level of savings achieved, to a maximum of 50% of the project cost. In addition, there are incentives for building modeling to maximum of

[redacted] as well as incentives for Design Decision-Makers (e.g. designers, architects and engineers) that were involved in the building design.

Pre-Project Assessments

For this initiative, eligible participants will receive incentives to complete energy audits or studies of potential energy and demand savings from equipment replacement projects, operational practices and procedures, and participation in demand response initiatives. The incentives are intended to cover up to 50% of the cost of the energy audit, based on requirements commensurate with the size and complexity of the buildings. The energy audits must be completed by a professional engineer, a certified engineering technologist, an architect, or a Certified Energy Manager; customers can select their own Energy Auditor meeting these criteria.

Capability Building

The C&I Program will offer CDM market capability building activities for CDM service providers such as training and certification.

Purpose of the Initiative:

The objectives of the Program are to:

- Assist owners and operators of C&I buildings, farms, and multi-family residences achieve reduced demand and energy savings through the purchase and operation of energy efficient equipment
- Provide education to tenants and occupants, particularly with respect to multi-family buildings, regarding in-suite energy efficiency and demand response opportunities; and
- Facilitate a culture of conservation among these communities and the equipment supply chains that serve them.

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

COMMERCIAL PROGRAM

Initiative Number: 12

Initiative Name: **DEMAND RESPONSE 1 - COMMERCIAL**

Please note Initiative 12 and Initiative 14 describe the same program but have been outlined separately, as the program is offered to multiple sectors

Years(s) of Operation for the Initiative: Jan. 1, 2011 - Dec. 31, 2014

Initiative Frequency: Year Round

Target Customer Type(s): Industrial and Commercial customers of 50 kW or greater with interval meter

Initiative Description:

Demand Response 1 ("DR1") is a demand response initiative for industrial and commercial customers, of 50 kW or greater to reduce the amount of power being used during certain periods of the year. This initiative has a schedule of 1600 hours per year where activations of up to 100 hours may occur with no obligation on customers to participate. This initiative makes payments for actual load reduction only. There are no payments or setoffs associated with a participant deciding not to participate, or where a participant has indicated willingness to perform and then not followed through.

The initiative is managed by third party program administrators procured by the OPA or the LDCs. Marketing of the initiative and customer registration may be done by both Demand Response Providers and the LDC. The LDC will be responsible for promotion of the DR1 initiative and for registering customers. LDC's may see registering of DR1 customers as a means for growing potential customers for the Demand Response 3 ("DR3") Initiative. Once a potential customer has expressed interest in participation, the LDC will register the customer with the Third Party Initiative Operator by completing a

customer form containing the basic information about the customer, the contracted MW amount to which the customer believes has the ability to offer during any one activation, along with a confirmation by the LDC that the customer can provide such demand response capability.

Background:

The DR1 Initiative, a voluntary initiative, was launched in 2007 and grew to a peak capability of 417 MW. Its intent was to encourage participation by providing customer payments for reduction in the use of electricity relative to a baseline, whenever the 3-hour pre-dispatch market price, as published hourly by the IESO, exceeds a Floor Price agreed to by the OPA and initiative participant. The initiative participant was entitled to be paid the strike price for the MWh reduction for a minimum 3 hour period. With the advent of the DR3 Initiative, the DR1 Initiative underwent a change that sought to set initiative rates that better reflect its voluntary nature relative to the firm commitment required of DR3 Initiative participants. As such, a significant portion of DR1 participants have transitioned to either the Demand Response 2 ("DR2") (now discontinued) or DR3 Initiative.

Development of the DR1 and DR3 Initiatives was done in consultation with industry and through advice obtained from neighbouring markets. The demand response initiatives that will be the focus of the LDC customer base will be DR1 and DR3. While these initiatives were reviewed for potential changes, these initiative designs and potential changes were stakeholdered in April 2010. In addition, an Industrial Program Change Management Committee has been established to manage change to the DR initiatives in an organised and ongoing manner.

Initiative Elements:

The DR1 Initiative is delivered by Demand Response Providers, under contract to the OPA. The OPA administers contracts with all Demand Response Providers and Direct Participants that provide in excess of 5MW of demand response capacity.

- OPA to provide administration including settlement, measurement and verification and dispatch
- Awareness Education
- Marketing and promotion carried out by LDCs (Demand Response Providers may choose to co-promote with LDCs)
- Direct Selling and Promotional Materials to improve awareness

Purpose of the Initiative:

The objective of the DR1 Industrial Initiative is to achieve maximum cost effective peak demand reduction and energy savings, increase conservation awareness and contribute to the creation of a culture of conservation in Ontario.

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

COMMERCIAL PROGRAM

Initiative Number: 13

Initiative Name: **DEMAND RESPONSE 3 - COMMERCIAL**

Please note Initiative 13 and Initiative 15 describe the same program but have been outlined separately as the program is offered to multiple sectors

Years(s) of Operation for the Initiative: Jan. 1, 2011 to Dec. 31, 2014

Initiative Frequency: Year Round

Target Customer Type(s): Industrial and Commercial customers with a peak demand greater than 50 kW

Initiative Description

The Demand Response 3 ("DR3") initiative is open to commercial and industrial customers with a peak demand greater than 50 kW. In comparison to the Demand Response 1 ("DR1"), which is a voluntary initiative, the DR3 initiative is a contractual resource that provides significant financial benefits for participants, reliability and operational benefits for the electricity system, and financial benefits for all electricity customers as it is an economic alternative to procurement of new generation capacity.

The DR3 Initiative comes with specific contractual obligations requiring commercial and industrial participants to reduce their use of electricity relative to a baseline when called upon. This initiative makes payments for participants to be on standby and energy payments for the actual energy reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year.

The initiative is delivered by Demand Response Providers, under contract to the OPA or the LDCs. The LDCs will provide important marketing and customer outreach support in a collaborative approach with Demand Response Providers.

Background

The DR3 Initiative, introduced to Ontario in 2008, has produced a significant level of interest among both industrial and commercial loads. The initiative is delivered to market primarily through OPA contracts with Demand Response Providers. These providers, also known as "Aggregators", aggregate multiple customers willing to provide demand response. The initiative requires participants to make a firm commitment to provide demand response capability upon demand. Large participants who can provide greater than 5 MW of demand response capability have the option to contract directly with the OPA. Participants are asked to place themselves on standby 1,600 hours per year, of which they may be required to provide demand response for up to 100 or 200 hours each year. Each demand response call is for a four-hour period. While this initiative continues to grow, it remains flexible to change, in order to accommodate learning from the market.

Initiative Elements

Initiative is delivered by Demand Response Providers, under contract to the OPA. The OPA administers contracts with all Demand Response Providers and Direct Participants that provide in excess of 5 MW of demand response capacity.

- Marketing and promotional activities carried out by LDCs
- OPA to provide administration including procurement operational services such as settlement, measurement and verification and dispatch
- Direct Participants and Demand Response Providers receive a standby notice. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year

- Large participants who can provide greater than 5 MW of demand response capability have the option to contract directly with the OPA
- Participant to confirm within one hour when it is anticipated that they will underperform compared to their contractual commitment
- Participants must register a measurement and verification plan as part of their initial application for a contract and with every subsequent update to the overall project

Purpose of the Initiative

The purpose of the DR3 initiative is to provide significant financial benefits for participants, reliability and operational benefits for the electricity system and financial benefits for all electricity customers. Emphasis is to achieve maximum cost effective peak demand reduction and energy savings, increase conservation awareness and contribute to the creation of a culture of conservation in Ontario.

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAMS

INDUSTRIAL PROGRAMS

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

INDUSTRIAL PROGRAM

Initiative Number: 14

Initiative Name: **DEMAND RESPONSE 1 - INDUSTRIAL**

Please note Initiative 12 and Initiative 14 describe the same program but have been outlined separately as the program is offered to multiple sectors

Years(s) of Operation for the Initiative: Jan. 1, 2011 to Dec. 31, 2014

Initiative Frequency: Year Round

Target Customer Type(s): Industrial and Commercial customers of 50 kW or greater with interval meter

Initiative Description:

Demand Response 1 ("DR1") is a demand response initiative for industrial and commercial customers, of 50 kW or greater to reduce the amount of power being used during certain periods of the year. This initiative has a schedule of 1600 hours per year where activations of up to 100 hours may occur with no obligation on customers to participate. This initiative makes payments for actual load reduction only. There are no payments or setoffs associated with a participant deciding not to participate, or where a participant has indicated willingness to perform and then not followed through.

The initiative is managed by third party program administrators procured by the OPA or the LDCs. Marketing of the initiative and customer registration may be done by both Demand Response Providers and the LDC. The LDC will be responsible for promotion of the DR1 initiative and for registering customers. LDC's may see registering of DR1 customers as a means for growing potential customers for the Demand Response 3 ("DR3") Initiative. Once a potential customer has expressed interest in participation, the LDC will register the customer with the Third Party Initiative Operator by completing a

customer form containing the basic information about the customer, the contracted MW amount to which the customer believes has the ability to offer during any one activation, along with a confirmation by the LDC that the customer can provide such demand response capability.

Background:

The DR1 Initiative, a voluntary initiative, was launched in 2007 and grew to a peak capability of 417 MW. Its intent was to encourage participation by providing customer payments for reduction in the use of electricity relative to a baseline, whenever the 3-hour pre-dispatch market price, as published hourly by the IESO, exceeds a Floor Price agreed to by the OPA and initiative participant. The initiative participant was entitled to be paid the strike price for the MWh reduction for a minimum 3 hour period. With the advent of the DR3 Initiative, the DR1 Initiative underwent a change that sought to set initiative rates that better reflect its voluntary nature relative to the firm commitment required of DR3 Initiative participants. As such, a significant portion of DR1 participants have transitioned to either the DR2 (now discontinued) or DR3 Initiative.

Development of the DR1 and DR3 Initiatives was done in consultation with industry and through advice obtained from neighbouring markets. The demand response initiatives that will be the focus of the LDC customer base will be DR1 and DR3. While these initiatives were reviewed for potential changes, these initiative designs and potential changes were stakeholdered in April 2010. This Business Case addresses all of the issues raised. In addition, an Industrial Program Change Management Committee has been established to manage change to the DR initiatives in an organised and ongoing manner.

Initiative Elements:

The DR1 Initiative is delivered by Demand Response Providers, under contract to the OPA. The OPA administers contracts with all Demand Response Providers and Direct Participants that provide in excess of 5MW of demand response capacity.

- OPA to provide administration including settlement, measurement and verification and dispatch.
- Awareness Education
- Marketing and promotion carried out by LDCs (Demand Response Providers may choose to co-promote with LDCs)
- Direct Selling and Promotional Materials to improve awareness

Purpose of the Initiative:

The objective of the DR1 Industrial Initiative is to achieve maximum cost effective peak demand reduction and energy savings, increase conservation awareness and contribute to the creation of a culture of conservation in Ontario.

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

INDUSTRIAL PROGRAM

Initiative Number: 15

Initiative Name: **DEMAND RESPONSE 3 - INDUSTRIAL**

Please note Initiative 13 and Initiative 15 describe the same program but have been outlined separately as the program is offered to multiple sectors

Years(s) of Operation for the Initiative: Jan. 1, 2011 to Dec. 31, 2014

Initiative Frequency: Year Round

Target Customer Type(s): Industrial and Commercial customers with a peak demand greater than 50 kW.

Initiative Description

The DR3 initiative is open to commercial and industrial customers with a peak demand greater than 50 kW. In comparison to the DR1, which is a voluntary initiative, the DR3 initiative is a contractual resource that provides significant financial benefits for participants, reliability and operational benefits for the electricity system, and financial benefits for all electricity customers as it is an economic alternative to procurement of new generation capacity.

The DR3 Initiative comes with specific contractual obligations requiring commercial and industrial participants to reduce their use of electricity relative to a baseline when called upon. This initiative makes payments for participants to be on standby and energy payments for the actual energy reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year.

The initiative is delivered by Demand Response Providers, under contract to the OPA or the LDCs. The LDCs will provide important marketing and customer outreach support in a collaborative approach with Demand Response Providers.

Background

The DR3 Initiative, introduced to Ontario in 2008, has produced a significant level of interest among both industrial and commercial loads. The initiative is delivered to market primarily through OPA contracts with Demand Response Providers. These providers, also known as "Aggregators", aggregate multiple customers willing to provide demand response. The initiative requires participants to make a firm commitment to provide demand response capability upon demand. Large participants who can provide greater than 5 MW of demand response capability have the option to contract directly with the OPA. Participants are asked to place themselves on standby 1,600 hours per year, of which they may be required to provide demand response for up to 100 or 200 hours each year. Each demand response call is for a four-hour period. While this initiative continues to grow, it remains flexible to change, in order to accommodate learning's from the market.

Initiative Elements

Initiative is delivered by Demand Response Providers, under contract to the OPA. The OPA administers contracts with all Demand Response Providers and Direct Participants that provide in excess of 5 MW of demand response capacity.

- Marketing and promotional activities carried out by LDCs
- OPA to provide administration including procurement operational services such as settlement, measurement and verification and dispatch
- Direct Participants and Demand Response Providers receive a standby notice. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year

- Large participants who can provide greater than 5 MW of demand response capability have the option to contract directly with the OPA
- Participant to confirm within one hour when it is anticipated that they will under perform compared to their contractual commitment
- Participants must register a measurement and verification plan as part of their initial application for a contract and with every subsequent update to the overall project

Purpose of the Initiative

The purpose of the DR3 initiative is to provide significant financial benefits for participants, reliability and operational benefits for the electricity system and financial benefits for all electricity customers. Emphasis is to achieve maximum cost-effective peak demand reduction and energy savings, increase conservation awareness and contribute to the creation of a culture of conservation in Ontario.

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

INDUSTRIAL PROGRAM

Initiative Number: 16

Initiative Name: **THE INDUSTRIAL ACCELERATOR**

Years(s) of Operation for the Initiative: Jan. 1, 2011 to Dec. 31, 2014

Initiative Frequency: Year Round

Target Customer Type(s): Industrial Customers

Initiative Description

The Industrial Accelerator Initiative is an energy management initiative that includes both financial incentives for capital projects and enabling initiatives. It is open to industrial companies that are customers of an Ontario electricity LDC and are not insolvent.

This initiative offers industrial customers the opportunity to access capital incentives to assist with the implementation of system optimization projects. The incentives are available through the LDC. The initiative is open to distribution connected industrial and commercial customers with projects or portfolio projects that are expected to generate at least 350 MWh of annualized electricity savings or, in the case of Micro-Projects, 100 MWh of annualized electricity savings.

The capital incentive for this initiative is up to $200/MWh for eligible costs with a cap of 70% of projects costs or a one year pay back. This level is based on an analysis of typical capital costs for large system optimizations and the propensity for industry to pursue projects with a one year simple payback.

This initiative will be delivered by the LDCs with technical support provided by a centrally procured technical resource.

Background

Ontario has not had a fully functioning energy management initiative for industrial customers, other than the ability to receive incentives for high efficiency motors and efficiency lighting under the ERIP Initiative. To build on this gap and address the needs of the larger industrial businesses, the Industrial Accelerator Initiative, will be delivered by the OPA to large transmission connected industrial loads. To support this initiative, the OPA has hired a number of account managers to proactively pursue energy management opportunities within the industrial segment. Development of long term relationships with industrial customers is considered necessary to ensure a sustainable momentum in moving projects forward considering the long timelines normally associated with project approvals, not to mention that energy efficiency initiatives must compete against production related initiatives for capital dollars.

Initiative Elements:

- This initiative is up to $200/MWh for eligible costs with a cap of 70% of projects costs or a one year pay back.
- Funding for Pre-Feasibility and Feasibility Studies
- Funding for Energy Managers (Industrial Employed Energy Managers and Roving Energy Managers)
- Funding for Monitoring & Targeting systems
- Meter lending library
- End Use Training
- Energy Manager Training
- Employee Awareness & Senior Management Leadership
- LDC Key Account Managers

Purpose of the Initiative

1. Implementing system optimization projects in systems which are intrinsically complex and capital intensive
2. Increasing the capability of companies to implement energy management and system optimization projects
3. Increasing the capability of technical, financial and other consultants and the supply chain to deliver energy efficiency and energy management services in Ontario

OPA-CONTRACTED PROVINCE-WIDE CDM PROGRAM

INDUSTRIAL PROGRAM

Initiative Number: 17

Initiative Name: **ELECTRICITY RETROFIT INCENTIVE PROGRAM – INDUSTRIAL ERIP**

Years(s) of Operation for the Initiative: Jan. 1, 2011 to Dec. 31, 2014

Initiative Frequency: Year Round

Target Customer Type(s): Industrial,

Initiative Description:

The industrial initiative is designed to offer financial incentives to customers for upgrades of existing equipment to energy efficient equipment. The program also promotes the inclusion of energy efficient measures in new buildings through the New Construction element included with this initiative.

The equipment replacement initiative (ERIP) is offered to industrial facilities, however, given the Industrial Accelerator (IA) program is best suited to evaluate complex industrial energy efficiency applications, industrial projects with an annual savings exceeding 100MWh per year must apply to the Industrial Accelerator Program. ERIP custom applications that exceed the 100MWh limit will be referred to the IA program, unless approval is received from the LDC to proceed under ERIP.

Background:

The Electricity Retrofit Incentive Program (ERIP), initially developed for the business markets, contained energy efficiency measures for lighting and high efficiency motors. The initiative has been enhanced to include initiative elements such as feasibility studies and roving Energy Managers to maximize energy savings potential.

Initiative Elements:

Initiatives directed medium to large facilities will include design and delivery elements such as account management, and application administration support.

Initiatives directed at smaller facilities, on the other hand, will be based on prescriptive approaches to measures and incentives, typically featuring standardized application forms.

Equipment Replacement (ERIP)

The ERIP initiative primarily focuses on equipment replacement. Equipment replacement projects have traditionally been categorized in ERIP and other similar programs as either Prescriptive or Custom. The Prescriptive approach utilizes a list of specific measures for which the incentive is prescribed. The Custom approach requires a more sophisticated, and in some cases complex, process to determine the potential for demand reductions or energy savings. The Program will continue these two approaches, but will also include an Engineered approach.

- The Engineered approach will provide the customer with potential for additional incentives for the equipment to be installed and will provide a more straight-forward process than the Custom approach, with simplified calculations of energy and demand savings. The incentives available under the Engineered approach are the same as for the Custom approach, but the actual amount would be based on data provided by the customer.

Incentives for Engineered and Custom projects are:

- $400/kW or $0.05/kWh for lighting measures (whichever is higher) to a maximum of 50% of the project costs
- $800/kW or $0.10/kWh for non-lighting measures (whichever is higher) including lighting controls to a maximum of 50% of the project costs

Participant incentives for Prescriptive projects are as per the Prescriptive forms/worksheets which specify the dollar amount per unit installed, with no maximum amount payable for the project.

New Construction – All Buildings and Customer Types

The New Construction initiative of the Industrial Program will provide incentives for new buildings to exceed existing codes and standards for energy efficiency. Similar to the Equipment Replacement initiative, the New Construction initiative utilizes both Prescriptive and Custom approaches.

Participant incentives for Prescriptive projects are as per the Prescriptive forms/worksheets, which specify the kW and KWh assumption per unit installed, and determine the resulting incentive at a rate of $250/ kW. Incentives for Custom will depend on the level of savings achieved, to a maximum of 50% of the project cost. In addition, there are incentives for building modeling to maximum of [redacted] as well as incentives for Design Decision-Makers (e.g. designers, architects and engineers) that were involved in the building design.

A building owner participates in this initiative by hiring a Commissioning Agent, who must provide two references from past projects OR be certified (by the Association of Energy Engineers, American Society of Heating, Refrigerating and Air-Conditioning Engineers, or Building Commissioning Association).

Capability Building

The C&I Program will offer CDM market capability building activities for CDM service providers such as training and certification.

Purpose of the Initiative:

The objectives of the Program are to:

- Assist owners and operators of Industrial buildings, achieve reduced demand and energy savings through the purchase and operation of energy efficient equipment.
- Facilitate a culture of conservation among these communities and the equipment supply chains that serve them.

HYDRO ONE PROPOSED BOARD-APPROVED CDM PROGRAMS

Residential Programs

1. Community Education
2. Neighbourhood Benchmarking

Commercial and Industrial Programs

3. Monitoring and Targeting
4. Small Commercial Energy Management and Load Control
5. Municipal and Hospital Energy Efficiency Performance
6. Double Return Plus

PROPOSED BOARD-APPROVED CDM PROGRAMS

RESIDENTIAL PROGRAMS

BOARD-APPROVED CDM PROGRAMS

RESIDENTIAL PROGRAM

Initiative Number: 1

Initiative Name: Community Education

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Year-Round Initiative

Target Customer Type(s): Residential Customers

1. Initiative Description

This Initiative focuses on customer education and promotes the exchange of information between the utility and its consumers at local community events. Hydro One projects attendance at these local community events to reach approximately 150,000 people per year. The delivery of the Initiative will rely on a community events partner to help represent Hydro One at local community events throughout the Province.

2. Non-Duplicative Features of the Initiative

The OPA-Contracted programs do not provide an initiative similar to the Community Education Program. The Community Education program focuses on customer education and promotes the exchange of information between the utility and its customers at local community events. This program relies on face-to-face interactions with customers, which has proven to be successful in changing social norms and influencing customer behaviour of Hydro One customers. This program is especially needed to address customers who are living in “hard-to-reach”, low density, rural communities. While the OPA Consumer Enabling Initiative features an online education component, we believe it is not an effective method for educating all of Hydro One’s customers since there is a very sizable segment of Hydro One’s customers (almost 50%) who do not have high-speed internet access.

3. Background

Hydro One is committed to promoting a culture of conservation in Ontario. Hydro One plays an active role as "Leaders in the Community" and participates in a variety of annual community events, which provide the Company the opportunity to educate residential customers about the importance of conservation and provide them with the tools they need to help them save energy.

Hydro One serves over 1.2 million customers, 1.1 million of which are residential customers. Our residential customers represent a mix of urban, rural and seasonal customers who live in over 350 communities scattered across the Province. Hydro One customer density is low: there are approximately 10 customers per km of distribution line or 2 customers per sq km of total service area. The geography is vast, as Hydro One's service territory stretches from Pelee Island in the southwest to Vankleek Hill in the east and Kenora in the northwest.

Promoting a culture of conservation to our customers using typical mass marketing techniques has proven to be both expensive and challenging. By attending local community events, we get an opportunity to engage in "face-to-face" discussions. These discussions allow us to educate consumers on the topic of conservation and promote our CDM programs. Previous experience has proven this approach to be an effective way to promote conservation and reach a deeper level of discussion with our customers (beyond the bill insert). Face-to-face engagement allows us to educate consumers, answer questions, remove barriers and drive participation for our other CDM programs.

4. Initiative Elements

Given the vast territory serviced by Hydro One and the number of relatively small communities that do not have easy access to the "Province-Wide" marketing and

communications campaigns, this Initiative will help us to educate our consumers and build awareness of conservation issues and drive participation in conservation initiatives.

Initiative elements are:

- Plan to participate in up to 40 – 50 community events each year across our extensive service territory (events will be selected based on various criteria, including anticipated attendance at each event, consideration of community coverage across Hydro One service territory, etc.)
- Educate consumers on the topic of conservation using various techniques (including brochures, videos, etc.)
- Actively promote and market our conservation programs
- Distribute energy efficient products which will encourage customers to "get started" with low-cost measures (e.g. plug-in timers, compact fluorescent lamps ("CFL"), power bars, etc.)
- Distribute conservation literature and tips on ways to save energy and save money
- Incorporate Time-of-Use messages and promote conservation actions that will help customers better manage their energy bill
- "Lead by Example" and act as champions of change in local communities

5. Purpose of the Initiative

- Customer education (on both Conservation and Time-of-Use)
- Build strong customer relationships that promote conservation culture
- Deliver face-to-face conservation messages to "low density" areas, where the overarching Province-wide marketing tactics are less effective and require additional reinforcement
- Drive participation for all conservation programs
- Remove barriers which have prevented customers from participating in conservation programs in the past

- Influence social norms in local communities – social change strategy to promote a culture of conservation
- Distribute low-cost energy efficient measures which provide energy savings results

6. Projected reduction in Peak Electricity Demand (MW)

Hydro One has used the OPA's Measures and Assumptions Lists to calculate the peak demand reduction for the 2011 to 2014 period. Coincident peak demand reduction by the end of 2014 is projected to be 0.15MW.

Total Peak Reduction (MW) 2011-2014					
	2011	**2012**	**2013**	**2014**	**Total Coincident Peak Demand Reduction by the end of 2014 (MW)**
Community Education Initiative (MW)	0.03	0.07	0.11	0.15	0.15

7. Projected Reduction in Electricity Consumption (MWh):

Hydro One has used the OPA's Measures and Assumptions Lists to calculate the energy consumption reduction for the 2011 to 2014 period. Projected energy consumption reduction by 2014 is projected to be 10,450MWh.

Total Energy Reduction (MWh) 2011-2014					
	2011	**2012**	**2013**	**2014**	**Total Energy Reduction Cumulative (2011-2014)**
Community Education Initiative (MWh)	870	2,030	3,200	4,350	10,450

8. Projected Budget

The total projected budget for the four year Initiative is approximately $1.3 million, inclusive of [redacted] energy efficient giveaways.

Community Education Initiative - Budget ($) 2011-2014					
	2011	2012	2013	2014	Total 2011-2014
Marginal costs					
Fixed costs					
Event Planning and Administration					
Post-Event Reporting (Events Evaluation)					
Total Fixed costs					
Allocable costs					
Fixed Costs					
Overhead					
Total Fixed Costs					
Total Program Costs					
Incentives (promotional giveaways)					
Total Budget*	**$ 337,500**	**$ 337,500**	**$ 337,500**	**$ 337,500**	**$ 1,350,000**

* Given the nature of the community Events initiatives i.e. educational program, the terms of the EM&V study will need to be determined.

9. Cost-Effectiveness Tests Results

- TRC: 1.7
- PAC: 1.6

10. Draft Evaluation plan

Hydro One will ensure that the Community Events Initiative will be evaluated in accordance with the OPA's EM&V Protocol for any custom measures not included in the OPA's Measures and Assumption List. A Draft Evaluation Plan is attached based on the most current version available on the OPA's website as of Oct. 15, 2010. The Initiative Final Evaluation plan will be prepared by an independent third party. The selection of the evaluation criteria and detailed elements of the Evaluation Plan will be determined by the independent third party. Measurement and verification of Initiative peak demand

savings (kW) and electricity savings (kWh) results will be conducted by a third party review contractor selected through an RFP process from the OPA's "Third Party Vendor of Record" list once the Initiative is approved.

The following is a DRAFT EVALUATION PLAN TEMPLATE:

COMMUNITY EVENTS INITIATIVE

OPA DRAFT EVALUATION PLAN TEMPLATE

Program Description	**Description (see section 1 & 4)** **Key Program Elements (see section 4)** **Goals and Objectives (see section 2 & 5)** **Program Theory (see section 3)** **Program Timing (Subject to funding approval from the Board)** Program Launch Date: January 1, 2011 All program elements are expected to be deliverable commencing immediately after the program launch date. Program end date: December 31, 2014 **Estimated Participation and Results (see sections 6, 7 & 9)** **Draft Budget (see Section 8)**
Conservation Measures	**Equipment-based Measures:** Assumptions for measures considered eligible under the Initiative that are included in the OPA's Measures and Assumptions List.
Evaluation Goals and Objectives	**Evaluation Goals and Objectives** • i) Process Design Effectiveness • ii) Program Administration Effectiveness • iii) Measures and Assumptions Review • iv) Establish gross and net energy savings and demand reductions achieved • v) Estimate Program Cost-Effectiveness • vi) Special Provisions

Evaluation Deliverables	**Evaluation Deliverables** • Final Program Evaluation Plan • Annual Report – elements • Final Report
Evaluation Description	The elements of the Evaluation Goals and Objectives are anticipated to include, without limitation, those listed in the corresponding sections below. It is expected that these elements will be reviewed, discussed, evaluated or analyzed as appropriate and according to the OPA's EM&V Protocols to ensure that they meet the Program Evaluation Goals and Objectives during the **Draft Evaluation Plan development phase**. Review of these elements will assist Hydro One in determining and/or validating the appropriateness of the program design, administration and measures assumption elements and whether adjustments are necessary to successfully deliver the Initiative and to achieve the anticipated Goals and Objectives and estimated participation and results.

1
2

Evaluation Elements	**i) Program Process Design Effectiveness - Evaluation criteria:** • Goals of program • Staffing and training • Program timing and timelines • Use of new procedures and best practices • Eligibility and participants – original assumptions vs. actual • Events implementation – results of program participation from event • Incentives and motivation for participation • Customer satisfaction feedback – participant satisfaction • Non participant feedback • Monitoring and tracking procedures • Roles and responsibilities of team members and stakeholders • Reporting procedures **ii) Program Administration Effectiveness - Evaluation Criteria:** • Program statistics – including participants, calculations of energy and demand reductions etc. • Program Impact Evaluation • Market Effects Assessment • Pre- and post-Project Analysis Assessment • Marketing Effectiveness Assessment

	• Expense Reporting • Market Participant review **iii) Measures and Performance Assumptions Review:** • Prescriptive Measures Assumptions Review • Custom Measures Assumptions Review • Behavioural and Performance Assumptions Review **iv) Gross and Net Energy Savings and Demand Reductions Achieved:** ****to be performed by a third party based on the OPA's EM&V protocols** • Measurement and verification of program energy and demand savings achieved • Net to Gross ratio (including free rider rate) • Audit and Verification of project completion **v) Program Cost Effectiveness:** • Verification of program expenditures • Verification of program funding and payments • Cost benefit Analysis – funding vs. program performance
Special Provisions	**Special Provisions:** N/A
Data Collection Responsibilities to Support Program Evaluation	**This area is still under development and will be completed with the assistance of a third party EM&V expert to ensure complete and appropriate collection of data to support Program evaluation.** • **List of Planned Events (Dates, Locations, Contacts, Nature of Event, Anticipated Attendance)** • **List of Completed Events (Dates, Locations, Contacts, Nature of Event & Actual Attendance Numbers)** • **List of Planned Giveaways (Descriptions & Anticipated Numbers)** • **List of Actual Giveaways Distributed (Descriptions & Final Numbers)**

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Evaluation Schedule & Budget

Evaluation Deliverable	Budget	Date
Draft Evaluation Plan	TBD	TBD
Final Evaluation Plan	TBD	TBD
Verification of Projects	TBD	TBD
Verification of Energy Reductions	TBD	TBD
Verification of Program Costs	TBD	TBD
Draft Final Evaluation Report	TBD	TBD
Final Evaluation report	TBD	TBD
Total Evaluation Budget	[redacted]	

Evaluation Team

Organization	Name	Title / Accountability
Hydro One	TBD	Program Manager
Hydro One	TBD	Senior Conservation Analyst
3rd party (Final Evaluation Plan Development)	TBD	TBD
3rd Party Measurement and Verification Contractor (selected from OPA "Third Party Vendor of Record" list	TBD	TBD

1

BOARD-APPROVED CDM PROGRAM

RESIDENTIAL PROGRAM

Initiative Number: 2

Initiative Name: Neighbourhood Benchmarking

Year(s) of Operation for the Initiative: 2011 to 2014

Initiative Frequency: Year round

Target Customer Type(s): Residential

1. Initiative Description:

Customers will receive a paper-based "Home Energy Report" that offers insights about their individual energy use as well as a comparison with their neighbourhood energy use. Hydro One plans to distribute reports to 50,000 of the highest use Residential customers (i.e. over 1,500 kWh per month), who will receive a paper-based report as well as password-protected, web access to the data. Hydro One will work with members of the Coalition of Large Distributors ("CLD") to issue a joint RFP to search for a third party supplier who can provide a turnkey solution to support this program.

2. Non Duplicative Features of the Initiative

Neighbourhood Benchmarking is non-duplicative from all OPA-Contracted Initiatives as it is the only program that addresses behavioural changes based on peer comparison and influence. This program provides customers with a customized Home Energy Report that offers insights about their individual energy use as well as a comparison with their neighbourhood energy use.

Neighbourhood Benchmarking has been proven successful in other jurisdictions, where pilots/programs have shown that significant savings can be achieved by benchmarking household energy usage and comparing it to the neighbours (i.e. peer group with similar attributes).

3. Background

This program is centred on a paper-based "Home Energy Report" which is mailed to consumers that offers insights about their individual energy use and offers a comparison with their neighbourhood energy use. The neighbourhood comparison data helps consumers understand "how they are doing" in comparison to their neighbours. The information motivates them to take action and reduce their household energy use.

The information shown on the report is customized to meet the needs of each individual household. In each case, customer load profile data collected from the smart meter will be used to help identify the areas of opportunity (i.e. to improve energy efficiency and promote conservation). The "Home Energy Report" will translate the individual energy usage patterns into meaningful insights coupled with targeted action steps. The report will offer energy recommendations that are specifically tailored to meet the needs of the customer.

This Initiative is organized around two concepts – motivating behaviour change and providing relevant, targeted information to the consumer. The Initiative is based on proven behavioural science which indicates that an effective way to motivate people is to provide peer context for their energy use. This is accomplished by dynamically creating a 100-home comparison group for each home that only compares homes with similar characteristics (square footage, heating type, billing cycle, geographic proximity, etc.). This behavioural science-driven model has proven results with over 20 U.S. utilities which indicate that people will take action to conserve energy when they are made aware of how their energy usage pattern compares with their neighbours (or peers). It is important to note that this Initiative is based on a similar social marketing concept which contributed to the success of our provincial recycling Initiative, i.e. Blue Box Program.

The software platform required to support this Initiative will incorporate these behavioural science techniques along with detailed statistical analysis and intelligent

customer segmentation modeling. The results of the Home Energy Reporting system will be measured using a proven scientific test and control group methodology. By using test and control groups, we will be able to isolate and cleanly evaluate the impact of the program. This test and control methodology has already been endorsed in the California Evaluators Protocols and the guidelines for the National Action Plan for Energy Efficiency, which was jointly produced by the US Department of Energy and the Environmental Protection Agency.

Hydro One plans to distribute the "Home Energy Reports" to approximately 50,000 high-use customers who will also be provided web access to their data. This same number of customers will be represented in both the "test" and "control" groups. This represents a conservative implementation approach which will allow us to monitor and manage customer feedback and mitigate any potential risks associated with a new program.

4. Initiative Elements

The key initiative elements are:

- Hydro One will work with members of the Coalition of Large Distributors ("CLD") to issue a joint RFP to search for a third party supplier who can provide a turnkey solution to support this program.
- A *Home Energy Report* (paper-based report card) is mailed to customers on a regular basis throughout the year (typically several days after bill mailing)
- The mailing schedule is predetermined and intended to serve as reminders to help influence behaviour change
- The information provided to the customer in the report card includes:
  - Comparison of current, individual usage to closest "neighbours" or "peers"
  - Comparison of current individual usage to the most "efficient neighbours"
  - Comparison of current individual usage to historical usage, i.e. "same time last year"

- Helpful information regarding "typical household energy use" broken down into categories – heating (or cooling), water heating, other appliances and electronics
- Recommendations and promotion of LDC conservation programs

- The specific, personalized insights provided allow customers to make informed decisions regarding their energy use and prompts them to take action and conserve energy
- The software platform should deliver messages to the customer supported by the following communication channels:
  - Comparative Home Energy Reports – mailed to customers several times a year, simple to understand, designed to reach and engage customers
  - Consumer Energy Web Portal – available to those customers who are receiving the Home Energy Report Card. Customers will receive password protected access to web-based info which will allow them to learn more about their energy use, share best practises and gain insight into efficiency tips
  - Call Centre Support – provided by LDC trained staff

5. Purpose of the Initiative

The objective is to provide customers with peer group information. This information is intended to motivate them to take action, conserve energy and encourage new behaviours. The Initiative has both a measurable energy efficiency component as well as a customer education component.

At a higher level, the purpose of this Initiative is to:

- achieve measurable energy conservation results (kW & kWh savings)
- support market transformation by encouraging behaviour change
- educate residential customers about the benefits conservation and provide helpful household energy saving tips
- promote participation in provincial conservation programs

6. Projected Reduction in Peak Electricity Demand (MW):

Hydro One projects the coincident peak demand reduction by the end of 2014 to be 2MW.

Total Peak Reduction (MW) 2011-2014					
	2011	**2012**	**2013**	**2014**	**Total Coincident Peak Demand Reduction by the end of 2014 (MW)**
Neighbourhood benchmarking (MW)	0.6	1.9	1.9	1.9	1.9

7. Projected Reduction in Electricity Consumption (MWh)

Projected cumulative energy consumption reduction for the years 2011-2014 is projected to be 60,825 MWh.

Total Energy Reduction (MWh) 2011-2014					
	2011	**2012**	**2013**	**2014**	**Total Energy Reduction Cumulative (2011-2014)**
Neighbourhood benchmarking (MWh)	5,700	18,375	18,375	18,375	60,825

8. Projected Budget

The estimated total Initiative cost is approximately $3.2 million, which includes administrative costs, marketing costs, and behind the meter services.

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Social Benchmarking - Initiative Budget ($) 2011-2014					
	2011	2012	2013	2014	Total 2011-2014
Marginal costs					
Fixed costs					
Administrative costs					
Setup and data management					
Home emergy reports and Web					
Advanced Features					
Data Transfers					
EM&V					
Total Fixed costs					
Allocable costs					
Fixed Costs					
Overhead					
Total Fixed Costs					
Total Program Costs					
Incentives					
Total Budget	**$ 840,000**	**$ 770,000**	**$ 770,000**	**$ 770,000**	**$ 3,150,000**

9. Cost-Effectiveness Tests Results:

- TRC: 1.2
- PAC: 1.2

10. Draft Evaluation Plan:

Hydro One will ensure that the Neighbourhood Benchmarking Initiative will be evaluated in accordance with the OPA's EM&V Protocol for any custom measures not included in the OPA's Measures and Assumption List. A Draft Evaluation Plan is attached based on the most current version available on the OPA's website as of Oct. 15, 2010. The Initiative Final Evaluation Plan will be prepared by an independent third party. The selection of the evaluation criteria and detailed elements of the Evaluation Plan will be determined by the independent third party. Measurement and verification of Initiative peak demand savings (kW) and electricity savings (kWh) results will be conducted by a

third party review contractor selected through an RFP process from the OPA's "Third Party Vendor of Record" list once the Initiative is approved.

The following is a DRAFT EVALUATION PLAN TEMPLATE:

NEIGHBOURHOOD BENCHMARKING INITIATIVE

OPA DRAFT EVALUATION PLAN TEMPLATE

Program Description	**Description (see section 1)** **Key Program Elements (see section 4)** **Goals and Objectives (see sections 5, 6 and 7)** **Program Theory (see section 3)** **Program Timing (subject to funding approval from the Board)** Program Launch Date: July 1, 2011 All program elements are expected to be deliverable commencing immediately after the program launch date. Program end date: December 31, 2014 **Estimated Participation and Results (see sections 4, 6, 7 & 9)** **Draft Budget (see Section 8)**
Conservation Measures	*Equipment-based Measures:* N/A *Non-Equipment-based Measures may include:* • Behavioural Change
Evaluation Goals and Objectives	**Evaluation Goals and Objectives** • i) Process Design Effectiveness • ii) Program Administration Effectiveness • iii) Establish gross and net energy savings and demand reductions achieved • iv) Estimate Program Cost-Effectiveness

	• v) Special Provisions
Evaluation Deliverables	**Evaluation Deliverables** • Final Program Evaluation Plan • Annual Report – elements • Final Report
Evaluation Description	The evaluation elements of the Evaluation Goals and Objectives are anticipated to include (but are not limited to) those listed in the corresponding sections below. It is expected that these elements will be reviewed, discussed, evaluated or analyzed as appropriate and according to the OPA's EM&V Protocols to ensure that they meet the Program Evaluation Goals and Objectives during the **Draft Evaluation Plan development phase**. Review of these elements will assist Hydro One in determining and/or validating the appropriateness of the program design, administration and measures assumption elements and whether adjustments are necessary in order to successfully deliver the Initiative and to achieve the anticipated Goals and Objectives and estimated participation and results.

1

Evaluation Elements	**i) Program Process Design Effectiveness - Evaluation criteria:** • Goals of program • Program timing and timelines • Use of new procedures and best practices • original assumptions vs. actual • Customer satisfaction feedback – participant satisfaction • Non participant feedback • Monitoring and tracking procedures • Roles and responsibilities of team members and stakeholders • Reporting procedures **ii) Program Administration Effectiveness - Evaluation Criteria:** • Program statistics – including participants, calculations of energy and demand reductions etc. • Marketing Effectiveness Assessment • Budget versus Actual Reporting • Market Participant review

	iii) Measures and Performance Assumptions Review: • Behavioural and Performance Assumptions Review **iv) Gross and Net Energy Savings and Demand Reductions Achieved:** ****to be performed by a third party based on the OPA's EM&V protocols** • Measurement and verification of program energy and demand savings achieved • Net to Gross ratio (including free rider rate) • Audit and Verification as required by Code **v) Program Cost Effectiveness:** • Verification of program expenditures versus budget
Special Provisions	**Special Provisions:** N/A
Data Collection Responsibilities to Support Program Evaluation	**This area is still under development and will be completed with the assistance of a third party EM&V expert to ensure complete and appropriate collection of data to support Program evaluation.** **Data collection on the following elements may be included:** • **Historical energy data related to TEST GROUP & CONTROL GROUP (to support Baseline)** • **Total Number of Reports Sent to Customer** • **Total Number of Recommended Measures** • **Measured Impacts on Demand & Energy Consumption**

Evaluation Schedule & Budget

Evaluation Deliverable	Budget	Date
Draft Evaluation Plan	TBD	TBD
Final Evaluation Plan	TBD	TBD
Verification of Projects	TBD	TBD
Verification of Energy Reductions	TBD	TBD
Verification of Program Costs	TBD	TBD
Draft Final Evaluation Report	TBD	TBD
Final Evaluation report	TBD	TBD
Total Evaluation Budget	[redacted]	

Evaluation Team

Organization	Name	Title / Accountability
Hydro One	TBD	Program Manager
Hydro One	TBD	Senior Conservation Analyst
3rd party (Final Evaluation Plan Development)	TBD	TBD
3rd Party Measurement and Verification Contractor (selected from OPA "Third Party Vendor of Record" list	TBD	TBD

PROPOSED BOARD-APPROVED CDM PROGRAMS

COMMERCIAL AND INDUSTRIAL PROGRAMS

BOARD-APPROVED CDM PROGRAM

COMMERCIAL PROGRAM

Initiative Number: 3

Initiative Name: Monitoring and Targeting Initiative

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Year round

Target Customer Type(s): Medium and large commercial businesses with average demand above 200 kW; industrial customers with average demand over 200 kW and annual energy consumption of up to 15 GWh.

1. Initiative Description

The proposed Monitoring & Targeting ("M&T") Initiative is offered to industrial customers with annual energy consumption of up to 15GWh and to commercial businesses with average demand above 200kW. Potential participants will be offered financial incentive to install a monitoring and targeting system that assesses the energy use against key performance indicators such as productivity. M&T will assist these customers to better understand their energy performance. It will also give the participants an opportunity to benchmark their consumption against best practices by other similar businesses. The Initiative is intended to enable customers to achieve sustainable behavioural and continuous improvements. The Initiative will be offered between 2011 and 2014. By the end of the fourth year Hydro One expects to enrol about 2% of the target market in the M&T Initiative (between 35 and 40 commercial and industrial customers) and achieve approximately 5MW in peak demand reduction and over 10GWh in energy savings.

This Initiative offers financial incentives toward an M&T system up to a maximum of [redacted] per M&T installation as well as performance incentives up to [redacted] for

achieved energy savings. In addition, the participants will receive a full range of behind-the-meter services to assist customers to implement energy efficiency improvements.

The Initiative delivery will be carried out by various third party vendors, although Hydro One will be the primary point of contact for participants and interested customers. M&T system providers as well as energy managers will also play a key role in the delivery of the Initiative by providing ongoing assistance to customers throughout the project cycles.

2. Non Duplicative Features of the Initiative

The distinct elements of the Initiative are:

- Based on the OPA's Industrial Accelerator ("IA") participation rules, only 300 industrial customers out of 1,900 Hydro One C&I customers with annual energy consumption over 15 GWh would qualify to receive an M&T system. The proposed Initiative is intended to address the needs of the remaining 1,600 customers with less than 15 GWh of annual consumption.
- In the OPA's IA Initiative, M&T is offered merely as an enabler to assist with capital projects. The proposed M&T Initiative, by contrast, is a comprehensive, all-encompassing Initiative that will assist participants to undertake M&T as the main project and not merely as an enabler.
- This Initiative will also provide a full range of behind-the meter services (e.g. customized website with specific customer consumption information, on-site visits and M&T workshops), not offered in the OPA-contracted Initiatives.

3. Initiative Elements

The key Initiative offerings include:

M&T system funding: the proposed Initiative offers financial assistance of [redacted] per expected kW savings, up to a maximum of [redacted] towards the purchase of an M&T

system. Customers that agree to install an M&T system will be required to commit contractually to a minimum term of four years.

Performance Incentives: this Initiative offers the participants a performance incentive of [redacted] based on four year annualized verified energy savings, which will be paid out in annual instalments.

Behind-the-meter services: this Initiative will offer ongoing technical services, including:

- customized online information
- expert site visits
- project management assistance
- employee engagement kits
- M&T workshops

Additional Initiative offerings include:

Operational and process driven improvements: the proposed Initiative will help customers understand the impact of operational and process improvements to achieve energy savings and help identify low-cost or no-cost opportunities.

Educational component: the proposed Initiative will provide training sessions and workshops to educate customers on energy efficiency drivers and their energy usage.

Buy-in from senior management: The Initiative will ensure that customer's senior management fully support the M&T project to establish it as a continuous improvement process.

4. Purpose of the Initiative

The M&T Initiative will offer the key elements required to assist the medium-to-large C&I sectors in the successful pursuit of continuous and deeper energy savings beyond the traditional C/I CDM programs that focus only on technology or equipment replacement.

5. Projected Reduction in Peak Provincial Electricity Demand (MW):

Projected coincident peak demand reduction by end of 2014 is 4.8MW.

Total Peak Reduction (MW) 2011-2014					
	2011	**2012**	**2013**	**2014**	**Total Coincident Peak Demand Reduction by end of 2014 (MW)**
M&T Peak Demand reduction (MW)	-	1.6	3.2	4.8	4.8

*Peak demand savings are expected to be achieved from 2012 onward because of the nature of the Initiative and business cycle

6. Projected Reduction in Electricity Consumption (MWh):

Projected energy consumption reduction by 2014 is estimated at 10,450MWh.

Total Energy Conservation Reduction (MWh) 2011-2014					
	2011*	**2012**	**2013**	**2014**	**Total Energy Reduction Cumulative (2011-2014)**
M&T Energy Consumption reduction (MWh)	-	1,750	3,500	5,200	10,450

**Peak demand savings are expected to be achieved from 2012 onward because of the nature of the Initiative and business cycle

7. Projected budget

The total cost of the Initiative will be approximately $4.3 million, inclusive of over [redacted] in financial incentives to customers as well as [redacted] in financial incentives towards the M&T system

Monitoring & Targeting (M&T) - Budget ($) 2011- 2014

Pogram costs	2011	2012	2013	2014	Total 2011-2014
Marginal costs					
Fixed					
Administrative costs					
Marketing & Site visits					
EM&V					
Total Fixed					
Variable					
M&T System*					
Total variable					
Total Marginal costs					
Allocable costs					
Fixed Allocable					
Variable Allocable					
Total Allocable costs					
Total Program Cost					
Performance Incentives 5 cents per kWh					
Total Program Budget	**$ 1,106,000**	**$ 1,286,000**	**$ 1,286,000**	**$ 572,000**	**$ 4,250,000**

*Note: Incentive towards the M&T system (up to [redacted] per applicant) will be provided for the first three years, to ensure that there is enough time to identify and achieve energy savings opportunities. Average incentive per participant is assumed to be approx. [redacted]

Note: The total budget shown above is projected to be allocated between commercial and industrial participants on a 40/60 basis, respectively.

8. Cost Effectiveness Tests Results:

- TRC: 1.6

- PAC: 1.5

9. Draft Evaluation Plan:

Hydro One will ensure that the Monitoring and Targeting Initiative will be evaluated in accordance with the OPA's EM&V for any custom measures not included in the OPA's Measures and Assumption List. A Draft Evaluation Plan is attached based on the most current version available on the OPA's website as of Oct. 15, 2010. The Initiative Final Evaluation Plan will be prepared by an independent third party. The selection of the evaluation criteria and detailed elements of the Evaluation Plan will be determined by the independent third party. Measurement and verification of Initiative peak demand savings (kW) and electricity savings (kWh) results will be conducted by a third party review contractor selected through an RFP process from the OPA's "Third Party Vendor of Record" list once the Initiative is approved.

The following is a DRAFT EVALUATION PLAN TEMPLATE:

MONITORING AND TARGETING INITIATIVE

OPA DRAFT EVALUATION PLAN TEMPLATE

Program Description	**Description: See Section 1** **Key Program Elements: See Sections 2 and 3** **Goals and Objectives: See Section 4** **Program Theory: See Sections 1 and 2** **Program Timing (Subject to funding approval from the Board)** Program Launch Date: January 1, 2011 Program End Date: December 31, 2014 **Estimated Participation and Results: See Sections 1,5 and 6** **Draft Budget: See Section 7**
Conservation Measures	Non-Equipment-based measures may include: • Process driven changes Equipment-based measures include: N/A
Evaluation Goals and Objectives	**Evaluation Goals and Objectives** • i) Process Design Effectiveness • ii) Program Administration Effectiveness • iii) Measures and Assumptions Review • iv) Establish gross and net energy savings and demand reductions achieved • v) Estimate Program Cost-Effectiveness • vi) Ensure Level of Customer Satisfaction

Evaluation Deliverables	**Evaluation Deliverables** • Draft Evaluation Plan • Final Program Evaluation Plan • Annual Report – Elements • Final Report
Evaluation Description	The evaluation elements of the Evaluation Goals and Objectives are anticipated to include, without limitation, those listed in the corresponding sections below. It is expected that these elements will be reviewed, discussed, evaluated or analyzed as appropriate and according to the OPA's EM&V Protocols to ensure that they meet the Program Evaluation Goals and Objectives during the **Draft Evaluation Plan development phase**. Review of these elements will assist Hydro One in determining and/or validating the appropriateness of the program design, administration and measures assumption elements and whether adjustments are necessary in order to successfully deliver the Initiative and to achieve the anticipated goals and objectives and estimated participation and results.

1

Evaluation Elements	**i) Program Process Design Effectiveness - Evaluation criteria:** • Goals of program • Staffing and training • Program timing and timelines • Incentives and motivation for participation • Participant satisfaction feedback • Non participant feedback back – participant satisfaction • Monitoring and tracking procedures • Reporting procedures **ii) Program Administration Effectiveness - Evaluation Criteria:** • Program statistics – including participants, calculations of energy and demand reductions etc. • Program Impact Evaluation • Pre- and post-Project Analysis Assessment • Marketing Effectiveness Assessment • Actual versus Budget Reporting • Market Participant review **iii) Measures and Performance Assumptions Review:** • Custom Measures Assumptions Review • Behavioural and Performance Assumptions Review

	iv) Gross and Net Energy Savings and Demand Reductions Achieved: ****to be performed by a third party based on the OPA's EM&V protocols** • Measurement and verification of program energy and demand savings achieved • Net to Gross ratio (including free rider rate) • Audit and Verification of project completion **v) Program Cost Effectiveness:** • Verification of program expenditures versus budget • Verification of incurred payments
Special Provisions	**N/A**
Data Collection Responsibilities to Support Program Evaluation	**This area is still under development and will be completed with the assistance of a third party EM&V expert to ensure complete and appropriate collection of data to support Program evaluation.** Data collection and evaluation activities anticipated to support the evaluation of the Initiative may include the following: • Historical account consumption data • Number of participants • Program Costs • Program incentives • Customer site attributes • Program delivery metrics • Interviews with Initiative designers, delivery agents, administrators • Interviews with market allies and market channel reps • Interviews with participants and non-participants • M&T system costs (supported by invoices)

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Evaluation Schedule & Budget

Evaluation Deliverable	Budget	Date
Draft Evaluation Plan	TBD	TBD
Final Evaluation Plan	TBD	TBD
Verification of Projects	TBD	TBD
Verification of Energy Reductions	TBD	TBD
Verification of Program Costs	TBD	TBD
Draft Final Evaluation Report	TBD	TBD
Final Evaluation report	TBD	TBD
Total Evaluation Budget	[redacted]	

Evaluation Team

Organization	Name	Title / Accountability
Hydro One	TBD	Program Manager
Hydro One	TBD	Senior Conservation Analyst
3rd party (Final Evaluation Plan Development)	TBD	TBD
3rd Party Measurement and Verification Contractor (selected from OPA "Third Party Vendor of Record" list	TBD	TBD

1

BOARD-APPROVED CDM PROGRAM

COMMERCIAL PROGRAM

Initiative Number: 4

Initiative Name: Small Commercial Energy Management and Load Control

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Year round

Target Customer Type(s): Small- and medium-size General Service customers with average monthly peak demand of up to 200kW

1. Initiative Description:

This is an Energy Management and Demand Response Initiative that aims at helping approximately 85,000 small- and medium-size General Service customers with average monthly peak demand of up to 200kW to reduce their energy consumption by 20GWh and peak system demand by 20MW over the term of the Initiative. Hydro One expects to enrol approximately 5,500 customers by the end of 2014.

The program will offer an Energy Management System as well as load control devices (e.g., switches) for end-use control. The Energy Management System ("EMS") included in this Initiative will assist in initiating load control events as well as help customers to achieve energy savings.

This Initiative will be delivered through a third-party vendor selected through a competitive bidding process. The implementation vendor will be responsible for marketing, installing and maintaining all equipment, and tracking and reporting results. Hydro One staff will coordinate the Initiative deployment and provide assistance to the vendors, as needed, while ensuring that the program delivery milestones, targets and timelines are met.

Hydro One will issue an RFP to select a viable demand response system with the required energy management functions for the participating customers to use. The selected EMS system will meet the functional and technical requirements of both Hydro One and the program participants. Rigorous system acceptance testing will be performed on the selected system based on well-defined test conditions to ensure the suitability of the system for program deployment.

2. Non-Duplicative Features of the Initiative

The distinct elements of the Initiative are:

- The proposed Initiative is solely designed to meet the needs of small commercial customers with up to 200kW load. This Initiative stands in contrast to the OPA-contracted Residential Demand Response Initiative which is primarily intended to meet the needs of residential customers. Although the OPA Initiative has been offered to small commercial customers (under 50kW load), over the last three years the participation rate has remained very limited (less than 1%) and OPA projected uptake to 2014 remains at less than 1%.
- Another distinct feature of the proposed Initiative is the targeting of a broader commercial customer group compared to the OPA Residential Demand Response Initiative. The proposed Initiative is offered to customers below 50kW and is extended to customers with peak load greater than 50kW and up to 200kW.
- The proposed Initiative is distinct from the OPA Residential Demand Response Program as it provides customers with an EMS system that can assist them to take full advantage of TOU rates. Unlike the OPA Residential Demand Response, the proposed Initiative covers the monthly fee required to allow the customers to have access to the full use of the EMS system that is installed in their premises. As a result, the system is used for both demand response and the customers' energy efficiency/TOU purposes.

- One of the distinct features of this program is the offering of technical assistance to the participants on an ongoing basis. At the point of installation, customers will receive training from the EMS installers for programming the EMS system to save energy and take advantage of TOU rates. The program will also provide online technical support to customers throughout the year.

3. Initiative Elements

The key Initiative offerings include:

- The program offers an installed Energy Management system and end-use load control devices, such as a switch. The value of this offering including installation cost is estimated at approximately [redacted] which will be fully funded by Hydro One. This system will provide small commercial establishments with a programmable energy management tool to monitor and control their energy use to save energy and reduce their peak demand. This system will also be used by Hydro One to initiate and execute load control events.
- To allow the customer to exploit the full potential of the EMS system Hydro One will cover the monthly EMS access fee on behalf of the customer - valued at [redacted] over four years.
- Participants in the load control events will receive a $10 incentive per event up to 15 events in a year to an annual total of $150.
- At the point of installation customers will receive training from the EMS installers for programming the EMS system to save energy and take advantage of TOU rates. The program will also provide online technical support to assist the customers to program the EMS system.

4. Background

While general service customers under 50kW are eligible to participate in the *PeakSaver* Program, so far less than one percent of this customer group has participated in the program. This is primarily due to the fact that the *PeakSaver* Program is designed to

respond to the needs of residential customers. This is the foundation of the need for the proposed Initiative – i.e. to specifically address the needs of the small commercial customers by helping them to better manage their energy usage and to take advantage of the upcoming TOU rates.

5. Purpose of the Initiative

The purpose of this Initiative is two fold:

1. Provide Customer Benefits: provide business customers with an Energy Management System ("EMS") that would help them monitor and control their energy consumption and/or bills in a time-of-use ("TOU") environment. This will help customers manage their energy consumption and change their behaviour in a sustainable manner.
2. Provide System Benefits: enable the utility to install a load control device in customers' businesses which, when activated, will reduce system peak load and increase the reliability of the electricity grid.

6. Projected Reduction in Peak Provincial Electricity Demand (MW):

Projected coincident peak demand reduction by the end of 2014 is 20MW.

Total Peak Reduction (MW) 2011-2014					
	2011	**2012**	**2013**	**2014**	**Total coincident peak demand reduction by end of 2014 (MW)**
Small Commercial Energy Management System & Load Control (MW)	2.8	8.4	14.2	20.0	**20.0**

7. Projected Reduction in Electricity Consumption (MWh):

Projected energy consumption reduction by 2014 is estimated at approximately 20,000MWh.

Total Energy Consumption Reduction (MWh) 2011-2014					
	2011	**2012**	**2013**	**2014**	**Total Cumulative (2011-2014)**
Small Commercial Energy Management System & Load Control (MWh)	1,200	3,750	6,250	8,950	**20,150**

8. Projected Budget

The total projected budget for this Initiative is $15.2 million, inclusive of [redacted] in customer incentives

Program Budget Small Commercial Demand Response ($) 2011-2014					
	2011*	2012	2013	2014	Total 2011-2014
Marginal costs					
Fixed costs					
Administrative costs					
Marketing					
Turn-key vendor					
EM&V					
Total Fixed Costs					
Variable Costs					
Turn-Key Vendor (Load Control + EMS installation)					
Total Variable Costs					
Allocable costs					
Fixed Overhead					
Variable Overhead					
Total Program Costs					
Incentives					
Total Budget	**$ 1,959,500**	**$ 3,953,500**	**$ 4,412,500**	**$ 4,874,500**	**$ 15,200,000**

* Initiative deployment is expected to commence July 2011

9. Cost Effectiveness Tests Results

- TRC: 1.7
- PAC: 1.9

10. Draft Evaluation Plan:

Hydro One will ensure that the Commercial Energy Management and Load Control Initiative will be evaluated in accordance with the OPA's EM&V Protocol for any custom measures not included in the OPA's Measures and Assumption List. A Draft Evaluation Plan is attached based on the most current version available on the OPA's website as of Oct. 15, 2010. The Initiative Final Evaluation Plan will be prepared by an independent third party. The selection of the evaluation criteria and detailed elements of the Evaluation Plan will be determined by the independent third party. Measurement and verification of Initiative peak demand savings (kW) and electricity savings (kWh) results will be conducted by a third party review contractor selected through an RFP process from the OPA's "Third Party Vendor of Record" list once the Initiative is approved.

The following is a DRAFT EVALUATION PLAN TEMPLATE:

SMALL AND MID SIZE COMMERCIAL ENERGY MANAGEMENT AND LOAD CONTROL

OPA DRAFT EVALUATION PLAN TEMPLATE

Program Description	**Description: See Sections 1 and 2** **Key Program Elements: See Section 1 and 3** **Goals and Objectives: See Sections 1 and 5** **Program Theory: See Sections 2,3 and 4** **Program Timing (subject to funding approval from the Board)** Program Launch Date: July 1st, 2011 All program elements are expected to be deliverable commencing immediately after the program launch date. Program end date: December 31, 2014 **Estimated Participation and Results: See Sections 1, 6 and 7** **Draft Budget: See Section 8**
Conservation Measures	Behavioural Changes Energy Management System Load control service (included in the EMS system)
Evaluation Goals and Objectives	**Evaluation Goals and Objectives** • i) Process Design Effectiveness • ii) Program Administration Effectiveness • iii) Establish gross and net energy savings and demand reductions

	achieved • iv) Estimate Program Cost Effectiveness
Evaluation Deliverables	**Evaluation Deliverables** • Draft Evaluation Plan • Final Program Evaluation Plan • Annual Report – elements • Final Report
Evaluation Description	The evaluation elements of the Evaluation Goals and Objectives are anticipated to include (but are not limited to) those listed in the corresponding sections below. It is expected that these elements will be reviewed, discussed, evaluated or analyzed as appropriate and according to the OPA's EM&V Protocols to ensure that they meet the Program Evaluation Goals and Objectives during the **Draft Evaluation Plan development phase**. Review of these elements will assist Hydro One in determining and/or validating the appropriateness of the program design, administration and measures assumption elements and whether adjustments are necessary in order to successfully deliver the Initiative and to achieve the anticipated Goals and Objectives and estimated participation and results.

1

Evaluation Elements	**i) Program Process Design Effectiveness - Evaluation criteria:** • Staffing and training • Program timing and timelines • Use of new procedures and best practices • Eligibility and participants – original assumptions vs. actual • Procedure for load control event implementation – results of program participation from event • Motivation for participation and incentive level • Customer satisfaction feedback – participant satisfaction • Non participant feedback • Program management monitoring procedures • Roles and responsibilities of team members and stakeholders • Reporting procedures **ii) Program Administration Effectiveness - Evaluation Criteria:** • Program statistics – including participants, calculations of energy and demand reductions etc. • Marketing Effectiveness • Actual versus Budget Reporting

	• Market Participant review **iii) Measures and Performance Assumptions Review:** • Custom Measures Assumptions Review • Behavioural and Performance Assumptions Review **iv) Gross and Net Energy Savings and Demand Reductions Achieved:** ****to be performed by a third party based on the OPA's EM&V protocols** • Measurement and verification of program energy and demand savings achieved • Net to Gross ratio (including free rider rate) • Audit and Verification of project completion **v) Program Cost Effectiveness:** • Verification of program expenditures versus budget • Verification of program funding and payments • Cost benefit Analysis – funding vs. program performance
Special Provisions	**N/A**
Data Collection Responsibilities to Support Program Evaluation	**This area is still under development and will be completed with the assistance of a third party EM&V expert to ensure complete and appropriate collection of data to support Program evaluation.** Data collection and evaluation activities anticipated to support the evaluation of the Initiative may include the following: • Historical account consumption data • Number of participants • Program Costs • Program incentives • Program delivery metrics • Interviews with Initiative designers, delivery agents, administrators • Interviews with market allies and market channel reps • Interviews with participants and non-participants

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Evaluation Schedule & Budget

Evaluation Deliverable	Budget	Date
Draft Evaluation Plan	TBD	TBD
Final Evaluation Plan	TBD	TBD
Verification of Projects	TBD	TBD
Verification of Energy Reductions	TBD	TBD
Verification of Program Costs	TBD	TBD
Draft Final Evaluation Report	TBD	TBD
Final Evaluation report	TBD	TBD
Total Evaluation Budget	[redacted]	

Evaluation Team

Organization	Name	Title / Accountability
Hydro One	TBD	Program Manager
Hydro One	TBD	Senior Conservation Analyst
3rd party (Final Evaluation Plan Development)	TBD	TBD
3rd Party Measurement and Verification Contractor (selected from OPA "Third Party Vendor of Record" list	TBD	TBD

BOARD-APPROVED CDM PROGRAM

COMMERCIAL PROGRAM

Initiative Number: 5

Initiative Name: Municipal and Hospital Energy Efficiency Performance

Year(s) of Operation for the Initiative: 2011- 2014

Initiative Frequency: Year round

Target Customer Type(s): All municipal and hospital customers in Hydro One service areas

1. Initiative 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 of accounts. By requiring participants to commit to continuous electrical energy management and efficiency actions and improvements year over year, Hydro One expects that the unique offerings of the Initiative will assist in transforming this segment of the broader public sector to entrench energy efficiency and energy conservation as a core best practice within their organizations.

The key elements and comprehensive approach of the Initiative seek to assist this historically hard to reach sector in the pursuit of sustained and deeper energy savings by going beyond technology-based incentives offered in traditional or proposed Province-wide commercial CDM programs. Participating customers will be eligible to receive a financial incentive at [redacted] for overall energy performance improvements for each year of participation.

The Initiative is expected to be made available to all municipal and hospital account customers across Hydro One's service areas. Hydro One services, or shares service, in

82% of the municipalities and approximately 35% of hospitals across Ontario. Total Initiative participation is anticipated to be a minimum of 27 municipalities and 6 hospitals. The expected total energy savings of this Initiative is approximately 26 GWh and peak demand savings of 1 MW.

Delivery of the Initiative will be carried out by Hydro One and contracted resources and experts in the field of energy Conservation and Demand Management ("CDM").

This Initiative could be further extended to the other public sector institutions.

2. Non Duplicative Features of the Initiative

This Initiative is non duplicative as it goes beyond technology specific savings and encourages the sector to focus on whole buildings, systems and processes within their account portfolio, and to adopt energy efficiency technical, management, and organizational best practices. The Initiative includes unique elements that are not offered in any other commercial CDM program in Ontario. The proposed province wide commercial and institutional programs (i.e. The Electricity Retrofit Incentive Program and the Power Savings Blitz) offer incentives based on capital investment and equipment replacement by the participant rather than organizational best practices in energy management and efficiency and overall energy performance improvements.

The proposed Initiative focuses on on-going, long term customer commitment to energy savings. Participants will be required to sign a memorandum of understanding ("MoU") committing to: the assembly of a cross-functional team; the development of a comprehensive Energy Conservation Action Plan; ongoing electrical energy consumption and demand benchmarking, tracking and target setting; employee engagement and training; and commitment from top levels of the organization. A commitment to reinvest incentives (realized from energy and peak demand reductions) into further energy efficiency actions will also be encouraged.

3. Initiative Elements

The value proposition to customers participating in the Municipal and Hospital Energy Efficiency Performance Initiative includes the following unique elements:

- Compile and provide useful historical energy consumption data for eligible accounts within the hospital or municipal portfolio
- A signed memorandum of understanding ("MoU") committing to:
  - assembly of a cross-functional team including top level management
  - development of an Energy Conservation Action Plan
  - annual benchmarking and monitoring of electrical energy usage
  - set annual reduction targets
  - continuous action and implementation of energy efficient initiatives
  - participation in the Initiative to December 31, 2014
  - to direct any incentive monies related to energy efficiency actions back to Energy Efficiency initiatives within the organization (encouraged)
- [redacted] toward tools, training and/or memberships that help achieve energy and demand consumption benchmarking, tracking and targeting; Conservation Action Plan development assistance, technical training and energy management best practices.
- CDM Specialist – including consultation and review of current vs. best practices for management, operations and technology
- Up to [redacted] of the cost (to a maximum of [redacted] for pre-assessment and/or audit of energy intensive facilities within a portfolio. Participants are eligible for one pre-assessment and audit incentive within the Initiative delivery period (2011 to 2014).

4. Background:

Municipalities are the second largest energy consuming sector in Ontario, representing an estimated expenditure of over $955 million per year ($680 million in electricity and $275 million in natural gas[1].)

Many of the municipalities and hospitals in Hydro One's service area are small- to mid-size and remotely located which may impact internal resources, knowledge base, budgets and access to CDM support as compared to their larger counter parts. For many, facility management and electricity bill payment and accountabilities are decentralized, and equipment upgrade projects are often reactive. Energy efficient projects also compete with non-discretionary projects and budget constraints. These barriers are thought to have impacted the limited participation from this sector in technology-based Provincial CDM programs to date. This Initiative seeks to remove these barriers.

5. Purpose of the Initiative:

The Municipal and Hospital Energy Efficiency Performance Initiative will offer the key elements required to assist this broader public sector in the successful pursuit of continuous and deeper energy savings beyond the traditional commercial CDM programs that focus only on technology or equipment replacement. Using a comprehensive delivery model and performance-based incentive approach, this Initiative will help this sector make appropriate technology, process, management and organizational decisions that best fit their business, community and facility needs.

6. Projected Reduction in Peak Electricity Demand (MW)

The Initiative is expected to achieve approximately 1.1 MW of peak reduction by the end of 2014.

[1] Association of Municipalities of Ontario and Local Authority Services Ltd. website

Total Peak Reduction (MW) 2011-2014					
	2011	**2012**	**2013**	**2014**	**Total Coincident Peak Demand Reduction by end of 2014 (MW)**
Municipal - Hospital Energy Performance (MW)	**0.3**	**0.5**	**0.8**	**1.1**	**1.1**

7. Projected Reduction in Electricity Consumption (MWh):

The Initiative is expected to achieve 25,500 MWh cumulative energy reduction by the end of 2014.

Total Energy Reduction (MWh) 2011-2014					
	2011	**2012**	**2013**	**2014**	**Total Energy Reduction Cumulative (2011-2014)**
Municipal - Hospital Energy Performance (MWh)	2,000	4,800	7,800	10,900	25,500

8. Projected Budget

The estimated budget to deliver the Municipal and Hospital Efficiency Performance Initiative is approximately $4 million including [redacted] in performance incentives. Administrative, marketing and third party delivery and EM&V costs are included in the estimated budget.

Municipal - Hospital Energy Efficiency Performance ($) 2011-2014					
	2011*	2012	2013	2014	Total 2011-2014
Marginal costs					
Fixed costs					
Administrative costs	[redacted]				
Marketing (includes tools and Employee Engagement)					
CDM specialist					
EM&V					
Total Fixed Costs					
Variable Costs					
Third Party Project Review					
Membership/ Tools/Training					
Performance Review / Audits					
Total Variable Costs					
Allocable costs					
Fixed Overhead					
Variable Overhead					
Total Program Costs					
Incentives					
Total Budget	**$ 780,000**	**$ 965,000**	**$ 1,055,000**	**$ 1,150,000**	**$ 3,950,000**

9. Cost-Effectiveness Test Results

- TRC: 1.4
- PAC: 1.1

10. Draft Evaluation Plan

This Initiative focuses on reducing Municipal and Hospital peak demand and energy consumption through behavioural changes and equipment upgrades. The equipment upgrade component falls under the measures included in the OPA's M&A List, while the behavioural component assumptions are based on consultations with industry experts.

Hydro One will ensure that the Municipal – Hospital Energy Efficiency Performance Initiative will be evaluated in accordance with the OPA's EM&V Protocols for any custom measures not included in the OPA's Measures and Assumption List. A Draft Evaluation Plan is attached based on the most current version available on the OPA's website as of Oct. 15, 2010. A Final Evaluation Plan will be prepared by an independent third party after OEB approval of the Initiative. The selection of the evaluation criteria and detailed elements of the Evaluation Plan will be determined by the independent third party. Measurement and verification of Initiative peak demand savings (kW) and electricity savings (kWh) results will be conducted by a third party review contractor selected through an RFP process from the OPA's "Third Party Vendor of Record" list.

The following is a DRAFT EVALUATION PLAN TEMPLATE:

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OPA DRAFT EVALUATION PLAN
MUNICIPAL AND HOSPITAL ENERGY EFFICIENCY PERFORMANCE

DRAFT EVALUATION PLAN TEMPLATE

Program Description	**Description (see Section 1)** **Key Program Elements ((see sections 2 and 3)** **Goals and Objectives (see sections 1 and 5)** **Program Theory (see section 1 and 2)** **Program Timing (subject to funding approval from the Board)** Program Launch Date: January 1st, 2011 All program elements are expected to be deliverable commencing immediately after the program launch date. CDM Specialist, consultation, membership in sector specific Energy performance or monitoring programs or associations, participating account identification and benchmarking will be the key elements offered early in program delivery and throughout the four years of the program for as long as the customer(s) accounts are still eligible or participating. Customer enrolment end date: June 30th, 2012. Program end date: December 31, 2014 **Estimated Participation and Results (see sections 1, 7 & 8)** **Draft Budget (see Section 9)**
Conservation Measures	*Equipment-based Measures:* The Initiative will focus on energy efficient lighting, controls, motors, pumps and HVAC systems, however, will allow for and financially incent retrofitting of other proven energy efficient technologies. Assumptions for measures considered eligible under the Initiative that are not included under the OPA's Measures and Assumptions List have been, or will be, developed by a third party based on the OPA's EM&V Protocols. *Non-Equipment-based Measures may include:*

	• Retro commissioning • Continuous Optimization (Maintenance) • Employee awareness • Historical energy usage benchmarking • Comparison to best in class and peer buildings (social benchmarking), • Energy efficiency best practices (management, operations, technical etc) • Monitoring and target setting • Training and capability building • Building or system auditing • Ongoing membership with organizations offering tools, resources, capacity building and peer consultation focusing on energy use benchmarking, monitoring, tracking, target setting and reductions.
Evaluation Goals and Objectives	**Evaluation Goals and Objectives** • i) Process Design Effectiveness • ii) Program Administration Effectiveness • iii) Measures and Assumptions Review • iv) Establish gross and net energy savings and demand reductions achieved • v) Estimate Program Cost-Effectiveness • vi) Special Provisions
Evaluation Deliverables	**Evaluation Deliverables** • Final Program Evaluation Plan • Annual Report – elements • Final Report
Evaluation Description	The evaluation elements of the Evaluation Goals and Objectives are anticipated to include (but are not limited to) those listed in the corresponding sections below. It is expected that these elements will be reviewed, discussed, evaluated or analyzed as appropriate and according to the OPA's EM&V Protocols to ensure that they meet the Program Evaluation Goals and Objectives during the **Draft Evaluation Plan development phase**. Review of these elements will assist Hydro One in determining and/or validating the appropriateness of the program design, administration and measures assumption elements and whether adjustments are necessary in order to successfully deliver the Initiative and to achieve the anticipated Goals and Objectives and estimated participation and results.

1

Evaluation Elements	**i) Program Process Design Effectiveness - Evaluation criteria:**

	• Goals of program • Staffing and training • Program timing and timelines • Marketing Plan • Use of new procedures and best practices • Original assumptions vs. actual • Incentives and motivation for participation • Customer satisfaction feedback – participant satisfaction • Non participant feedback • Monitoring and tracking procedures • Roles and responsibilities of team members and stakeholders • Reporting procedures **ii) Program Administration Effectiveness - Evaluation Criteria:** • Program statistics – including participants, calculations of energy and demand reductions etc. • Program Impact Evaluation • Market Effects Assessment • Pre and post Project Analysis Assessment • Marketing Effectiveness Assessment • Actual versus Budget Reporting • Market Participant review **iii) Measures and Performance Assumptions Review:** • Custom Measures Assumptions Review • Behavioural and Performance Assumptions Review **iv) Gross and Net Energy Savings and Demand Reductions Achieved*:** ***to be performed by a third party based on the OPA's EM&V protocols** • Measurement and verification of program energy and demand savings achieved • Net to Gross ratio (including free rider rate) • Audit and Verification of project completion **v) Program Cost Effectiveness:** • Verification of program expenditures versus budget • Verification of program funding and payments • Cost benefit Analysis – funding vs. program performance
Special Provisions	**Special Provisions:**

	N/A
Data Collection Responsibilities to Support Program Evaluation	**This area is still under development and will be completed with the assistance of a third party EM&V expert to ensure complete and appropriate collection of data and evaluation activities to support Initiative evaluation.** Data collection and evaluation activities anticipated to support the evaluation of the Initiative may include the following. : • Historical account consumption data • Gross number of participants • Program Costs • Program incentives • Number of and types of measures installed • Actual values of participant inputs (i.e. hrs of operation) used to generate kWh and kW savings estimates • Building or account attributes • Program delivery metrics (i.e. web hits, marketing materials delivered) • Interviews with Initiative designers, delivery agents, administrators • Interviews with market allies and market channel reps • Interviews with participants and non-participants • Observation of field efforts and operation • Base case technology or process data • Project and equipment costs (supported by invoices) • Post project (new measure) data • On-site inspection / verification of implemented measures • Copy of customer draft Energy Conservation Action Plan • Energy Efficiency Activities and Actions Report from participants

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Evaluation Schedule & Budget

Evaluation Deliverable	Budget	Date
Draft Evaluation Plan	TBD	TBD
Final Evaluation Plan	TBD	TBD
Verification of Projects	TBD	TBD
Verification of Energy Reductions	TBD	TBD
Verification of Program Costs	TBD	TBD
Draft Final Evaluation Report	TBD	TBD
Final Evaluation report	TBD	TBD
Budget	[redacted]	

Evaluation Team

Organization	Name	Title / Accountability
Hydro One	TBD	Program Manager
Hydro One	TBD	Senior Conservation Analyst
3rd party (Final Evaluation Plan Development)	TBD	TBD
3rd Party Measurement and Verification Contractor (selected from OPA "Third Party Vendor of Record" list	TBD	TBD

BOARD-APPROVED CDM PROGRAM

COMMERCIAL PROGRAM

Initiative Number: 6

Initiative Name: Double Return Plus ("DRP")

Initiative Frequency: Year round

Target Customer Type(s): Commercial and industrial interval metered customers with average peak load of 200 kW or above.

Years of Operation for the Initiative: 2011 to 2014, subject to annual reviews and approvals.

1. Initiative Description

The Double Return Plus Initiative ("DRP") targets approximately 900 interval-metered commercial and industrial ("C/I") customers with an average monthly peak load in excess of 200 kW. The objective of this Initiative is to reduce the customers' peak demand, which, in turn, is expected to reduce the total system peak demand by up to 20 MW. This Initiative has an expected program cost of $4.1 million ($200/kW) inclusive of incentives.

The Double Return Plus Initiative has two components: a peak demand reduction and an energy efficiency component. This Initiative encourages the customers to reduce their summer peak demand relative to their summer demand in the previous year by at least 5%. The energy efficiency savings will be achieved through the installation of a load management system. The proposed Initiative will fund [redacted] of the cost of a load management system, up to a maximum of [redacted] This Initiative will enable customers to control and reduce their summer peak demand as well as achieve sustainable energy savings.

The performance incentive payments will be set equal to double the amount of reduction in delivery charges on the customer's bill resulting from achieving a reduction in their peak load. 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. For every dollar the customer saves in reduced delivery charges, the program will provide two dollars in incentive payments.

In addition to performance incentives, this Initiative will offer a range of behind-the meter services including online technical services, on-site visits, energy efficiency and demand response workshops, and employee engagement kits.

The program will primarily be delivered directly by Hydro One with the help of a number of third party vendors to assist with the promotion and delivery of the technical services to the customers.

2. Non-Duplicative Features of the Initiative

The unique elements of the Initiative are:

- **Non-Dispatchable versus Dispatchable Demand Response:** The Double Return Plus Initiative is not duplicative of the OPA Demand Response Programs because it is based on non-dispatchable load control and it also aims at reducing energy consumption. By contrast, the OPA Province-wide Demand Response programs are based on dispatchable load control and, as a result, have minimal energy savings. Non-dispatchable load control means that it is left to the customer's discretion whether they wish to reduce their peak demand and the time at which they reduce demand given the customers business needs and production cycles. Dispatchable load control, on the other hand, means that the customer must respond to the IESO's request that they curtail a contracted amount of their load or face penalties (e.g., under Demand Response 3) for not doing so. Further, the OPA had already approved the Double Return program as a Custom Program distinct from the OPA's Demand

Response 1/Demand Response 3 programs, and all three programs coexisted in the marketplace in 2008 and 2009.

- **Bring demand response and energy efficiency together**: The Initiative equips the customer with the information and tools to meet demand reduction as well as energy savings, all in one initiative. Hydro One will hire third party vendor(s) so that participants will have access to a range of technical and information services that would help them better understand their energy usage and assist them in identifying areas where they can reduce their energy consumption and shift or shave their peak load. Several tools including workshops, online assistance, and written information material would be used to assist customers to reach this goal. The Initiative will also offer free expert on-site visits to identify specific opportunities in customers' facilities focusing on loads associated with industrial processes, motors, lighting, compressed air, and electro-technologies. Bringing together demand response and energy efficiency is a unique feature compared to OPA-contracted Demand Response initiatives available in the market
- **No cost - low cost opportunities:** Double Return Plus helps identify savings potential at limited and/or no cost to the customer. For example, a change in the customer's behaviour will come at no cost, whereas an installation of a control device would come at low cost. The focus on operational and behavioural changes brings about a culture of conservation in the business markets.

3. Background

The initial Double Return Initiative was designed by Hydro One and offered under Market Adjusted Rate of Return (MARR) funding in 2006/2007. This Initiative was very successful and became popular among Hydro One customers as well as other stakeholders. Further, the OPA approved the Double Return program as a Custom Initiative in 2008/2009 where the program coexisted with the OPA's Demand Response 1/Demand Response 3 programs. The proposed Double Return Plus is a new generation of the original Initiative with enhanced features for the 2011-2014 period.

4. Initiative Elements

While the key success factor in the original Double Return program has been the simplicity of its design, the new Double Return Plus initiative includes three additional components:

- **Reply Card:** A requirement to submit a "Reply Card" by participating customers. The Reply Card ensures that the customer is interested and committed to the Initiative.
- **Action Plan:** A requirement to complete a multiple choice two-paged "Action Plan" The Action Plan identifies the steps which the customer plans to take to meet the minimum peak load reduction (of at least 5% of the average summer June-August peak load as compared to the previous year) to qualify for the financial incentive.
- **Load Management System:** The availability of financial incentives to enable participants to purchase a Load Management System to perform load balancing through energy management programming to achieve savings. The financial incentives will cover [redacted] of the cost of the system, up to a maximum of [redacted]

Other Initiative offerings include:

- **Incentives:** Double Return Plus incentives will be set to equal double the amount of reduction in delivery charges on the customer's bill resulting from achieving 5% - 10% reduction in the summer peak load as compared to the previous year. Double Return Plus incentives will also provide funds up to [redacted] of the cost of the Load Balancing/Management System up to [redacted] per system.
- **Behind-the-meter services:** this Initiative will offer on-going technical services including:
  - customized online information
  - expert site visits/assistance
  - Double Return Plus energy workshops
  - employee engagement kits

5. Purpose of the Initiative

The Double Return Plus Initiative will offer the key elements required to assist the medium to large C&I sectors in the successful pursuit of continuous and deeper energy savings beyond the traditional C/I CDM programs that focus only on technology or equipment replacement.

6. Projected reduction in Peak Electricity Demand (MW)

This Initiative is projected to achieve 21 MW peak reduction by the end of 2014. For Double Return Plus a portion of the peak reduction will have one year persistence attributable to behavioural changes, and the remaining peak reduction will have multi-year persistency attributable to the application of the load management system.

Total Peak Reduction (MW) 2011-2014					
	2011	**2012**	**2013**	**2014**	**Total Coincident Peak Demand Reduction by end of 2014 (MW)**
Double Return Plus (MW)	7.9	12.5	16.5	21.0	**21**

7. Total Projected Reduction in Electricity Consumption (MWh)

This Initiative is projected to achieve 52 GWh cumulative energy reduction by 2014. Energy reduction attributable to the portion of Double Return Plus for peak shaving will have one-year persistence, while the load balancing component will enhance persistency of results achieved in the Initiative.

Total Energy Reduction (MWh) 2011-2014					
	2011	2012	2013	2014	Total Energy Reduction - Cumulative (2011-2014)
Double Return Plus (MWh)	9,250	12,200	14,450	16,100	52,000

8. Projected Budget

The total cost estimate for the Initiative is approximately $4.1million (inclusive of incentives), and the incentives include a financial contribution towards a load management system (covering [redacted] of the cost of the system up to a maximum of [redacted] as well as performance incentives for achieved results for a total of approximately [redacted] (roughly [redacted] per summer season).

Double Return Plus - Initiative Budget ($) 2011-2014					
	2011	2012	2013	2014	Total 2011-2014
Marginal costs					
Fixed costs					
Administrative costs	[redacted]				
Marketing					
Site visits / Verifications					
EM&V					
Total Fixed Costs					
Variable Costs					
Turn-Key Vendor / Load Balancing	[redacted]				
Total Variable Costs					
Allocable costs					
Fixed Overhead	[redacted]				
Variable Overhead					
Total Program Costs					
Financial incentives (Based on Load Reduction)	[redacted]				
Total Budget	$ 1,021,300	$ 1,021,300	$ 1,021,300	$ 1,020,700	$ 4,100,000

Note: The total budget shown above is projected to be allocated between commercial and industrial participants on a 40/60 basis, respectively.

9. Cost Effectiveness Test Results

- TRC ratio: 11.3
- PAC ratio: 7.4

10. Draft Evaluation Plan

Hydro One will ensure that the Double Return Plus Initiative will be evaluated in accordance with the OPA's EM&V Protocol for any custom measures not included in the OPA's Measures and Assumption List. A Draft Evaluation Plan is attached based on the most current version available on the OPA's website as of Oct. 15, 2010. The Initiative Final Evaluation plan will be prepared by an independent third party. The selection of the evaluation criteria and detailed elements of the Evaluation Plan will be determined by the independent third party. Measurement and verification of Initiative peak demand savings (kW) and electricity savings (kWh) results will be conducted by a third party review contractor selected through an RFP process from the OPA's "Third Party Vendor of Record" list once the Initiative is approved.

The following is a DRAFT EVALUATION PLAN TEMPLATE:

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DOUBLE RETURN PLUS

OPA DRAFT EVALUATION PLAN TEMPLATE

Program Description	**Description: See Section 1** **Key Program Elements: See Sections 2,4 and 5** **Goals and Objectives: See Sections 1 and 2** **Program Theory: See Sections 1 and 2** **Program Timing (subject to funding approval from the Board)** Program Launch Date: January 1st, 2011 Program end date: December 31, 2014 **Estimated Participation and Results: See Sections 6 and 7** **Draft Budget: See Section 8**
Conservation Measures	Conservation Measures: Behavioural changes Load balancing/Energy Management System
Evaluation Goals and Objectives	**Evaluation Goals and Objectives** • i) Process Design Effectiveness • ii) Program Administration Effectiveness • iii) Measures and Assumptions Review • iv) Establish gross and net energy savings and demand reductions achieved • v) Estimate Program Cost Effectiveness
Evaluation Deliverables	**Evaluation Deliverables** • Draft Evaluation Plan • Final Program Evaluation Plan • Annual Report – elements • Final Report

Evaluation Description	The evaluation elements of the Evaluation Goals and Objectives are anticipated to include (but are not limited to) those listed in the corresponding sections below. It is expected that these elements will be reviewed, discussed, evaluated or analyzed as appropriate and according to the OPA's EM&V Protocols to ensure that they meet the Program Evaluation Goals and Objectives during the **Draft Evaluation Plan development phase**. Review of these elements will assist Hydro One in determining and/or validating the appropriateness of the program design, administration and measures assumption elements and whether adjustments are necessary in order to successfully deliver the Initiative and to achieve the anticipated Goals and Objectives and estimated participation and results.

1

Evaluation Elements	**i) Program Process Design Effectiveness - Evaluation criteria:** • Staffing and training • Program timing and timelines • Use of new procedures and best practices • Marketing Plan • Eligibility and participants – original assumptions vs. actual • Events implementation – results of program participation from event • Motivation for participation and incentive level • Customer satisfaction feedback – participant satisfaction • Non-participant feedback • Monitoring and tracking program management • Roles and responsibilities of team members and stakeholders • Reporting procedures **ii) Program Administration Effectiveness - Evaluation Criteria:** • Program statistics – including participants, calculations of energy and demand reductions etc. • Program Impact Evaluation • Pre and post Project Analysis Assessment • Marketing Effectiveness Assessment • Actual versus Budget Reporting • Market Participant review **iii) Measures and Performance Assumptions Review:** • Custom Measures Assumptions Review • Behavioural and Performance Assumptions Review **iv) Gross and Net Energy Savings and Demand Reductions Achieved:**

	****to be performed by a third party based on the OPA's EM&V protocols** • Measurement and verification of program energy and demand savings achieved • Net to Gross ratio (including free rider rate) • Audit and Verification of project completion **v) Program Cost Effectiveness:** • Verification of program expenditures versus budget • Verification of incentive payments • Cost benefit Analysis – funding vs. program performance
Special Provisions	**N/A**
Data Collection Responsibilities to Support Program Evaluation	**This area is still under development and will be completed with the assistance of a third party EM&V expert to ensure complete and appropriate collection of data to support Program evaluation.** Data collection and evaluation activities anticipated to support the evaluation of the Initiative may include the following: • Historical account consumption data • Number of participants • Program Costs • Program incentives • Customer site attributes • Program delivery metrics • Interviews with Initiative designers, delivery agents, administrators • Interviews with market allies and market channel reps • Interviews with participants and non-participants • Project and equipment costs (supported by invoices) • Sample on-site inspection / verification of actions implemented • Draft of Customer Energy Conservation Action Plan • Energy Efficiency Activities and Actions Report from participants

Evaluation Schedule & Budget

Evaluation Deliverable	Budget	Date
Draft Evaluation Plan	TBD	TBD
Final Evaluation Plan	TBD	TBD
Verification of Projects	TBD	TBD
Verification of Energy Reductions	TBD	TBD
Verification of Program Costs	TBD	TBD
Draft Final Evaluation Report	TBD	TBD
Final Evaluation report	TBD	TBD
Total Evaluation Budget	[redacted]	

Evaluation Team

Organization	Name	Title / Accountability
Hydro One	TBD	Program Manager
Hydro One	TBD	Senior Conservation Analyst
3rd party (Final Evaluation Plan Development)	TBD	TBD
3rd Party Measurement and Verification Contractor (selected from OPA "Third Party Vendor of Record" list	TBD	TBD

November 1, 2010

BY RESS & COURIER

Ms. Kirsten Walli, Board Secretary
Ontario Energy Board
2300 Yonge Street, 26th Floor, P.O. Box 2319
TORONTO, ON M4P 1E4

Re: EB Number: EB-2010-0215 / EB-2010-0216
Kitchener-Wilmot Hydro Inc. CDM Strategy
Electricity Conservation and Demand Management

Dear Ms. Walli:

On September 16, 2010, the Ontario Energy Board (the "Board") issued its Conservation and Demand Management ("CDM") code for Electricity Distributors. The CDM Code states that all electricity distributors must file their CDM Strategy with the Board on or before November 1, 2010. In compliance with the Board's Order, Kitchener-Wilmot Hydro Inc. ("KWHI") is pleased to submit its CDM Strategy.

Included with this filing are two paper copies of KWHI's CDM Strategy. An electronic copy has been previously filed through RESS.

If you have any additional questions, please contact the writer.

Respectfully submitted,

Original Signed by

J. Van Ooteghem, P.Eng. President & CEO

CKW Group CDM Strategy

Prepared by:

NAVIGANT CONSULTING

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1 Adelaide Street East, Suite 3000
Toronto, ON, M5C 2V9
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October 2010

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CKW Group Conservation and Demand Management (CDM) Strategy

The following CDM Strategy has been prepared following the template provided in the CDM Code as published by the Board on September 16, 2010.

1. Distributor's Name: CKW Group (Cambridge and North Dumfries Hydro Inc., Kitchener Wilmot Hydro Inc., Waterloo North Hydro Inc.)

The CKW Group represents the three electric distribution companies serving the Region of Waterloo. The CDM Strategy which follows describes a combined plan for **Cambridge North Dumfries Hydro Inc., Kitchener Wilmot Hydro Inc.,** and **Waterloo North Hydro Inc.**. While the three utilities have developed a co-ordinated, combined strategy in the interests of improved efficiency and effectiveness, separate information for each utility is presented in the attached appendices.

2. Total Reduction in Peak Provincial Electricity Demand (MW) Target:

See discussion and Table 1 in next section**.**

3. Total Reduction in Electricity Consumption (kWh) Target:

The following CDM targets for reductions in peak provincial electricity demand and electricity consumption have been proposed for the three utilities in the CKW Group. The targets shown in Table 1 are taken from the June 22, 2010 letter from the Ontario Energy Board to all licensed electrical distributors regarding "*Electricity Conservation and Demand Management Targets* (EB-2010-0216)[1].

Table 1: Proposed CDM Targets for CKW Group

LDC Name	Total Reduction in Peak Provincial Electricity Demand Target (kW)	Total Reduction in Electricity Consumption Target (MWh)
Cambridge and North Dumfries Hydro Inc.	18,000	77,000
Kitchener-Wilmot Hydro Inc.	22,000	93,000
Waterloo North Hydro Inc.	16,000	68,000
CKW Group Total	***56,000***	***238,000***

We note that the OEB has published these proposed targets for comment and has not yet established final targets for each of the LDC's.

[1] http://www.oeb.gov.on.ca/OEB/Industry/Regulatory+Proceedings/Policy+Initiatives+and+Consultations/Conservation+and+Demand+Management+%28CDM%29/CDM+Management+Targets

4. CDM Strategy

The CKW Group retained Navigant Consulting to carry out modelling and analysis of the achievable CDM potential associated with OPA-Contracted Province-Wide program initiatives and to identify additional opportunities which would enable the utilities in the CKW Group to meet their assigned CDM targets.

Navigant Consulting projected the impact of current OPA-funded province-wide CDM initiatives in the CKW Group's service area by sector for the coming 4-year period. The CKW Group intends to achieve the milestones set out in the table below through active involvement and support of these OPA initiatives. Utility specific projections for each of the members of the CKW Group are provided in Appendices A, B and C.

The estimated CDM reductions as a result of all OPA-contracted province-wide initiatives is shown below by sector. Due to overlapping coverage of some programs (i.e. *Year Round Instant Rebates* and *Bi-Annual Instant Rebate Events*) estimates of the achievable potential were not developed for specific programs.

Table 2: Energy (MWh) and Demand (MW) Milestones

CKW Group	Cumulative Energy (MWh)			
	2011	2012	2013	2014
Residential	15,479	27,893	43,501	54,369
Commercial	24,689	48,498	72,503	95,999
Industrial	9,463	17,377	26,206	35,600
Total -	***49,631***	***93,769***	***142,211***	***185,968***

CKW Group	Demand (MW)			
	2011	2012	2013	2014
Residential	5.0	9.0	12.8	16.6
Commercial	6.4	12.2	18.1	24.0
Industrial	3.8	7.4	11.1	14.9
Total -	***15.2***	***28.6***	***42.1***	***55.5***

The CKW Group intends to meet its CDM Targets over the 4-year period to 2014 by actively participating in OPA-Contracted Province-Wide programs and by developing additional Tier 2 and 3 initiatives for Board approval that will address areas of potential not covered by province-wide OPA initiatives. As additional information becomes available on OPA programs the CKW Group will review opportunities for leveraging these programs in the Region. Additional Tier 2 and 3 programs will also be developed in the coming months. Once these plans have been refined, and CDM targets are finalized, a revised CDM Strategy will be

submitted in the 2011 Annual Report for the Board's consideration which will meet the following milestones.

	2011	2012	2013	2014
Cumulative Energy (MWh)				
Tier 1 Programs	49,631	93,769	142,211	185,968
Tier 2 & 3 Programs	13,008	26,016	39,024	52,032
Total (CDM Target)	62,639	119,785	181,235	238,000
Demand (MW)				
Tier 1 Programs	15.2	28.6	42.1	55.5
Tier 2 & 3 Programs	0.1	0.2	0.4	0.5
Total (CDM Target)	15.3	28.9	42.5	56.0

Milestones for each of the utilities involved are provided in Appendices A, B and C.

5. OPA-Contracted Province-Wide CDM Programs

The following table describe the province-wide CDM programs currently offered and expected to be available to customers in the CKW Group territory. For purposes of planning a CDM Strategy for the CKW Group we have assumed that these programs will continue to be available throughout the period from 2011 to 2014. ***We note that these programs are offered at the discretion of the OPA. Decisions to cancel, expand or modify these programs are not within the control of the CKW Group.***

The OPA has released draft descriptions of the following programs to be offered by the CKW Group during the period 2011 to 2014. While a portion of these programs will be centrally managed by the OPA, the CKW Group will maintain a supporting role in their delivery.

Table 3: Proposed OPA Programs for 2011 to 2014

Residential Programs	Commercial and Institutional Programs	Industrial Programs
Year Round Instant Rebates	***Commercial and Institutional Province Wide Program***	***Industrial Accelerator***
Bi-Annual Instant Rebate Events	***ERIP Commercial***	***ERIP Industrial***
Appliance Retirement Program	***Direct Install***	***DR1 - Industrial***

Residential Programs	Commercial and Institutional Programs	Industrial Programs
Bi-Annual Appliance Exchange Events	***DR1 - Commercial***	***DR3 - Industrial***
HVAC On-line Rebates Program	***DR3 – Commercial***	
New Construction Program		
Midstream Incentives Program		
Consumer Enabling Initiatives		
Low Income Program		
Residential Demand Response Initiative		

The CKW Group intends to participate or support each of the initiatives indicated in bold/italics in the above list. The remaining two programs listed above will be operated by the OPA on a province-wide basis.

The following pages describe specific OPA-contracted province-wide programs that the CKW Group plans to participate in. For convenience the following tables summarize each program. And the CKW Group's role with respect to each program. A fuller description of the programs and the role played by LDC's is provided in the "*2011 – 2014 OPA-Contracted Province Wide CDM Programs*" Summary Guides published by the OPA in October 2010. Information on funding rules was not available for all programs when this submission was being prepared. Estimated annual budgets for the CKW Group, as well as for each specific utility will be calculated once funding information is available.

Residential Programs:

Program Name	Year Round Instant Rebates
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This program is a year round initiative that offers instant rebates to customers towards the purchase of low cost, easy to install measures. It is an enhancement to the old OPA provincial coupon initiative (aka. *EKC Power Savings Event*) which was only offered twice a year (Spring & Fall). In the past, the program was centrally managed by the OPA and promoted strictly during the months of April & October. The program has now been enhanced to offer customers the opportunity to redeem instant rebates at any time throughout the year.
CKW Group Role	Use communications and marketing opportunities to support program and educate consumers of the benefits of products covered by the rebates.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Appliance Retirement/Exchange Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This initiative is a carry forward and enhancement of ***The Great Refrigerator Roundup***. It includes free pick-up and decommissioning of old, inefficient, working, appliances: • Refrigerators that are at least 15 years old in 2011 and 2012 and 20 years old in 2013 and 2014 • Freezers that are at least 15 years old in 2011 and 2012 and 20 years old in 2013 and 2014 • Room air conditioners (only picked up if a fridge/freezer is also scheduled to be picked up at same time) • Dehumidifiers (only picked up if a fridge/freezer is also scheduled to be picked up at same time) There is also opportunity to integrate municipal appliance pick-up services (where available). LDCs may engage municipalities to see if local appliance collection programs can be integrated and the OPA will arrange for appliances that meet the Program eligibility criteria to be picked-up and decommissioned. The OPA will also work with retailers to arrange for the decommissioning of eligible appliances upon the replacement of new, the age requirements will be consistent with those identified above. The Exchange Events portion of the Program is a carry forward and enhancement of exchange events previously hosted by retailers. It includes exchange events held biannually at participating retailers for room air conditioners and dehumidifiers. The Spring exchange event will feature a $50 coupon toward the purchase of a high efficiency replacement unit; the Fall event will feature a $25 gift card. The initiative will also include local marketing and may include engagement opportunities for LDCs where LDCs can negotiate them locally. Savings from the Exchange Events will be proportionally allocated to LDCs based on the size of their residential customer base.

Program Name	**Appliance Retirement/Exchange Program**
CKW Group Role	Promote program through Customer Service contacts, communications and marketing.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**HVAC Online Rebate Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The HVAC rebates initiative has been in market since 2006 (aka. *Cool Savings Program*). The program has been enhanced to include LDC's in the delivery of the initiative and there is also a new contractor training element. As part of this initiative, consumers will be eligible for rebates on qualifying replacement of electronically commutated motors (ECMs) and central air conditioners. Training will be available for contractors to educate them on quality installation principles. LDC's will be involved in the recruitment of contractors; this will be supported by OPA recruitment efforts. The HVAC rebates will be delivered to consumers through participating contractors and will be centrally fulfilled by the OPA, as in the past.
CKW Group Role	Promote program through Customer Service contacts, communications and marketing. Communicate with local contractors to build awareness of available training and support program.
Program Budget	Not applicable.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**New Construction Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This is a new initiative. It includes incentives for builders to construct new, single family homes that include energy efficiency standards that are above current building codes. It includes incentives for: • Prescriptive measures: o "All-off" Switches o ECM Motors o SEER 15 CAC o Lighting Control Products o Energy Efficient Lighting Fixtures o Residential Demand Responses Devices (subject to results of the pilots) • Custom Projects (incentive will be based on a per $/kW or per $/KWh subject to eligibility criteria) (i.e. solar hot water heating where it can be demonstrated as a cost-effective measure) • Performance Incentives: o EnerGuide 83 o EnerGuide 85 • Enabling Initiatives: o Training on Energy Efficiency Building Techniques and Practices o Consumer Education (no incentives) The initiative will be delivered by LDCs, including local marketing, approvals, data collection, and reporting. LDCs will also be responsible for local engagement of builders; with support from OPA air cover driving builders to their LDCs for additional information (possible air cover options include trade publications, Home Builders Associations etc.). The OPA will be responsible for payments, as well as enabling initiatives including builder training and consumer education.
CKW Group Role	Engage local contractors and developers through new service application process and local homebuilder and contractor associations. Marketing Review and approve applications to the program and provide site verifications.
Program Budget	Not available at this time.
Projected Reduction in	Reductions not estimated on a program-specific basis.

Program Name	**New Construction Program**
Peak Provincial Electricity Demand (kW)	
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Midstream Incentives Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This is a carry over and enhancement of the midstream television incentive from the Power Savings Event. In addition to providing incentives for retailers to promote energy efficient televisions, it will include incentives for satellite and cable providers to use high-efficiency set-top boxes and network configurations. It will also include pool pumps, providing contractors with incentives to install "right sized" pool equipment. Savings from the midstream initiatives will be proportionally allocated to LDCs based on the size of their residential customer base.
CKW Group Role	Promote program to relevant local contractors and service providers.
Program Budget	Not applicable.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis..

Program Name	**Low Income Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This is a new program that has been specifically developed to meet the needs of the low income consumer. This is a comprehensive program that involves a variety of activities intended to improve the energy efficiency of low income homes. The program is intended to reduce electricity demand, provide consumers with the information they need to manage their energy use and influence behaviour change that will support these outcomes. The program will pay 100% for the purchase and installation of the electricity saving products. The process begins with an in-home audit which will identify the opportunities within the home. The installation measures range from basic measures (CFL's, weather-stripping, water heater blanket and more) to a full list of extended measures (light fixtures, air conditioning units, freezers, refrigerators, dehumidifiers, draft-proofing and insulation).
CKW Group Role	Promote availability of program through Customer Service contacts and through relationships with community partners.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Residential Demand Response Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This is a re-design of *peaksaver®*, the residential demand response initiative. Existing program features will continue to be offered through June 30, 2011 pursuant to existing agreements between the OPA and participating LDCs. The OPA and the Residential Demand Response Work Group are currently conducting pilot projects to test new technologies for use in the future province wide residential demand response initiative with an anticipated start of July 1, 2011. Further details will be provided at the conclusion of pilot in December 2010. The initiative has been designed to include two options available to consumers: **Option A: Participation with Demand Response** – under this option, four end-uses will be eligible for load control participation: • central air conditioners • electric water heaters • room air conditioners • pool pumps Participants will get load control devices (Home Energy Interface (HEI)) installed free and they will have access to real time consumption and price information. This information can be accessed on an in-home device (IHD) or on-line, depending on the customer's choice. When developed, a Dashboard will also be available under Option A. A Dashboard is a single device that includes load control capabilities and IHD. Consumers will receive subsidized Dashboards. **Option B: Participation without Demand Response** – under this option, customers have the opportunity to access price and real-time consumption information. Participants get a subsidized amount toward a HEI and can opt for an IHD or on-line display.
CKW Group Role	Promote program through Customer Service contacts, communications and marketing.
Program Budget	Not available at this time.

Program Name	**Residential Demand Response Program**
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Commercial and Institutional Programs:

Program Name	Commercial and Institutional Program
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The C&I Program is designed to offer financial incentives to customers for upgrading to energy efficiency measures. This program builds on the success of the current ***Electricity Retrofit Incentive Program (ERIP)*** being offered to Commercial, Industrial, Institutional and Agricultural customers, and the ***Power Savings Blitz (PSB) Program*** offered to small commercial customers with less than 50kW of average monthly demand. This program will offer turn-key lighting and electric hot water heater retrofits for small businesses, and financial incentive payments of up to $400/kW or $0.05/kWh for lighting measures, $800/kW or $0.10/kWh for all other measures; to maximum of 40% of project costs for all other General Service customers. The *Electricity Retrofit Incentive Program* (ERIP), initially developed for the business markets, promoted energy efficiency measures for lighting and high efficiency motors. The 2011-2014 program has been enhanced to include program elements such as feasibility studies and roving Energy Managers to maximize energy savings potential.
CKW Group Role	Build and expand upon existing relationships with local businesses to promote awareness of incentives and benefits of resulting energy reductions. Provide technical assistance to customers to identify and assess energy savings opportunities and overcome barriers to implementation.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand(kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Demand Response 1 - Commercial**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	DR1 is a demand response initiative for industrial and commercial customers, of 50 kW or greater and with interval meters, to reduce the amount of power being used during certain periods of the year. This initiative has a schedule of 1600 hours per year where activations of up to 100 hours may occur with no obligation on customers to participate. This initiative makes payments for actual load reduction only. There are no payments or set-offs associated with a participant deciding not to participate, or where a participant has indicated willingness to perform and then not followed through. The program is managed by a centrally procured third party program administrator. Marketing of the program and customer registration may be done by both Demand Response Providers and the LDC. The LDC will be responsible for promotion of the DR1 initiative and for registering customers.
CKW Group Role	Leverage and build upon existing relationships with local businesses to build awareness of program, an understanding of program rules and the benefits of participation. Assist customers in identifying and assessing demand reduction opportunities and linking to Aggregators.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis. Combined commercial and industrial participation in DR1 program to 2009 has resulted in a load reduction of 5.5 MW.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Demand Response 3 - Commercial**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The DR3 program is open to commercial and industrial customers with a peak demand greater than 50 kW. In comparison to the DR1, which is a voluntary program, the DR3 program is a contractual resource that provides significant financial benefits for participants, reliability and operational benefits for the electricity system, and financial benefits for all electricity customers as it is an economic alternative to procurement of new generation capacity. The DR3 Initiative comes with specific contractual obligations requiring commercial and industrial participants to reduce their use of electricity relative to a baseline when called upon. This initiative makes payments for participants to be on standby and energy payments for the actual energy reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year. The program is delivered by Demand Response Providers, under contract to the OPA, with the LDCs providing important marketing and customer outreach support in a collaborative approach with Demand Response Providers.
CKW Group Role	Leverage and build upon existing relationships with local businesses to build awareness of program, an understanding of program rules and the benefits of participation. Assist customers in identifying and assessing demand reduction opportunities and linking to Aggregators.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Industrial Programs:

Program Name	The Industrial Accelerator
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The Industrial Accelerator Initiative is an energy management program that includes both financial incentives for capital projects and enabling initiatives. It is open to industrial companies that are customers of an Ontario electric LDC and are not insolvent. This initiative offers industrial customers the opportunity to access capital incentives to assist with the implementation of system optimization projects. The incentives are available through the LDC. The initiative is open to distribution connected industrial and commercial customers with projects or portfolio projects that are expected to generate at least 350 MWh of annualized electricity savings or, in the case of Micro-Projects, 100 MWh of annualized electricity savings. The capital incentive for this initiative is up to $200.00/MWh for eligible costs with a cap of 70% of projects costs or a one year pay back. This level is based on an analysis of typical capital costs for large system optimizations and the propensity for industry to pursue projects with a one year simple payback. This program will be delivered by the LDCs with technical support provided by a centrally procured technical resource.
CKW Group Role	Build and expand upon existing relationships with local industries to promote awareness of incentives and benefits of resulting energy reductions. Provide technical assistance to customers to identify and assess energy savings opportunities and overcome barriers to implementation.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Electricity Retrofit Incentive Program – Industrial ERIP**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The ERIP Program is designed to offer financial incentives to customers for completion of energy efficiency measures. The program aims to maximize opportunities to improve the energy efficiency of new and existing buildings, empower owners, operators, tenants of these buildings and the supply chains that serve them to better manage their electricity use. These objectives are accomplished through a customer-focussed approach that provides facility owners, operators, and their supply chains with a focussed, yet comprehensive offering which treats the building as a system, and not a collection of end uses. By pursuing a multi-faceted, comprehensive approach that focuses not only on equipment and technology, but also on the development of people, policies, and processes within Ontario businesses, the goal of further developing a culture of conservation and achieving market transformation will be realized. The program provides payments of up to $400/kW or $0.05/kWh for lighting measures, $800/kW or $0.10/kWh for all other measures; to maximum of 40% of project costs. ERIP is offered to industrial, commercial, agricultural and multi-family buildings. However, given the Industrial Accelerator (IA) Program is best suited to evaluate complex industrial energy efficiency applications, industrial projects with an annual savings exceeding 100MWh per year must apply to the Industrial Accelerator Program. ERIP custom applications that exceed the 100 MWh limit, will be referred to the IA program, unless approval is received from the LDC to proceed under ERIP.
CKW Group Role	Build and expand upon existing relationships with local industries to promote awareness of incentives and benefits of resulting energy reductions. Provide technical assistance to customers to identify and assess energy savings opportunities and overcome barriers to implementation.
Program Budget	Not available at this time.

Program Name	**Electricity Retrofit Incentive Program – Industrial ERIP**
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Demand Response 1 - Industrial**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	DR1 is a demand response initiative for industrial and commercial customers, of 50 kW or greater and with interval meters, to reduce the amount of power being used during certain periods of the year. This initiative has a schedule of 1600 hours per year where activations of up to 100 hours may occur with no obligation on customers to participate. This initiative makes payments for actual load reduction only. There are no payments or set-offs associated with a participant deciding not to participate, or where a participant has indicated willingness to perform and then not followed through. The program is managed by a centrally procured third party program administrator. Marketing of the program and customer registration may be done by both Demand Response Providers and the LDC. The LDC will be responsible for promotion of the DR1 initiative and for registering customers.
CKW Group Role	Leverage and build upon existing relationships with local businesses to build awareness of program, an understanding of program rules and the benefits of participation. Assist customers in identifying and assessing demand reduction opportunities and linking to Aggregators where appropriate.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand(kW)	Reductions not estimated on a program-specific basis. Combined commercial and industrial participation in DR1 program to 2009 has resulted in a load reduction of 5.5 MW.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Demand Response 3 - Industrial**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The DR3 program is open to commercial and industrial customers with a peak demand greater than 50 kW. In comparison to the DR1, which is a voluntary program, the DR3 program is a contractual resource that provides significant financial benefits for participants, reliability and operational benefits for the electricity system, and financial benefits for all electricity customers as it is an economic alternative to procurement of new generation capacity. The DR3 Initiative comes with specific contractual obligations requiring commercial and industrial participants to reduce their use of electricity relative to a baseline when called upon. This initiative makes payments for participants to be on standby and energy payments for the actual energy reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year. The program is delivered by Demand Response Providers, under contract to the OPA, with the LDCs providing important marketing and customer outreach support in a collaborative approach with Demand Response Providers.
CKW Group Role	Leverage and build upon existing relationships with local businesses to build awareness of program, an understanding of program rules and the benefits of participation. Assist customers in identifying and assessing demand reduction opportunities and linking to Aggregators where appropriate.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

6. Potential Board-Approved CDM Programs

The CKW Group has not yet developed a portfolio of potential Tier 2 and Tier 3 programs for Board approval at this time. We are awaiting finalization of the CDM targets by the Board and information from the OPA to fully identify all Tier 1 programs that will be operating over the period in order to avoid conflicting with those initiatives.

The CKW Group is working to identify gaps in program coverage in order to identify additional CDM opportunities and will develop additional CDM programs for Board approval that will enable the utilities in the CKW Group to fully meet their CDM targets..

7. Program Mix

CKW Group members participate in a range of **OPA-Contracted Province-Wide CDM Programs** which serve all significant customer types within the Region of Waterloo. Agricultural operations may participate in residential or commercial programs depending on the nature of the farming operation.

A list of CDM programs available to different customer types is presented in Table 4 below.

Table 4: CDM Program Coverage

Customer Type	Programs Available
Residential	✓ Appliance Retirement Program ✓ Year Round Instant Rebate Program ✓ Bi-Annual Instant Rebate Events ✓ HVAC On-line Rebates Program ✓ Residential Demand Response Initiative (***Peaksaver)*** ✓ Electricity Retrofit Incentive Program (ERIP) for multi-residential ✓ New Construction Program
Low Income Residential	✓ Low Income Program ✓ Appliance Retirement Program ✓ Year Round Instant Rebate Program ✓ Bi-Annual Instant Rebate Events ✓ HVAC On-line Rebates Program ✓ Residential Demand Response Initiative (***Peaksaver)***
Commercial	✓ Commercial and Institutional Province Wide Program, including: o Electricity Retrofit Incentive Program (ERIP) o Power Saving Blitz ✓ Demand Response (DR1 and DR3)

Institutional	✓ Commercial and Institutional Province Wide Program, including: o Electricity Retrofit Incentive Program (ERIP) o Power Saving Blitz ✓ Demand Response (DR1 and DR3)
Industrial	✓ Industrial Accelerator ✓ Electricity Retrofit Incentive Program (ERIP) Industrial ✓ Demand Response (DR1 and DR3)

8. CDM Programs Co-ordination

The CKW Group has co-operated in implementing CDM programs since the inception of the OPA. They have chosen to work together to co-ordinate CDM activities in the Region of Waterloo in order to improve administrative and operational efficiencies. The three utilities have a long history of working together with regards to CDM and other activities. By coming together as a group the CKW Group has been able to share many of the costs involved in the analysis of their CDM potential and in developing their CDM Strategy. By sharing marketing and communications expenditures, the CKW Group can provide a more co-ordinated message and access media which serve the Region as a whole, while minimizing spill-over that each utility would experience if proceeding alone. As a group, they are also able to co-ordinate their CDM activities with a number of key institutional and business customers which serve the Region as a whole.

All three utilities have worked with the ***Residential Energy Efficiency Program*** (***REEP***), a non-profit environmental organization which has served the Region of Waterloo since 1999. REEP offers ecoENERGY Home Evaluations, Solar Assessments and programs for Greening Sacred Spaces, among other services. In past, the three utilities in the CKW Group have assisted REEP in promoting its services by including promotional bill inserts with their bills for residential customers. REEP has also promoted awareness of utility and OPA CDM programs as part of its services. Programs will be co-ordinated with REEP where applicable.

CKW Group members have maintained a good working relationship with energy and Facilities staff from the ***local municipalities and townships***, the ***Regional Municipality of Waterloo*** and both ***School Boards***. These working relationships will be leveraged to build on awareness of CDM program opportunities that may be of value to these organizations.

The City of Kitchener is one of only two municipalities in Ontario which have maintained their municipal franchise for natural gas distribution. It is therefore relatively unique in being the primary shareholder of the electric LDC as well as the owner of the natural gas LDC. As part of its 2005-2007 CDM Plan, Kitchener-Wilmot Hydro Inc. worked with ***Kitchener Utilities*** to offer a fuel switching program for water heaters and other appliances and explored the potential of

offering a similar program in the portion of its territory served by Union Gas. The CKW Group will continue to seek opportunities to co-ordinate its CDM activities with local natural gas and other energy suppliers.

The Region of Waterloo is a recognized hub for technology and manufacturing innovation. The CKW Group has had the unique opportunity to work with organizations that represent these important Key Accounts to foster stronger relations and promote their CDM activities. Advertising for past events and programs has been done through the Waterloo Manufacturing and Innovation Network and Communitech. In addition, the CKW Group has an excellent, ongoing relationship with Canada's Technology Triangle who represent and encourage growth for businesses in the Region of Waterloo.

In 2008 Sustainable Waterloo was founded to allow the Waterloo Region business community to be a part of the local solution to global climate change. This not-for-profit has a growing membership dedicated to reducing its carbon footprint through efficiency and waste reduction, with a heavy emphasis on electricity conservation. The CKW Group are supporters of this organization and their local events. Waterloo North Hydro is a Founding Partner.

The area served by the CKW Group is fortunate in having its own local CTV News station which has provided coverage of many CDM initiatives over the past few years. There is also a newspaper (*The Record*) which primarily covers the Region. This enables the CKW Group to reach customers in the Region using advertising and showcasing local programs with limited spill over. Six smaller community papers also serve the Region, offering affordable advertising and a high readership rate.

Appendix A: Cambridge and North Dumfries Hydro Inc.

Projected Results from Tier 1 Programs:

Cambridge & North Dumfries Hydro Inc.	Cumulative Energy (MWh)			
	2011	2012	2013	2014
Residential	5,236	8,353	12,137	14,741
Commercial	8,803	16,128	23,500	30,671
Industrial	3,938	6,870	10,348	14,094
Total -	***17,977***	***31,351***	***45,984***	***59,506***

Cambridge & North Dumfries Hydro Inc.	Demand (MW)			
	2011	2012	2013	2014
Residential	1.4	2.6	3.7	4.7
Commercial	2.2	4.2	6.3	8.3
Industrial	1.4	2.6	3.9	5.2
Total -	***5.0***	***9.4***	***13.8***	***18.2***

CDM Milestones

Cambridge & North Dumfries Hydro Inc.

	2011	2012	2013	2014
Cumulative Energy (MWh)				
Tier 1 Programs	17,977	31,351	45,984	59,506
Tier 2 & 3 Programs	4,374	8,747	13,121	17,494
Total (CDM Target)	22,351	40,098	59,105	77,000
Demand (MW)				
Tier 1 Programs	5.0	9.4	13.8	18.2
Tier 2 & 3 Programs	(0.0)	(0.1)	(0.1)	(0.2)
Total (CDM Target)	5.0	9.3	13.6	18.0

Note – negative value indicates reductions exceed CDM target.

Appendix B: Kitchener Wilmot Hydro Inc.

Projected Results from Tier 1 Programs:

Kitchener Wilmot Hydro Inc.	Cumulative Energy (MWh)			
	2011	2012	2013	2014
Residential	5,010	11,120	19,000	24,492
Commercial	7,500	16,667	25,833	35,020
Industrial	3,001	5,401	8,035	10,769
Total -	***15,511***	***33,188***	***52,868***	***70,281***

Kitchener Wilmot Hydro Inc.	Demand (MW)			
	2011	2012	2013	2014
Residential	2.2	3.9	5.6	7.2
Commercial	2.3	4.3	6.4	8.5
Industrial	1.4	2.7	4.1	5.4
Total -	***5.8***	***10.9***	***16.0***	***21.1***

CDM Milestones

Kitchener Wilmot Hydro Inc.

	2011	2012	2013	2014
Cumulative Energy (MWh)				
Tier 1 Programs	15,511	33,188	52,868	70,281
Tier 2 & 3 Programs	5,680	11,360	17,039	22,719
Total (CDM Target)	21,190	44,547	69,907	93,000
Demand (MW)				
Tier 1 Programs	5.8	10.9	16.0	21.1
Tier 2 & 3 Programs	0.2	0.5	0.7	0.9
Total (CDM Target)	6.1	11.4	16.7	22.0

Appendix C: Waterloo North Hydro Inc.

Projected Results from Tier 1 Programs:

Waterloo North Hydro Inc.	Cumulative Energy (MWh)			
	2011	2012	2013	2014
Residential	5,232	8,421	12,364	15,136
Commercial	8,387	15,703	23,171	30,308
Industrial	2,524	5,106	7,824	10,737
Total -	***16,143***	***29,230***	***43,359***	***56,181***

Waterloo North Hydro Inc.	Demand (MW)			
	2011	2012	2013	2014
Residential	1.4	2.5	3.6	4.7
Commercial	1.9	3.7	5.5	7.2
Industrial	1.1	2.1	3.2	4.3
Total -	***4.3***	***8.3***	***12.3***	***16.3***

CDM Milestones

Waterloo North Hydro Inc.

	2011	2012	2013	2014
Cumulative Energy (MWh)				
Tier 1 Programs	16,143	29,230	43,359	56,181
Tier 2 & 3 Programs	2,955	5,909	8,864	11,819
Total (CDM Target)	19,097	35,139	52,223	68,000
Demand (MW)				
Tier 1 Programs	4.3	8.3	12.3	16.3
Tier 2 & 3 Programs	(0.1)	(0.1)	(0.2)	(0.3)
Total (CDM Target)	4.3	8.2	12.1	16.0

Note – negative value indicates reductions exceed CDM target.

Albert P. Singh, MBA, CGA
Vice-President, Finance & CFO

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November 1, 2010

Ontario Energy Board
P.O. Box 2319
27th Floor
2300 Yonge Street
Toronto, Ontario
M4P 1E4

Attention: Ms. Kirsten Walli, Board Secretary

Dear Ms Walli:

Re: EB-2010-0215 CDM Strategy Filing

Pursuant to the OEB's CDM Code approved on September 16, 2010, Waterloo North Hydro Inc. (WNH) is attaching two copies of its CDM Strategy Filing.

WNH has previously forwarded an electronic filing of this CDM Strategy via e-mail to boardsec@gov.on.ca .

If there are any questions, please contact Chris Amos at 519-888-5541, camos@wnhydro.com or myself at 519-888-5542, asingh@wnhydro.com .

Yours truly,

Original Signed By

Albert P. Singh, MBA, CGA
Vice-President, Finance and CFO

CKW Group CDM Strategy

Prepared by:

Navigant Consulting Ltd.
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Phone: 647.288.5200
www.NavigantConsulting.com

October 2010

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CKW Group Conservation and Demand Management (CDM) Strategy

The following CDM Strategy has been prepared following the template provided in the CDM Code as published by the Board on September 16, 2010.

1. Distributor's Name: CKW Group (Cambridge and North Dumfries Hydro Inc., Kitchener Wilmot Hydro Inc., Waterloo North Hydro Inc.)

The CKW Group represents the three electric distribution companies serving the Region of Waterloo. The CDM Strategy which follows describes a combined plan for **Cambridge North Dumfries Hydro Inc., Kitchener Wilmot Hydro Inc.,** and **Waterloo North Hydro Inc.**. While the three utilities have developed a co-ordinated, combined strategy in the interests of improved efficiency and effectiveness, separate information for each utility is presented in the attached appendices.

2. Total Reduction in Peak Provincial Electricity Demand (MW) Target:

See discussion and Table 1 in next section**.**

3. Total Reduction in Electricity Consumption (kWh) Target:

The following CDM targets for reductions in peak provincial electricity demand and electricity consumption have been proposed for the three utilities in the CKW Group. The targets shown in Table 1 are taken from the June 22, 2010 letter from the Ontario Energy Board to all licensed electrical distributors regarding "*Electricity Conservation and Demand Management Targets* (EB-2010-0216)[1].

Table 1: Proposed CDM Targets for CKW Group

LDC Name	Total Reduction in Peak Provincial Electricity Demand Target (kW)	Total Reduction in Electricity Consumption Target (MWh)
Cambridge and North Dumfries Hydro Inc.	18,000	77,000
Kitchener-Wilmot Hydro Inc.	22,000	93,000
Waterloo North Hydro Inc.	16,000	68,000
CKW Group Total	***56,000***	***238,000***

We note that the OEB has published these proposed targets for comment and has not yet established final targets for each of the LDC's.

[1] http://www.oeb.gov.on.ca/OEB/Industry/Regulatory+Proceedings/Policy+Initiatives+and+Consultations/Conservation+and+Demand+Management+%28CDM%29/CDM+Management+Targets

4. CDM Strategy

The CKW Group retained Navigant Consulting to carry out modelling and analysis of the achievable CDM potential associated with OPA-Contracted Province-Wide program initiatives and to identify additional opportunities which would enable the utilities in the CKW Group to meet their assigned CDM targets.

Navigant Consulting projected the impact of current OPA-funded province-wide CDM initiatives in the CKW Group's service area by sector for the coming 4-year period. The CKW Group intends to achieve the milestones set out in the table below through active involvement and support of these OPA initiatives. Utility specific projections for each of the members of the CKW Group are provided in Appendices A, B and C.

The estimated CDM reductions as a result of all OPA-contracted province-wide initiatives is shown below by sector. Due to overlapping coverage of some programs (i.e. *Year Round Instant Rebates* and *Bi-Annual Instant Rebate Events*) estimates of the achievable potential were not developed for specific programs.

Table 2: Energy (MWh) and Demand (MW) Milestones

CKW Group	Cumulative Energy (MWh)			
	2011	2012	2013	2014
Residential	15,479	27,893	43,501	54,369
Commercial	24,689	48,498	72,503	95,999
Industrial	9,463	17,377	26,206	35,600
Total -	***49,631***	***93,769***	***142,211***	***185,968***

CKW Group	Demand (MW)			
	2011	2012	2013	2014
Residential	5.0	9.0	12.8	16.6
Commercial	6.4	12.2	18.1	24.0
Industrial	3.8	7.4	11.1	14.9
Total -	***15.2***	***28.6***	***42.1***	***55.5***

The CKW Group intends to meet its CDM Targets over the 4-year period to 2014 by actively participating in OPA-Contracted Province-Wide programs and by developing additional Tier 2 and 3 initiatives for Board approval that will address areas of potential not covered by province-wide OPA initiatives. As additional information becomes available on OPA programs the CKW Group will review opportunities for leveraging these programs in the Region. Additional Tier 2 and 3 programs will also be developed in the coming months. Once these plans have been refined, and CDM targets are finalized, a revised CDM Strategy will be submitted in the 2011 Annual Report for the Board's consideration which will meet the following milestones.

	2011	2012	2013	2014
Cumulative Energy (MWh)				
Tier 1 Programs	49,631	93,769	142,211	185,968
Tier 2 & 3 Programs	13,008	26,016	39,024	52,032
Total (CDM Target)	62,639	119,785	181,235	238,000
Demand (MW)				
Tier 1 Programs	15.2	28.6	42.1	55.5
Tier 2 & 3 Programs	0.1	0.2	0.4	0.5
Total (CDM Target)	15.3	28.9	42.5	56.0

Milestones for each of the utilities involved are provided in Appendices A, B and C.

5. OPA-Contracted Province-Wide CDM Programs

The following table describe the province-wide CDM programs currently offered and expected to be available to customers in the CKW Group territory. For purposes of planning a CDM Strategy for the CKW Group we have assumed that these programs will continue to be available throughout the period from 2011 to 2014. ***We note that these programs are offered at the discretion of the OPA. Decisions to cancel, expand or modify these programs are not within the control of the CKW Group.***

The OPA has released draft descriptions of the following programs to be offered by the CKW Group during the period 2011 to 2014. While a portion of these programs will be centrally managed by the OPA, the CKW Group will maintain a supporting role in their delivery.

Table 3: Proposed OPA Programs for 2011 to 2014

Residential Programs	Commercial and Institutional Programs	Industrial Programs
Year Round Instant Rebates	***Commercial and Institutional Province Wide Program***	***Industrial Accelerator***
Bi-Annual Instant Rebate Events	***ERIP Commercial***	***ERIP Industrial***
Appliance Retirement Program	***Direct Install***	***DR1 - Industrial***
Bi-Annual Appliance Exchange Events	***DR1 - Commercial***	***DR3 - Industrial***
HVAC On-line Rebates Program	***DR3 – Commercial***	
New Construction Program		
Midstream Incentives Program		
Consumer Enabling Initiatives		
Low Income Program		
Residential Demand Response Initiative		

The CKW Group intends to participate or support each of the initiatives indicated in bold/italics in the above list. The remaining two programs listed above will be operated by the OPA on a province-wide basis.

The following pages describe specific OPA-contracted province-wide programs that the CKW Group plans to participate in. For convenience the following tables summarize each program. And the CKW Group's role with respect to each program. A fuller description of the programs and the role played by LDC's is provided in the "*2011 – 2014 OPA-Contracted Province Wide CDM Programs*" Summary Guides published by the OPA in October 2010. Information on funding rules was not available for all programs when this submission was being prepared. Estimated annual budgets for the CKW Group, as well as for each specific utility will be calculated once funding information is available.

Residential Programs:

Program Name	Year Round Instant Rebates
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This program is a year round initiative that offers instant rebates to customers towards the purchase of low cost, easy to install measures. It is an enhancement to the old OPA provincial coupon initiative (aka. *EKC Power Savings Event*) which was only offered twice a year (Spring & Fall). In the past, the program was centrally managed by the OPA and promoted strictly during the months of April & October. The program has now been enhanced to offer customers the opportunity to redeem instant rebates at any time throughout the year.
CKW Group Role	Use communications and marketing opportunities to support program and educate consumers of the benefits of products covered by the rebates.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Appliance Retirement/Exchange Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This initiative is a carry forward and enhancement of ***The Great Refrigerator Roundup***. It includes free pick-up and decommissioning of old, inefficient, working, appliances: • Refrigerators that are at least 15 years old in 2011 and 2012 and 20 years old in 2013 and 2014 • Freezers that are at least 15 years old in 2011 and 2012 and 20 years old in 2013 and 2014 • Room air conditioners (only picked up if a fridge/freezer is also scheduled to be picked up at same time) • Dehumidifiers (only picked up if a fridge/freezer is also scheduled to be picked up at same time) There is also opportunity to integrate municipal appliance pick-up services (where available). LDCs may engage municipalities to see if local appliance collection programs can be integrated and the OPA will arrange for appliances that meet the Program eligibility criteria to be picked-up and decommissioned. The OPA will also work with retailers to arrange for the decommissioning of eligible appliances upon the replacement of new, the age requirements will be consistent with those identified above. The Exchange Events portion of the Program is a carry forward and enhancement of exchange events previously hosted by retailers. It includes exchange events held biannually at participating retailers for room air conditioners and dehumidifiers. The Spring exchange event will feature a $50 coupon toward the purchase of a high efficiency replacement unit; the Fall event will feature a $25 gift card. The initiative will also include local marketing and may include engagement opportunities for LDCs where LDCs can negotiate them locally. Savings from the Exchange Events will be proportionally allocated to LDCs based on the size of their residential customer base.

Program Name	**Appliance Retirement/Exchange Program**
CKW Group Role	Promote program through Customer Service contacts, communications and marketing.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**HVAC Online Rebate Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The HVAC rebates initiative has been in market since 2006 (aka. *Cool Savings Program*). The program has been enhanced to include LDC's in the delivery of the initiative and there is also a new contractor training element. As part of this initiative, consumers will be eligible for rebates on qualifying replacement of electronically commutated motors (ECMs) and central air conditioners. Training will be available for contractors to educate them on quality installation principles. LDC's will be involved in the recruitment of contractors; this will be supported by OPA recruitment efforts. The HVAC rebates will be delivered to consumers through participating contractors and will be centrally fulfilled by the OPA, as in the past.
CKW Group Role	Promote program through Customer Service contacts, communications and marketing. Communicate with local contractors to build awareness of available training and support program.
Program Budget	Not applicable.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**New Construction Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This is a new initiative. It includes incentives for builders to construct new, single family homes that include energy efficiency standards that are above current building codes. It includes incentives for: • Prescriptive measures: o "All-off" Switches o ECM Motors o SEER 15 CAC o Lighting Control Products o Energy Efficient Lighting Fixtures o Residential Demand Responses Devices (subject to results of the pilots) • Custom Projects (incentive will be based on a per $/kW or per $/KWh subject to eligibility criteria) (i.e. solar hot water heating where it can be demonstrated as a cost-effective measure) • Performance Incentives: o EnerGuide 83 o EnerGuide 85 • Enabling Initiatives: o Training on Energy Efficiency Building Techniques and Practices o Consumer Education (no incentives) The initiative will be delivered by LDCs, including local marketing, approvals, data collection, and reporting. LDCs will also be responsible for local engagement of builders; with support from OPA air cover driving builders to their LDCs for additional information (possible air cover options include trade publications, Home Builders Associations etc.). The OPA will be responsible for payments, as well as enabling initiatives including builder training and consumer education.
CKW Group Role	Engage local contractors and developers through new service application process and local homebuilder and contractor associations. Marketing Review and approve applications to the program and provide site verifications.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial	Reductions not estimated on a program-specific basis.

Program Name	**New Construction Program**
Electricity Demand (kW)	
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Midstream Incentives Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This is a carry over and enhancement of the midstream television incentive from the Power Savings Event. In addition to providing incentives for retailers to promote energy efficient televisions, it will include incentives for satellite and cable providers to use high-efficiency set-top boxes and network configurations. It will also include pool pumps, providing contractors with incentives to install "right sized" pool equipment. Savings from the midstream initiatives will be proportionally allocated to LDCs based on the size of their residential customer base.
CKW Group Role	Promote program to relevant local contractors and service providers.
Program Budget	Not applicable.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis..

Program Name	**Low Income Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This is a new program that has been specifically developed to meet the needs of the low income consumer. This is a comprehensive program that involves a variety of activities intended to improve the energy efficiency of low income homes. The program is intended to reduce electricity demand, provide consumers with the information they need to manage their energy use and influence behaviour change that will support these outcomes. The program will pay 100% for the purchase and installation of the electricity saving products. The process begins with an in-home audit which will identify the opportunities within the home. The installation measures range from basic measures (CFL's, weather-stripping, water heater blanket and more) to a full list of extended measures (light fixtures, air conditioning units, freezers, refrigerators, dehumidifiers, draft-proofing and insulation).
CKW Group Role	Promote availability of program through Customer Service contacts and through relationships with community partners.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Residential Demand Response Program**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	This is a re-design of *peaksaver®*, the residential demand response initiative. Existing program features will continue to be offered through June 30, 2011 pursuant to existing agreements between the OPA and participating LDCs. The OPA and the Residential Demand Response Work Group are currently conducting pilot projects to test new technologies for use in the future province wide residential demand response initiative with an anticipated start of July 1, 2011. Further details will be provided at the conclusion of pilot in December 2010. The initiative has been designed to include two options available to consumers: **Option A: Participation with Demand Response** – under this option, four end-uses will be eligible for load control participation: • central air conditioners • electric water heaters • room air conditioners • pool pumps Participants will get load control devices (Home Energy Interface (HEI)) installed free and they will have access to real time consumption and price information. This information can be accessed on an in-home device (IHD) or on-line, depending on the customer's choice. When developed, a Dashboard will also be available under Option A. A Dashboard is a single device that includes load control capabilities and IHD. Consumers will receive subsidized Dashboards. **Option B: Participation without Demand Response** – under this option, customers have the opportunity to access price and real-time consumption information. Participants get a subsidized amount toward a HEI and can opt for an IHD or on-line display.
CKW Group Role	Promote program through Customer Service contacts, communications and marketing.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial	Reductions not estimated on a program-specific basis.

Program Name	**Residential Demand Response Program**
Electricity Demand (kW)	
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Commercial and Institutional Programs:

Program Name	Commercial and Institutional Program
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The C&I Program is designed to offer financial incentives to customers for upgrading to energy efficiency measures. This program builds on the success of the current ***Electricity Retrofit Incentive Program (ERIP)*** being offered to Commercial, Industrial, Institutional and Agricultural customers, and the ***Power Savings Blitz (PSB) Program*** offered to small commercial customers with less than 50kW of average monthly demand. This program will offer turn-key lighting and electric hot water heater retrofits for small businesses, and financial incentive payments of up to $400/kW or $0.05/kWh for lighting measures, $800/kW or $0.10/kWh for all other measures; to maximum of 40% of project costs for all other General Service customers. The *Electricity Retrofit Incentive Program* (ERIP), initially developed for the business markets, promoted energy efficiency measures for lighting and high efficiency motors. The 2011-2014 program has been enhanced to include program elements such as feasibility studies and roving Energy Managers to maximize energy savings potential.
CKW Group Role	Build and expand upon existing relationships with local businesses to promote awareness of incentives and benefits of resulting energy reductions. Provide technical assistance to customers to identify and assess energy savings opportunities and overcome barriers to implementation.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand(kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Demand Response 1 - Commercial**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	DR1 is a demand response initiative for industrial and commercial customers, of 50 kW or greater and with interval meters, to reduce the amount of power being used during certain periods of the year. This initiative has a schedule of 1600 hours per year where activations of up to 100 hours may occur with no obligation on customers to participate. This initiative makes payments for actual load reduction only. There are no payments or set-offs associated with a participant deciding not to participate, or where a participant has indicated willingness to perform and then not followed through. The program is managed by a centrally procured third party program administrator. Marketing of the program and customer registration may be done by both Demand Response Providers and the LDC. The LDC will be responsible for promotion of the DR1 initiative and for registering customers.
CKW Group Role	Leverage and build upon existing relationships with local businesses to build awareness of program, an understanding of program rules and the benefits of participation. Assist customers in identifying and assessing demand reduction opportunities and linking to Aggregators.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis. Combined commercial and industrial participation in DR1 program to 2009 has resulted in a load reduction of 5.5 MW.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Demand Response 3 - Commercial**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The DR3 program is open to commercial and industrial customers with a peak demand greater than 50 kW. In comparison to the DR1, which is a voluntary program, the DR3 program is a contractual resource that provides significant financial benefits for participants, reliability and operational benefits for the electricity system, and financial benefits for all electricity customers as it is an economic alternative to procurement of new generation capacity. The DR3 Initiative comes with specific contractual obligations requiring commercial and industrial participants to reduce their use of electricity relative to a baseline when called upon. This initiative makes payments for participants to be on standby and energy payments for the actual energy reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year. The program is delivered by Demand Response Providers, under contract to the OPA, with the LDCs providing important marketing and customer outreach support in a collaborative approach with Demand Response Providers.
CKW Group Role	Leverage and build upon existing relationships with local businesses to build awareness of program, an understanding of program rules and the benefits of participation. Assist customers in identifying and assessing demand reduction opportunities and linking to Aggregators.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Industrial Programs:

Program Name	The Industrial Accelerator
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The Industrial Accelerator Initiative is an energy management program that includes both financial incentives for capital projects and enabling initiatives. It is open to industrial companies that are customers of an Ontario electric LDC and are not insolvent. This initiative offers industrial customers the opportunity to access capital incentives to assist with the implementation of system optimization projects. The incentives are available through the LDC. The initiative is open to distribution connected industrial and commercial customers with projects or portfolio projects that are expected to generate at least 350 MWh of annualized electricity savings or, in the case of Micro-Projects, 100 MWh of annualized electricity savings. The capital incentive for this initiative is up to $200.00/MWh for eligible costs with a cap of 70% of projects costs or a one year pay back. This level is based on an analysis of typical capital costs for large system optimizations and the propensity for industry to pursue projects with a one year simple payback. This program will be delivered by the LDCs with technical support provided by a centrally procured technical resource.
CKW Group Role	Build and expand upon existing relationships with local industries to promote awareness of incentives and benefits of resulting energy reductions. Provide technical assistance to customers to identify and assess energy savings opportunities and overcome barriers to implementation.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Electricity Retrofit Incentive Program – Industrial ERIP**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The ERIP Program is designed to offer financial incentives to customers for completion of energy efficiency measures. The program aims to maximize opportunities to improve the energy efficiency of new and existing buildings, empower owners, operators, tenants of these buildings and the supply chains that serve them to better manage their electricity use. These objectives are accomplished through a customer-focussed approach that provides facility owners, operators, and their supply chains with a focussed, yet comprehensive offering which treats the building as a system, and not a collection of end uses. By pursuing a multi-faceted, comprehensive approach that focuses not only on equipment and technology, but also on the development of people, policies, and processes within Ontario businesses, the goal of further developing a culture of conservation and achieving market transformation will be realized. The program provides payments of up to $400/kW or $0.05/kWh for lighting measures, $800/kW or $0.10/kWh for all other measures; to maximum of 40% of project costs. ERIP is offered to industrial, commercial, agricultural and multi-family buildings. However, given the Industrial Accelerator (IA) Program is best suited to evaluate complex industrial energy efficiency applications, industrial projects with an annual savings exceeding 100MWh per year must apply to the Industrial Accelerator Program. ERIP custom applications that exceed the 100 MWh limit, will be referred to the IA program, unless approval is received from the LDC to proceed under ERIP.
CKW Group Role	Build and expand upon existing relationships with local industries to promote awareness of incentives and benefits of resulting energy reductions. Provide technical assistance to customers to identify and assess energy savings opportunities and overcome barriers to implementation.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial	Reductions not estimated on a program-specific basis.

Program Name	**Electricity Retrofit Incentive Program – Industrial ERIP**
Electricity Demand (kW)	
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Demand Response 1 - Industrial**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	DR1 is a demand response initiative for industrial and commercial customers, of 50 kW or greater and with interval meters, to reduce the amount of power being used during certain periods of the year. This initiative has a schedule of 1600 hours per year where activations of up to 100 hours may occur with no obligation on customers to participate. This initiative makes payments for actual load reduction only. There are no payments or set-offs associated with a participant deciding not to participate, or where a participant has indicated willingness to perform and then not followed through. The program is managed by a centrally procured third party program administrator. Marketing of the program and customer registration may be done by both Demand Response Providers and the LDC. The LDC will be responsible for promotion of the DR1 initiative and for registering customers.
CKW Group Role	Leverage and build upon existing relationships with local businesses to build awareness of program, an understanding of program rules and the benefits of participation. Assist customers in identifying and assessing demand reduction opportunities and linking to Aggregators where appropriate.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand(kW)	Reductions not estimated on a program-specific basis. Combined commercial and industrial participation in DR1 program to 2009 has resulted in a load reduction of 5.5 MW.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

Program Name	**Demand Response 3 - Industrial**
Operating Years	2011 to 2014 (*at OPA's discretion*)
Program Description	The DR3 program is open to commercial and industrial customers with a peak demand greater than 50 kW. In comparison to the DR1, which is a voluntary program, the DR3 program is a contractual resource that provides significant financial benefits for participants, reliability and operational benefits for the electricity system, and financial benefits for all electricity customers as it is an economic alternative to procurement of new generation capacity. The DR3 Initiative comes with specific contractual obligations requiring commercial and industrial participants to reduce their use of electricity relative to a baseline when called upon. This initiative makes payments for participants to be on standby and energy payments for the actual energy reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year. The program is delivered by Demand Response Providers, under contract to the OPA, with the LDCs providing important marketing and customer outreach support in a collaborative approach with Demand Response Providers.
CKW Group Role	Leverage and build upon existing relationships with local businesses to build awareness of program, an understanding of program rules and the benefits of participation. Assist customers in identifying and assessing demand reduction opportunities and linking to Aggregators where appropriate.
Program Budget	Not available at this time.
Projected Reduction in Peak Provincial Electricity Demand (kW)	Reductions not estimated on a program-specific basis.
Projected Reduction in Electricity Consumption (MWh)	Reductions not estimated on a program-specific basis.

6. Potential Board-Approved CDM Programs

The CKW Group has not yet developed a portfolio of potential Tier 2 and Tier 3 programs for Board approval at this time. We are awaiting finalization of the CDM targets by the Board and information from the OPA to fully identify all Tier 1 programs that will be operating over the period in order to avoid conflicting with those initiatives.

The CKW Group is working to identify gaps in program coverage in order to identify additional CDM opportunities and will develop additional CDM programs for Board approval that will enable the utilities in the CKW Group to fully meet their CDM targets..

7. Program Mix

CKW Group members participate in a range of **OPA-Contracted Province-Wide CDM Programs** which serve all significant customer types within the Region of Waterloo. Agricultural operations may participate in residential or commercial programs depending on the nature of the farming operation.

A list of CDM programs available to different customer types is presented in Table 4 below.

Table 4: CDM Program Coverage

Customer Type	Programs Available
Residential	✓ Appliance Retirement Program ✓ Year Round Instant Rebate Program ✓ Bi-Annual Instant Rebate Events ✓ HVAC On-line Rebates Program ✓ Residential Demand Response Initiative (***Peaksaver)*** ✓ Electricity Retrofit Incentive Program (ERIP) for multi-residential ✓ New Construction Program
Low Income Residential	✓ Low Income Program ✓ Appliance Retirement Program ✓ Year Round Instant Rebate Program ✓ Bi-Annual Instant Rebate Events ✓ HVAC On-line Rebates Program ✓ Residential Demand Response Initiative (***Peaksaver)***
Commercial	✓ Commercial and Institutional Province Wide Program, including: o Electricity Retrofit Incentive Program (ERIP) o Power Saving Blitz ✓ Demand Response (DR1 and DR3)
Institutional	✓ Commercial and Institutional Province Wide

	Program, including: o Electricity Retrofit Incentive Program (ERIP) o Power Saving Blitz ✓ Demand Response (DR1 and DR3)
Industrial	✓ Industrial Accelerator ✓ Electricity Retrofit Incentive Program (ERIP) Industrial ✓ Demand Response (DR1 and DR3)

8. CDM Programs Co-ordination

The CKW Group has co-operated in implementing CDM programs since the inception of the OPA. They have chosen to work together to co-ordinate CDM activities in the Region of Waterloo in order to improve administrative and operational efficiencies. The three utilities have a long history of working together with regards to CDM and other activities. By coming together as a group the CKW Group has been able to share many of the costs involved in the analysis of their CDM potential and in developing their CDM Strategy. By sharing marketing and communications expenditures, the CKW Group can provide a more co-ordinated message and access media which serve the Region as a whole, while minimizing spill-over that each utility would experience if proceeding alone. As a group, they are also able to co-ordinate their CDM activities with a number of key institutional and business customers which serve the Region as a whole.

All three utilities have worked with the ***Residential Energy Efficiency Program*** (***REEP***), a non-profit environmental organization which has served the Region of Waterloo since 1999. REEP offers ecoENERGY Home Evaluations, Solar Assessments and programs for Greening Sacred Spaces, among other services. In past, the three utilities in the CKW Group have assisted REEP in promoting its services by including promotional bill inserts with their bills for residential customers. REEP has also promoted awareness of utility and OPA CDM programs as part of its services. Programs will be co-ordinated with REEP where applicable.

CKW Group members have maintained a good working relationship with energy and Facilities staff from the ***local municipalities and townships***, the ***Regional Municipality of Waterloo*** and both ***School Boards***. These working relationships will be leveraged to build on awareness of CDM program opportunities that may be of value to these organizations.

The City of Kitchener is one of only two municipalities in Ontario which have maintained their municipal franchise for natural gas distribution. It is therefore relatively unique in being the primary shareholder of the electric LDC as well as the owner of the natural gas LDC. As part of its 2005-2007 CDM Plan, Kitchener-Wilmot Hydro Inc. worked with ***Kitchener Utilities*** to offer a fuel switching program for water heaters and other appliances and explored the potential of offering a similar program in the portion of its territory served by Union Gas. The CKW Group will continue to seek opportunities to co-ordinate its CDM activities with local natural gas and other energy suppliers.

The Region of Waterloo is a recognized hub for technology and manufacturing innovation. The CKW Group has had the unique opportunity to work with organizations that represent these important Key Accounts to foster stronger relations and promote their CDM activities. Advertising for past events and programs has been done through the Waterloo Manufacturing and Innovation Network and Communitech. In addition, the CKW Group has an excellent, ongoing relationship with Canada's Technology Triangle who represent and encourage growth for businesses in the Region of Waterloo.

In 2008 Sustainable Waterloo was founded to allow the Waterloo Region business community to be a part of the local solution to global climate change. This not-for-profit has a growing membership dedicated to reducing its carbon footprint through efficiency and waste reduction, with a heavy emphasis on electricity conservation. The CKW Group are supporters of this organization and their local events. Waterloo North Hydro is a Founding Partner.

The area served by the CKW Group is fortunate in having its own local CTV News station which has provided coverage of many CDM initiatives over the past few years. There is also a newspaper (*The Record*) which primarily covers the Region. This enables the CKW Group to reach customers in the Region using advertising and showcasing local programs with limited spill over. Six smaller community papers also serve the Region, offering affordable advertising and a high readership rate.

Appendix A: Cambridge and North Dumfries Hydro Inc.

Projected Results from Tier 1 Programs:

Cambridge & North Dumfries Hydro Inc.	Cumulative Energy (MWh)			
	2011	2012	2013	2014
Residential	5,236	8,353	12,137	14,741
Commercial	8,803	16,128	23,500	30,671
Industrial	3,938	6,870	10,348	14,094
Total -	***17,977***	***31,351***	***45,984***	***59,506***

Cambridge & North Dumfries Hydro Inc.	Demand (MW)			
	2011	2012	2013	2014
Residential	1.4	2.6	3.7	4.7
Commercial	2.2	4.2	6.3	8.3
Industrial	1.4	2.6	3.9	5.2
Total -	***5.0***	***9.4***	***13.8***	***18.2***

CDM Milestones

Cambridge & North Dumfries Hydro Inc.

	2011	2012	2013	2014
Cumulative Energy (MWh)				
Tier 1 Programs	17,977	31,351	45,984	59,506
Tier 2 & 3 Programs	4,374	8,747	13,121	17,494
Total (CDM Target)	22,351	40,098	59,105	77,000
Demand (MW)				
Tier 1 Programs	5.0	9.4	13.8	18.2
Tier 2 & 3 Programs	(0.0)	(0.1)	(0.1)	(0.2)
Total (CDM Target)	5.0	9.3	13.6	18.0

Note – negative value indicates reductions exceed CDM target.

Appendix B: Kitchener Wilmot Hydro Inc.

Projected Results from Tier 1 Programs:

Kitchener Wilmot Hydro Inc.	Cumulative Energy (MWh)			
	2011	2012	2013	2014
Residential	5,010	11,120	19,000	24,492
Commercial	7,500	16,667	25,833	35,020
Industrial	3,001	5,401	8,035	10,769
Total -	***15,511***	***33,188***	***52,868***	***70,281***

Kitchener Wilmot Hydro Inc.	Demand (MW)			
	2011	2012	2013	2014
Residential	2.2	3.9	5.6	7.2
Commercial	2.3	4.3	6.4	8.5
Industrial	1.4	2.7	4.1	5.4
Total -	***5.8***	***10.9***	***16.0***	***21.1***

CDM Milestones

Kitchener Wilmot Hydro Inc.

	2011	2012	2013	2014
Cumulative Energy (MWh)				
Tier 1 Programs	15,511	33,188	52,868	70,281
Tier 2 & 3 Programs	5,680	11,360	17,039	22,719
Total (CDM Target)	21,190	44,547	69,907	93,000
Demand (MW)				
Tier 1 Programs	5.8	10.9	16.0	21.1
Tier 2 & 3 Programs	0.2	0.5	0.7	0.9
Total (CDM Target)	6.1	11.4	16.7	22.0

Appendix C: Waterloo North Hydro Inc.

Projected Results from Tier 1 Programs:

Waterloo North Hydro Inc.	Cumulative Energy (MWh)			
	2011	2012	2013	2014
Residential	5,232	8,421	12,364	15,136
Commercial	8,387	15,703	23,171	30,308
Industrial	2,524	5,106	7,824	10,737
Total -	***16,143***	***29,230***	***43,359***	***56,181***

Waterloo North Hydro Inc.	Demand (MW)			
	2011	2012	2013	2014
Residential	1.4	2.5	3.6	4.7
Commercial	1.9	3.7	5.5	7.2
Industrial	1.1	2.1	3.2	4.3
Total -	***4.3***	***8.3***	***12.3***	***16.3***

CDM Milestones

Waterloo North Hydro Inc.

	2011	2012	2013	2014
Cumulative Energy (MWh)				
Tier 1 Programs	16,143	29,230	43,359	56,181
Tier 2 & 3 Programs	2,955	5,909	8,864	11,819
Total (CDM Target)	19,097	35,139	52,223	68,000
Demand (MW)				
Tier 1 Programs	4.3	8.3	12.3	16.3
Tier 2 & 3 Programs	(0.1)	(0.1)	(0.2)	(0.3)
Total (CDM Target)	4.3	8.2	12.1	16.0

Note – negative value indicates reductions exceed CDM target.

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Cambridge and North Dumfries Hydro Inc.

Electricity Distributor Licence ED-202-0574

Conservation and Demand Management

2011 Annual Report

Submitted to:

Ontario Energy Board

Submitted on September 30, 2012

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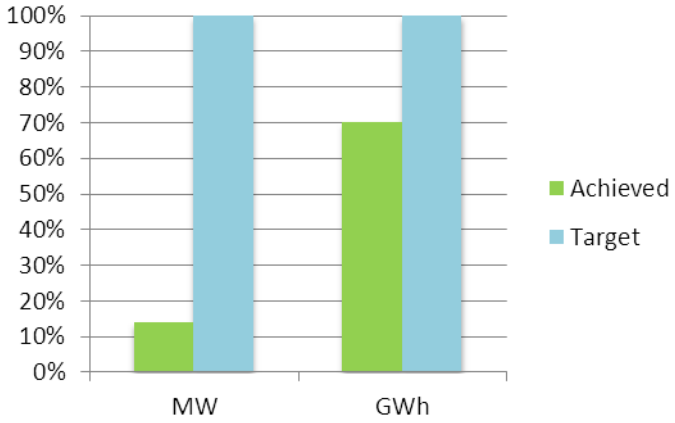
Executive Summary

2011 represented the first of four years of Conservation and Demand Management (CDM) program delivery under the new Ontario Energy Board CDM Code (Board File No. EB-2010-0215). The CDM Code requires that Cambridge and North Dumfries Hydro Inc. (CND) achieve 17.68MW and 73.66GWh of peak demand and energy savings during the period January 1, 2011 to December 31, 2014. This report will provide details on the achievement to date, including activities undertaken to increase participation rates. The 2011 achievements toward the 2014 target are 2.45MW and 51.34GWh and are summarized in the chart below.

2011 Contributions to 2014 Target (MW & GWh)



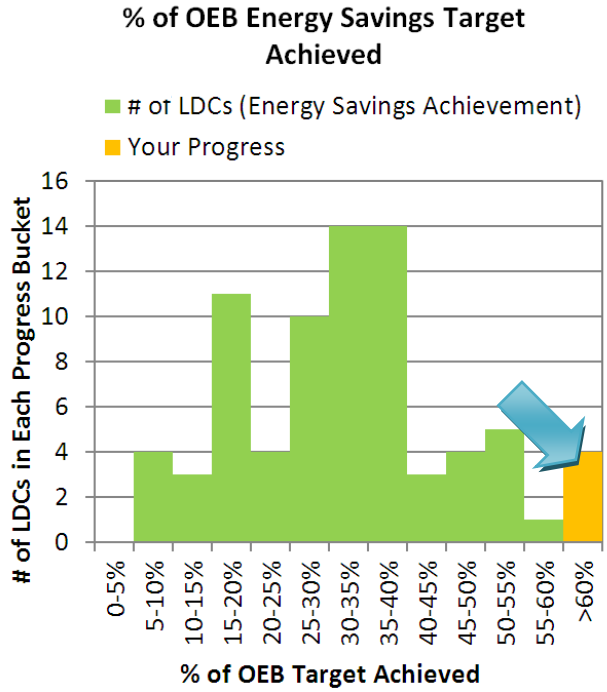
CND made the engagement of channel partners, stakeholders and customers a key priority. Efforts to provide continuity from Initiatives pre-2011 proved valuable to realizing savings early on. As demonstrated in the chart above, GWh savings have accumulated quickly, impacted heavily by results attributed to pre-2011 Initiatives.

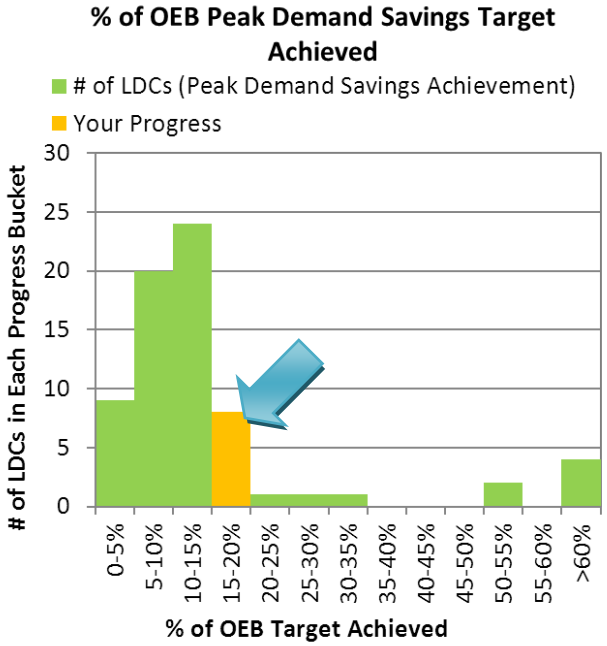
To reduce overhead costs and improve delivery of CDM Initiatives, CND collaborated with Kitchener-Wilmot Hydro Inc. (KW) and Waterloo North Hydro Inc. (WN) our partners in the Region of Waterloo (herein known as the "CKW Group"). Additionally, where appropriate, partnership with Union Gas was sought to improve collaboration and cross promotion.

Please find on the next page, a graphical representation of CND's performance position in relation to other CDM delivering Local Distribution Companies (LDCs). These results were provided by the Ontario Power Authority in the 2011 year-end report.

Comparison: CND Achievement vs. LDC Community Achievement

The following graphs assume that demand response resources remain until 2014





Background

On March 31, 2010, the Minister of Energy and Infrastructure of Ontario, under the guidance of sections 27.1 and 27.2 of the *Ontario Energy Board Act, 1998*, directed the Ontario Energy Board (OEB) to establish CDM targets to be met by electricity distributors. Accordingly, on November 12, 2010, the OEB amended the distribution licence of CND to require CND, as a condition of its licence, to achieve 73.66 GWh of energy savings and 17.68 MW of summer peak demand savings, over the period beginning January 1, 2011 through December 31, 2014.

In accordance with the same Minister's directive, the OEB issued the Conservation and Demand Management Code for Electricity Distributors (the Code) on September 16, 2010. The Code sets out the obligations and requirements with which electricity distributors must comply in relation to the CDM targets set out in their licences. To comply with the Code requirements, CND submitted its CDM Strategy on November 1, 2010 which provided a high level description of how CND intended to achieve its CDM targets.

The Code also required a distributor to file annual report with the OEB. This Annual Report is prepared accordingly and covers the period from January 1, 2011 to December 31, 2011.

1 Board-Approved CDM Programs

1.1 Introduction

In its Decision and Order dated November 12, 2010 (**EB-2010-0215 & EB-2010-0216**), the OEB ordered that, (to meet its mandatory CDM targets), "Each licenced electricity distributor must, as a condition of its licence, deliver Board-Approved CDM Programs, OPA-Contracted Province-Wide CDM Programs, or a combination of the two".

At this time, the implementation of Time-of-Use ("TOU") Pricing is the only Board-Approved CDM program that is being considered in CND's service area. It should be noted, CND did not implement TOU pricing until May, 2012.

1.2 TOU Pricing

1.2.1 Background

In its April 26, 2012 CDM Guidelines, the OEB recognized that a portion of the aggregate electricity demand target was intended to be attributable to savings achieved through the implementation of TOU Pricing. The OEB established TOU prices and has made the implementation of this pricing mechanism mandatory for distributors. On this basis, the OEB has determined that distributors will not have to file a Board-Approved CDM program application regarding TOU pricing. The OEB has deemed the implementation of TOU pricing to be a Board-Approved CDM program for the purposes of achieving the CDM targets. The costs associated with the implementation of TOU pricing are recoverable through distribution rates, and not through the Global Adjustment Mechanism ("GAM").

In accordance with a Directive dated March 31, 2010 by the Minister of Energy and Infrastructure, the OEB is of the view that any evaluations of savings from TOU pricing should be conducted by the Ontario Power Authority (OPA) for the province, and then allocated to distributors. CND will report these results upon receipt from the OPA. As of September 30, 2012, the OPA has not released its preliminary results of TOU savings to distributors.

CND began transitioning its RPP customers to TOU billing in April and May 2012 and delivered its first TOU bills August, 8 2012. As of August 31, 2012, 93% of CND's RPP customers are on TOU billing.

1.3 CND's Application with the OEB

In 2011, CND did not file an application for any Board-Approved CDM programs. It is not anticipated that any applications will be made in subsequent years.

2 OPA-Contracted Province-Wide CDM Programs

2.1 Introduction

Effective February 17, 2011, CND entered into an agreement with the OPA to deliver CDM programs as listed in Table 1 below, for the period January 1, 2011 to December 31, 2014. In addition, results will be reported from projects started pre-2011 which completed in 2011.

Table 1: CDM Program Listing

Initiative	Schedule	Date schedule posted	Customer Class
Residential Program			
Appliance Retirement	Schedule B-1, Exhibit D	Jan 26 2011	All residential rate classes
Appliance Exchange	Schedule B-1, Exhibit E	Jan 26 2011	All residential rate classes
HVAC Incentives	Schedule B-1, Exhibit B	Jan 26 2011	All residential rate classes
Conservation Instant Coupon Booklet	Schedule B-1, Exhibit A	Jan 26 2011	All residential rate classes
Bi-Annual Retailer Event	Schedule B-1, Exhibit C	Jan 26 2011	All residential rate classes
Residential Demand Response	Schedule B-3	Aug 22 2011	All general service classes
New Construction Program	Schedule B-2	Jan 26 2011	All residential rate classes
Commercial & Institutional Program			
Efficiency: Equipment Replacement	Schedule C-2	Jan 26 2011	All general service classes
Direct Install Lighting	Schedule C-3	Jan 26 2011	General Service < 50 kW
Existing Building Commissioning Incentive	Schedule C-6	Feb 2011	All general service classes
New Construction and Major Renovation Initiative	Schedule C-4	Feb 2011	All general service classes

Energy Audit	Schedule C-1	Jan 26, 2011	All general service classes
Commercial Demand Response (part of the Residential program schedule)	Schedule B-3	Jan 26, 2011	All general service classes
Demand Response 3 (part of the Industrial program schedule)	Schedule D-6	May 31, 2011	General Service 50 kW & above
Industrial Program			
Process & System Upgrades	Schedule D-1	May 31, 2011	General Service 50 kW & above
Monitoring & Targeting	Schedule D-2	May 31, 2011	General Service 50 kW & above
Energy Manager	Schedule D-3	May 31, 2011	General Service 50 kW & above
Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	Schedule C-2	May 31, 2011	General Service 50 kW & above
Demand Response 3	Schedule D-6	May 31, 2011	General Service 50 kW & above
Home Assistance Program			
Home Assistance Program	Schedule E-1	May 9, 2011	All residential rate classes
Pre-2011 Programs completed in 2011			
Electricity Retrofit Incentive Program	n/a	n/a	All general service classes
High Performance New Construction	n/a	n/a	All general service classes

Several Initiatives that were included in the schedules were not in market in 2011. The OPA has communicated that the Initiatives listed below in table 2 were not in market in 2011 and that they represent a very small percentage of the forecasted energy and demand savings. During the 2011 program year, the OPA placed emphasis on supporting the implementation of Initiatives that would offer the greatest ratepayer value and greatest amount of persisting savings.

Table 2: Initiatives Not in Market in 2011

Initiative Not in Market in 2011	Objective	Status
Residential Program		
Midstream Electronics	The objective of this initative is to encourage retailers to promote and sell high efficency televisions, and for distributors to distribute high efficiency set top boxes.	Not launched to market
Midstream Pool Equipment	The objective of this Initiative is to encourage pool installers to sell and install efficient pool pump equipment in residential in-ground pools.	Not launched to market
First Nations Program	First Nations programs are delivered by OPA and results are attributed to LDCs for reporting.	Not launched to market
Home Energy Audit Tool	This is a provincial online audit tool to engage customers in conservation and help drive customer participation to CDM programs.	Not launched to market
Commercial & Institutional Program		
Direct Service Space Cooling	The objective of this Initiative is to offer free servicing of air conditioning systems and refrigeration units for the purpose of achieving energy savings and demand reduction.	Not launched to market in 2011. The OPA has no plans to launch this Initiative 2012
Industrial Program		
Demand Response 1	As above	No customer uptake for this Initiative

The Master Service Agreement (the Agreement) between CND and the OPA includes a program change management provisions in Article 3. Collaboration between the OPA and the LDCs commenced in 2011 as the change management process was implemented to enhance the saveONenergy program suite. The change management process allows for modifications to the Agreement and Initiative Schedules. The program enhancements give LDCs additional tools and greater flexibility to deliver programs in a way that meets the needs of customers and further drives participation in the Initiatives.

2.2 Program Descriptions

2.2.1 Residential Programs

Appliance Retirement Initiative

Target Customer Type: Residential customers

Initiative Frequency: Year round

Objectives: Achieve energy and demand savings by permanently decommissioning certain older, inefficient refrigeration appliances.

Description: This is an energy efficiency Initiative that offers individuals and businesses free pick-up and decommissioning of old large refrigerators and freezers. Window air conditioners and portable dehumidifiers will also be picked up if a refrigerator or a freezer is being collected.

Targeted End Uses: Refrigerators, freezers, window air conditioners and portable dehumidifiers

Delivery: OPA centrally contracts for province-wide marketing, call center, appliance pick-up and decommissioning process. LDC provides local marketing and coordination with municipal pick-up where available. Additional detail is available:

- Schedule B-1, Exhibit D http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer/Programs/Appliance-Retirement.aspx

Initiative Activities/Progress:
Below is a comprehensive list of activities undertaken by CND to promote the Residential Program offerings. Activities were commonly undertaken to promote saveONenergy FOR HOME at a holistic program level rather than at the individual Initiative level for better market penetration and to achieve cost-efficiencies. In addition to cobranding marketing between Initiatives, every effort was made to collaborate and share material, ad space and creative costs with KW and WN in our endeavour to jointly deliver the program.

- Newspaper ads ran in the Cambridge Times and Ayr News weekly from August, 2011 to December 2011.
- Full page ad in special Cambridge Times newspaper publication "Here's My Card"; a business directory profile and community connection guide.
- Advertisement in annual Cambridge Community Magazine distributed to households in the City of Cambridge and Township of North Dumfries through the Cambridge Times.
- Cambridge Winterhawks Jr. B. hockey team sponsorship; including logo on rink boards, branded game puck, logo on player's jersey and a special game night sponsorship including booth space.
- Brian in a Box sponsor in partnership with 107.5 DAVE FM and the United Way of Cambridge and North Dumfries; included a community fundraiser BBQ and radio advertisements.
- Program banners jointly branded with KW and WN to promote the program in our lobby and at special events.
- The CKW Group sponsored the Kitchener Rangers Jr. A hockey team on the scoreboard with a commercial supporting the saveONenergy FOR HOME programs through the mysaveONenergy Pledge.
- Promotion of the programs through mysaveONenergy Pledge stickers on all corporate vehicles.
- saveONenergy branded ice scrapers provided as a promotional item giveaway in our lobby and at community events.
- Program brochure jointly branded with KW and WN to promote the programs in our lobby and at special events.
- Sponsorship of Christmas in Cambridge and the New Year's Eve skating event.
- Promotion of programs at retailer locations in conjunction with HVAC Incentives, Appliance Exchange and Coupon events.
- Newspaper advertisement in the Waterloo Region Record jointly branded with KW and WN to promote energy savings tips and saveONenergy FOR HOME programs during Earth Hour.

In Market Date: February 17, 2011

Lessons Learned:

- The Appliance Retirement Initiative (previously The Great Refrigerator Round-Up) has been offered by LDCs since 2007. This Initiative is approaching market saturation.
- While the OPA and the LDCs have reviewed this Initiative to assess whether to include other products, appliances have a natural life cycle and the Initiative cannot be expected to continually deliver the high level of results in perpetuity.

These lower expectations have been taken into account when developing conservation portfolios.

- This Initiative now faces some competition from independent retailers and municipalities. Locally, the Region of Waterloo offers a popular curb-side appliance pick up at no cost to customers.
- Results are very responsive to province wide advertising.

Appliance Exchange Initiative

Target Customer Type: Residential customers

Initiative Frequency: Spring and fall

Objective: The objective of this Initiative is to remove and permanently decommission older, inefficient window air conditioners and portable dehumidifiers that are in Ontario.

Description: This Initiative involves appliance exchange events. Exchange events are held at local retail locations and customers are encouraged to bring in their old room air conditioners and dehumidifiers in exchange for coupons/discounts towards the purchase of new energy efficient equipment.

Targeted End Uses: Window air conditioners and portable dehumidifiers

Delivery: OPA contracts with participating retailers for collection of eligible units. Additional detail is available:

- Schedule B-1, Exhibit C http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress: Staff of CND attended the spring weekend event at a local retailer to coordinate the drop off and cross promote the other Initiatives to participating customers.

In Market Date: May 14-15 2011

Lessons Learned:

- The spring event had the participation of 3 retailers with 300 – 400 locations across the province. However, the fall 2011 event had no retailer participation, therefore savings budgeted by the LDCs did not materialize.
- Evaluation, Measurement, and Verification (EMV) results indicated that the value of savings for retired room AC has dropped, *see table 5.*
- The Initiative may be achieving market saturation.
- The type of unit turned in is very dependent upon what is promoted by the retailers.

HVAC Incentives Initiative

Target Customer Type: Residential customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage the replacement of existing heating systems with high efficiency furnaces equipped with Electronically Commutated Motors (ECM), and to replace existing central air conditioners (CAC) with ENERGY STAR qualified systems and products**.**

Description: This is an energy efficiency Initiative that provides rebates for the replacement of old heating or cooling systems with high efficiency furnaces (equipped with ECM) and Energy Star qualified CACs by approved Heating, Refrigeration, and Air Conditioning Institute (HRAI) qualified contractors.

Targeted End Uses: CACs and furnaces

Delivery: OPA contracts centrally for delivery of the program and LDCs are encouraged to convince local contractors to participate in the Initiative. Additional detail is available:

- Schedule B-1, Exhibit B http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress:
Below is a comprehensive list of activities undertaken by CND to promote the Residential Program offerings. Activities were commonly undertaken to promote saveONenergy FOR HOME at a holistic program level rather than at the individual Initiative level for better market penetration and to achieve cost-efficiencies. In addition to cobranding marketing between Initiatives, every effort was made to collaborate and share material, ad space and creative costs with KW and WN in our endeavour to jointly deliver the program.

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- saveONenergy branded ice scrapers provided as a promotional item giveaway in our lobby and at community events.
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- Sponsorship of Christmas in Cambridge and the New Year's Eve skating event
- Promotion of programs at retailer locations in conjunction with Appliance Retirement, Appliance Exchange and Coupon events.
- Newspaper advertisement in the Waterloo Region Record jointly branded with KW and WN to promote energy savings tips and saveONenergy FOR HOME programs during Earth Hour.

In Market Date: February 17, 2011

Lessons Learned:

- Channel engagement is a highly effective method of connecting with customers; however channel partners require timeliness of the Rebate process to maintain a positive relationship between consumers, contractors, the OPA, and the participating LDC.
- There appears to be spillover from non-HRAI contractors who are ineligible for this Initiative. There are cases where smaller independent contractors are offering their own incentives (by discounting their installations to match value of the OPA incentive) to make the sale. As this occurs outside of the Initiative, these installations are not being attributed to any LDC.

Conservation Instant Coupon Booklet Initiative

Target Customer Type: Residential customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage households to purchase energy efficient products by offering discounts.

Description: This Initiative provides customers with year round coupons. The coupons offer instant rebates towards the purchase of a variety of low cost, easy to install energy efficient measures and can be redeemed at participating retailers. Booklets were directly mailed to customers and were also available at point-of-purchase. Downloadable coupons were also available at www.saveoneenergy.ca.

Targeted End Uses: ENERGYSTAR® qualified standard Compact Fluorescent Lights (CFLs), ENERGYSTAR® qualified Light Fixtures lighting control products, weather-stripping, hot water pipe wrap, electric water heater blanket, heavy duty plug-in timers, advanced power bars, clothesline and baseboard programmable thermostats

Delivery: OPA contracts centrally for the distribution of the coupon booklets across Ontario. LDC distributes coupons at local events. The OPA enters into agreements with retailers to honour the coupons. Additional detail is available:

- Schedule B-1, Exhibit A http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress:
Below is a comprehensive list of activities undertaken by CND to promote the Residential Program offerings. Activities were commonly undertaken to promote saveONenergy FOR HOME at a holistic program level rather than at the individual Initiative level for better market penetration and to achieve cost-efficiencies. In addition to cobranding marketing between Initiatives, every effort was made to collaborate and share material, ad space and creative costs with KW and WN in our endeavour to jointly deliver the program.

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- Promotion of programs at retailer locations in conjunction with Appliance Exchange and Coupon events.
- Newspaper advertisement in the Waterloo Region Record jointly branded with KW and WN to promote energy savings tips and saveONenergy FOR HOME programs during Earth Hour.

In Market Date: April 2011

Lessons Learned:

- The downloadable coupons had a higher rate of redemption than the mailed out booklets.
- This Initiative may benefit from an enabler such as a conservation card/loyalty card to increase customer participation.
- The timeframe for retailer submission of redeemed coupons vary from retailer to retailer. This delays the results reporting, which in turn limits the OPA and LDC abilities to react and respond to Initiative performance or changes in consumer behaviour.

Bi-Annual Retailer Event Initiative

Target Customer Type: Residential customers

Initiative Frequency: Bi-annual events

Objective: The objective of this Initiative is to provide instant point of purchase discounts to individuals at participating retailers for a variety of energy efficient products.

Description: Twice a year (spring and fall), participating retailers host month-long rebate events. During the months of April and October, customers are encouraged to visit participating retailers where they can find coupons redeemable for instant rebates towards a variety of low cost, easy to install energy efficient measures.

Targeted End Uses: Same as the conservation instant coupon booklet Initiative

Delivery: The OPA enters into arrangements with participating retailers to promote the discounted products, and to post and honour related coupons. LDCs also refer retailers to the OPA. Additional detail is available:

- Schedule B-1, Exhibit C http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress:
No marketing activities were undertaken at the local level for this Initiative. Results relied on spillover from the year-round coupon campaign and the marketing undertaken at a provincial and retailer level.

In Market Date: April 2011

Lessons Learned:

- The Product list has changed very little over the past four years.
- Program evolution, including new products (for example, LED lighting) and review of incentive pricing for the coupon Initiatives, must be a regular activity to ensure continued consumer interest.

- A review conducted by the Residential Working Group in late 2011 identified three areas of need for Initiative evolution: 1) introduction of product focused marketing; 2) enhanced product selection and 3) improved training for retailers.

New Construction Initiative

Target Customer Type: Residential customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to provide incentives to participants for the purpose of promoting the construction of energy efficient residential homes in the Province of Ontario.

Description: This is an energy efficiency Initiative that provides incentives to homebuilders for constructing new homes that are efficient, smart, and integrated (applicable to new single family dwellings). Incentives are provided in two key categories as follows:

- Incentives for homebuilders who install electricity efficiency measures as determined by a prescriptive list or via a custom option.
- Incentives for homebuilders who meet or exceed aggressive efficiency standards using the EnerGuide performance rating system.

Targeted End Uses: all off switch, ECM motors, ENERGY STAR qualified central a/c, lighting control products, lighting fixtures, EnerGuide 83 whole home, EnerGuide 85 whole homes

Delivery: Local engagement of builders will be the responsibility of the LDC and will be supported by OPA air coverage driving builders to their LDC for additional information. Additional detail is available:

- Schedule B-1, Exhibit C http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-2%20New%20Construction%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress:
Resistance from local home builders has stalled uptake in CND's service territory, as detailed below in the lessons learned. Proposed changes to the application process should improve participation rates in 2012 and beyond.

In Market Date: February 17, 2011

Lessons Learned:

- There were limited (5) participants in the program. Because the online application system is a one to one relationship, this program was only practical for custom builders who were building one home at a time. Tract builders who might build 250 homes in a single phase would have to submit 250 applications to qualify for incentives. This administrative challenge has deterred all tract builders from participating in the program to date.
- Administrative requirements must align with perceived stakeholder payback. Changes are being processed through change management for 2012.

Residential Demand Response Initiative

Target Customer Type(s): Residential and Small Commercial Customers

Initiative Frequency: Year round

Objective: The objectives of this Initiative are to enhance the reliability of the Independent Electricity System Operator controlled grid by accessing and aggregating specified residential and small commercial end uses for the purpose of load reduction, increasing consumer awareness of the importance of reducing summer demand and providing consumers their current electricity consumption and associated costs.

Description*:* *In* ***peaksaver***PLUS ™ participants are eligible to receive a free programmable thermostat or switch, including installation. Participants also receive access to price and real-time consumption information on an In Home Display (IHD). LDCs were given the choice to continue to offer the standard load control program (programmable thermostat or switch with a $25 bill credit) for the first 8 months of 2011 (referred to as ***peaksaver®*** Extension). After August 2011, the Extension ended and the program (including marketing) ceased until new IHD products were available.

Targeted End Uses: CACs, water heaters and pool pumps

Delivery: LDC's recruit customers and procure technology. Additional detail is available:

- Schedule B-1, Exhibit C http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/SCHED_2011_ResDR_B_3_110727%28MJB%29v15_redacted.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

In Market Date: Due to delays in technology availability and interoperability, this program is not yet in market.

Lessons Learned:

- The schedule for Peaksaver Plus was posted in August 2011, but this did not provide adequate time for product procurement for 2011, and part of 2012. The product procurement process uncovered that the In Home Display units that communicate with installed smart meter technology were still in development and not ready for market deployment. Consequently, CND will not be in market with the Peaksaver Plus program until January 2013.

- Introduction of new technology requires incentives for the development of such technology. Appropriate lead times for LDC analysis and assessment, product procurement, and testing and integration into the Smart Meter environment are also required. Making seemingly minor changes to provincial technical specifications can create significant issues when all LDCs attempt to implement the solution in their individual environments.
- Where a provincial solution is not available to all participants, attention to addressing specific LDC concerns is needed.

Low Income Initiative (Home Assistance Program [HAP])

Target Customer Type: Income qualified residential customers

Initiative Frequency: Year Round

Objective: The objective of this Initiative is to offer free installation of energy efficiency measures to income qualified households for the purpose of achieving electricity and peak demand savings.

Description: This is a turnkey Initiative for income qualified customers. It offers residents the opportunity to take advantage of free installation of energy efficient measures that improve the comfort of their home, increase efficiency, and help them save money. All eligible customers receive a Basic and Extended Measures Audit, while customers with electric heat also receive a Weatherization Audit. The Initiative is designed to coordinate efforts with gas utilities.

Targeted End Uses: End uses based on results of audit

Delivery: LDC delivered. Additional detail is available:

- Schedule E http://www.powerauthority.on.ca/sites/default/files/page/Low%20Income%20Schedule%20-%20redacted%20version.pdf

Initiative Activities/Progress:
The CKW Group participated in a Request for Proposals (RFP) spearheaded by Brantford Power Inc. and involving 17 LDCs. A third party delivery service provider was contracted in December, 2011.

In Market Date: Due to the process required to bring a service provider on-board, this program was not market-ready in 2011.

Lessons Learned:

- Difficulty identifying eligible customers.
- This Initiative Schedule was finalized later (May 2011) than the rest of the OPA Initiatives and in 2011 only 2 LDCs were in market.
- Centralized payment processes were not developed in 2011, but were in place mid-2012. This resulted in some LDCs delaying their launch to market, or for some pulling out of the market until the payment processes were completed.
- The financial scope, complexity, and customer privacy requirements of this Initiative resulted in a lengthy procurement process.

2.2.2 Commercial and Institutional Programs

Equipment Replacement Incentive Initiative

Target Customer Type: Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives to non-residential distribution customers to achieve reductions in electricity demand and consumption by upgrading to more energy efficient equipment for lighting, space cooling, ventilation and other measures.

Description: The Equipment Replacement Incentive Initiative (ERII) offers financial incentives to customers for the upgrade of existing equipment to energy efficient equipment. Upgrade projects can be classified as either: 1) prescriptive projects where prescribed measures replace associated required base case equipment; 2) engineered projects where energy and demand savings and incentives are calculated for associated measures; or 3) custom projects for other energy efficiency upgrades.

Targeted End Uses: Lighting, space cooling, air compressors, motors, drives, ventilation and other measures

Delivery: LDC delivered. Additional detail is available:

- Schedule C-2 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-2%20ERII%20Initiative.pdf and
- saveONenergy website https://saveonenergy.ca/Business/Program-Overviews/Retrofit-for-Commercial.aspx

Initiative Activities/Progress:
Below is a comprehensive list of activities undertaken by CND to promote the Business Program offerings. Activities were commonly undertaken to promote saveONenergy FOR BUSINESS at a holistic program level rather than at the individual Initiative level for better market penetration and to achieve cost-efficiencies. In addition to cobranding marketing between Initiatives, every effort was made to collaborate and share marketing and delivery costs with KW and WN in our endeavour to jointly deliver the program.

- CND was active in the market under the ERIP program and had built awareness and traction in the market for the launch of ERII.
- The CKW Group held a series of breakfast events for all commercial customers within the Waterloo Region, focused on topics like audits, air compressors and building the business case, etc. The objective was to communicate the availability of incentives and how to participate.
- The CKW Group advertised in the Exchange Magazine focusing on news and success stories of businesses within the region.
- The CKW Group worked closely with their channel partners, strengthening relationships and educating them on the benefits of higher efficiency technologies and saveONenergy programs. This network grew to over 300 channel partners who acted as an extended sales force to promote the programs in the market.
- In June of 2011, the CKW Group ran six hands-on training modules to channel partners to help them become knowledgeable with the application process and understanding how to spot more energy savings while on-site with customers.
- Recognizing the need for online application support the CKW Group created an application support document to help customers and channel partners navigate step by step through the on-line application process.
- The CKW Group ran two breakfast seminars to all Channel Partners (June and December) in the Region to provide program updates and rule changes.
- The CKW Group held the 2nd annual Technology Symposium, where over 50 exhibitors showcased various technologies and solutions including lighting, compressed air, energy audits, demand response as well as other technologies. In addition to the exhibition, 10 workshop sessions were held to help educate, inform, encourage and empower customers with energy conservation initiatives. Sessions topics included the following:
    - saveONenergy FOR BUSINESS initiatives – ERII, Energy Audit, Existing Building and Commissioning, Demand Response and Energy Managers,
    - Energy Audits and the Ten Most Common Problems with them,
    - Compressed Air System Opportunities,
    - Understanding the Future of Light,
    - Sub-Metering and Energy Management Systems,
    - High Velocity, Low Speed Fans,
    - ISO 50001 Certification,
    - High Performance New Construction initiative,
    - Chiller Efficiency and Optimization, and
    - Sustainable Waterloo's Regional Carbon Initiative

The event drew in over 300 business customers from across the Region of Waterloo and representatives from 7 LDCs.

- CND met its internal target in 2011 of meeting with 75% of its top 100 customers by load size. Site visits were integral to building relationships and assisting customers in understanding their usage and how best to manage it. Identification of energy savings opportunities proved to be a success factor in the ERII attributed results.
- The majority of ERII applications were processed in-house at CND. This lead to better turnaround times, tighter control on incoming application quality and a chance to build the network of customers and channel partners.

In Market Date: April 2011

Lessons Learned:

- ERII (previously Equipment Replacement Incentive Program – ERIP) has been offered by LDCs for many years. It is a high performing, cost-effective program, and there were many pre-2011 projects completing in 2011 (via ERIP).
- A major challenge for the ERII program in 2011 was payment delays. The centralized electronic processes were not ready as required by the Master Agreement. The lack of having these automated processes, exasperated by a greater than expected volume of pre-2011 projects completing in 2011, caused considerable payment delays. Based on the lessons learned in the 2011 process, the centralized process review used for 2012 project payment has been streamlined.
- In March 2011, the revised iCON system was launched by the OPA. This is the major online application system implemented to aid the 2011-2014 ERII application process. With system applications of this size and functionality, it was expected that there would be various issues identified at the time of the release, and on-going, to prove that the system was "ready for market." Unfortunately, the resolution of these issues, with the corresponding time lags and workarounds, was seen to be a barrier to some customer participation in the 2011 program year. In addition, there were also on-going issues and limitations with the back-end iCON system that affected LDCs ability to effectively review and approve applications.

Direct Install Lighting Initiative

Target Customer Type: Small Commercial, Institutional, Agricultural facilities and multi-family buildings

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer a free installation of eligible lighting and water heating measures of up to $1,000 to eligible owners and tenants of commercial, institutional and agricultural facilities and multi-family buildings, for the purpose of achieving electricity and peak demand savings.

Description: The Direct Installed Lighting Initiative targets customers in the General Service <50kW account category. This Initiative offers turnkey lighting and electric hot water heater measures with a value up to $1,000 at no cost to qualifying small businesses. In addition, standard prescriptive incentives are available for eligible equipment beyond the initial $1,000 limit.

Target End Uses: Lighting and electric water heating measures

Delivery: Participants can enroll directly with the LDC, or would be contacted by the LDC/LDC-designated representative. Additional detail is available:

- Schedule C-3 http://www.powerauthority.on.ca/sites/default/files/page/Schedule%20C-3%20Direct%20Install%20Initiative%20-%20redacted.pdf and
- saveONenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:

- CND issued an extension to the existing program delivery contract with 2010 program delivery service provider to continue program delivery and momentum keep program momentum while developing an RFP for a program delivery partner. Under the extension all pending projects were reviewed and reassessed under the new program rules and incentives in order to offer customers the new standard prescriptive incentives should their assessment exceed the $1,000 limit.
- The CKW Group issued an RFP for a program delivery services, reviewed the proposals and awarded a contract for program delivery service from September 1, 2011 to December 31, 2012.
- Under the new program delivery contract all remaining eligible program participants were contacted by an outbound call center explaining the program and setting up site assessments. In addition, field assessors were cold calling

eligible program participants and performing assessments to further increase participation.

- CND provided local marketing and customer support for the Initiative by way of distribution of Initiative promotional material at events and local Cambridge Chamber of Commerce.

In Market Date: May 2011

Lessons Learned:

- The Direct Installed Lighting Initiative is a continuation of the Power Saving Blitz Initiative offered by LDCs from 2008-2010. Successful execution of the previous rendition of this Initiative has resulted in diminished potential for the 2011-2014 Initiative in some LDC territories.
- The inclusion of a standard incentive for additional measures increased project size and drove higher energy and demand savings results.
- The ability to return to prior participants and offer a standard incentive on the remaining measures has the potential to provide additional energy and demand savings. Currently, LDCs are unable to offer standard incentives to prior participants.
- Ambiguity surrounding the definition of what is considered an eligible participant and eligible facility in the program has rendered previously eligible account ineligible. This has limited the opportunity to reach out to further businesses which may be owned by one landlord or be at one common service address, despite having separate unit numbers.
- As with the equipment replacement program, the direct install Initiative lost momentum in some LDC service territories (including CND) due to a “hard stop” of the program in 2010 and subsequent program delays in early 2011.
- The price of rare earth minerals has experienced volatility, reducing the margins of the electrical contractors and has led to a reduction in vendor channel participation in some regions.
- Due to backlogs in the payment system, participant incentive payment from the OPA to the LDC, and therefore to the customer, was frequently delayed.
- To address these issues, the LDCs have been working with the OPA through Change Management to address:
    - extending the target Initiative population to include small agricultural customers;
    - increasing the incentive envelope of $1,000 to $1,500 to ensure ongoing marketability of the program; and
    - reviewing the eligible measure price list to support contractor participation.

Existing Building Commissioning Incentive Initiative

Target Customer Type: Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives for optimizing (but not replacing) existing chilled water systems for space cooling in non-residential facilities for the purpose of achieving implementation phase energy savings, implementation phase demand savings, or both.

Description: This Initiative offers Participants incentives for the following:

- scoping study phase
- investigation phase
- implementation phase
- hand off/completion phase

Targeted End Uses: Chilled water systems for space cooling

Delivery: LDC delivered. Additional detail is available:

- Schedule C-6 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-6%20Commissioning%20Initiative.pdf and
- saveONenergy website https://saveonenergy.ca/Business/Program-Overviews/Existing-Building-Commissioning.aspx

Initiative Activities/Progress:

- To date there has been no uptake with this Initiative in CND's distribution service territory.
- As the nature of this program only lends itself to a small number of CND customers; individual, on-site discussions and engagement was utilized for Initiative promotion and customer support and the Initiative was promoted at all key account breakfasts and annual Technology Symposium

In Market Date: March 2011

Lessons Learned:

- There was no customer uptake for this Initiative. It is suspected that the scope of the Initiative being limited to space cooling contributed to the lack of participation. Accordingly, chilled water systems used for other purposes should be made eligible and considered through Change Management.
- The customer expectation is that the program will be expanded to include broader building improvements for a more holistic approach to building recommissioning.

New Construction and Major Renovation Initiative (HPNC)

Target Customer Type: Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage builders of commercial, institutional, and industrial buildings (including multi-family buildings and agricultural facilities) to reduce electricity demand and/or consumption by designing and building new buildings with more energy-efficient equipment and systems for lighting, space cooling, ventilation and other measures.

Description: The New Construction Initiative provides incentives for new buildings to exceed existing codes and standards for energy efficiency. The Initiative uses both a prescriptive and custom approach.

Targeted End Uses: Building modeling, lighting, space cooling, ventilation and other measures

Delivery: LDC delivers to customers and design decision makers. Additional detail is available:

- Schedule C-4 http://www.powerauthority.on.ca/sites/default/files/page/ScheduleC-4NewContructionInitiativeV2.pdf and
- saveONenergy website https://saveonenergy.ca/Business/Program-Overviews/New-Construction.aspx

Initiative Activities/Progress:

- The CKW Group issued an RFP for the delivery and evaluation of the program. This process took longer than expected as there were new players in the market and a thorough review was required. Another hold up was due to the fact that Enbridge, a leading contender, could not finalize their contract with Union Gas as a subcontractor to our area. Once this was finalized the contract was awarded to Enbridge.
- Union Gas was familiar with HPNC generation 1 and therefore was able to hit the ground running by communicating with established design build firms in the area and continued to talk to customers in the region.
- The CKW Group offered Enbridge a presentation opening at the annual Technology Symposium to commence getting the word out on the program incentives and process.

- CND worked in partnership with Union Gas to identify potential leads and aid in getting up to speed on program details.
- The CKW Group presented to channel partners at breakfast sessions on the incentives available to customers.
- Marketing banners and sell sheets were created for promotional events and customer site visit.

In Market Date: November 2011

Lessons Learned:

- This is a continuation of the High Performance New Construction program previously delivered by Enbridge Gas under contract with the OPA (and subcontracted to Union Gas), which ran until December 2010.
- For 2011, new industry participation was limited, due to the delays in redesign of certain aspects of the Initiative such as:
  - 2011 prescriptive incentives needed to be aligned with ERII incentives
  - In the cases of delivering large projects (i.e. custom applications), 2011 participation was limited due to 1) building code changes and 2) level of documentation required.

Energy Audit Initiative

Target Customer Type: Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives to owners and lessees of commercial, institutional, multi-family buildings and agricultural facilities for the purpose of undertaking assessments to identify all possible opportunities to reduce electricity demand and consumption within their buildings or premises.

Description: This Initiative provides participants incentives for the completion of energy audits of electricity consuming equipment located in their facility. Energy audits include development of energy baselines, use assessments and performance monitoring and reporting.

Targeted End Uses: Various

Delivery: LDC delivered. Additional detail is available:

- Schedule C-1 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-1%20Energy%20Audit%20Initiative.pdf and
- saveONenergy website https://saveonenergy.ca/Business/Program-Overviews/Audit-Funding.aspx

Initiative Activities/Progress:

- The CKW Group held a key account session focused specifically on the Initiative in June of 2011. At the session, two local energy audit firms educated customers on the value of energy audits, merits of the program and the projects that audits helped to drive.
- The CKW Group held the 2nd annual Technology Symposium, where over 50 exhibitors showcased various technologies and solutions including lighting, compressed air, energy audits, demand response as well as other technologies. In addition to the exhibition, 10 workshop sessions were held to help educate, inform, encourage and empower customers with energy conservation initiatives. Sessions topics included the following:
  - saveONenergy FOR BUSINESS initiatives – ERII, Energy Audit, Existing Building and Commissioning, Demand Response and Energy Managers,

- Energy Audits and the Ten Most Common Problems with them,
- Compressed Air System Opportunities,
- Understanding the Future of Light,
- Sub-Metering and Energy Management Systems,
- High Velocity, Low Speed Fans,
- ISO 50001 Certification,
- High Performance New Construction initiative,
- Chiller Efficiency and Optimization, and
- Sustainable Waterloo's Regional Carbon Initiative

The event drew in over 300 business customers from across the Region of Waterloo and representatives from 7 LDCs.

- CND provided ongoing local marketing and customer support for the Initiative in various forms, including promotion of the Initiative at all key account events in short presentations and take away print material, directly to customers over the phone, by mail, by email as well as at face-to-face customer meetings.
- The CKW Group actively engaged local energy audit firms in order to educate them on the Initiative and the application process, provide marketing support in the form of program focused print material as well as offered to join audit firms on customer calls to further encourage customer participation.

In Market Date: March 2011

Lessons Learned:

- Customer uptake in 2011 was minimal, CND received only three applications and as a result little if any savings were realized in 2011, but projects are expected to come forward in 2012 based on the recommendations in the audits.
- Customers expect a greater connection with other saveONenergy Initiatives as a result of completing the Energy Audit. The Initiative should be reviewed under Change Management for the means to readily incent Participants with Audits in hand to implement other electricity savings Initiatives.

2.2.3 Industrial Programs

Process & Systems Upgrades Initiative (PSUI)

Target Customer Type: Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objectives: The objectives of this Initiative are to:

- Offer distribution customers capital incentives and enabling Initiatives to assist with the implementation of large projects and project portfolios;
- Implement system optimization projects in systems which are intrinsically complex and capital intensive; and
- Increase the capability of distribution customers to implement energy management and system optimization projects.

Description: PSUI is an energy management Initiative that includes three Initiatives: (preliminary engineering study, detailed engineering study, and project incentive Initiative). The incentives are available to large distribution connected customers with projects or portfolio projects that are expected to generate at least 350 MWh of annualized electricity savings or, in the case of Micro-Projects, 100 MWh of annualized electricity savings. The capital incentive for this Initiative is the lowest of:

a) $200/MWh of annualized electricity savings
b) 70% of projects cost
c) A one year payback

Targeted End Uses: Process and systems

Delivery: LDC delivered. Additional detail is available:

- Schedule D-1 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-1%20Process%20and%20Systems%20Upgrades%20Initiative.pdf and
- saveONenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:
Discussions took place at an individual customer level to introduce this program. The nature of this program only lends itself to a handful of CND customers, therefore

individual, on-site engagement was utilized for promotion.

In Market Date: November 2011

Lessons Learned:

- The PSUI program targets large customers that are undertaking large capital projects. There is typically a long sales cycle to sell these projects, and then a long project development cycle. As such, results from PSUI did not appear in 2011. Limited results are expected to appear in 2012. The majority of the results are expected in 2013-2014, with a much reduced benefit to cumulative energy savings targets.
- Steps are being taken in the 2012 change management process to simplify and streamline the micro-project application process and to allow smaller projects to be directed to the ERII stream.
- Given the size of the projects involved, the contract required for PSUI is a lengthy and complicated document. Attempts are being made through change management in 2012 to simplify the document while still protecting the ratepayer.
- With the considerable customer interest in on-site Load Displacement projects, the Initiative should be reviewed to ensure that these projects may be accepted as part of the PSUI Initiative.

Monitoring & Targeting Initiative

Target Customer Type: Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This Initiative offers access to funding for the installation of Monitoring and Targeting systems in order to deliver a minimum savings target at the end of 24 months and sustain the savings for the term of the M&T Agreement.

Description: This Initiative offers customers funding for the installation of a Monitoring and Targeting system to help them understand how their energy consumption might be reduced. A facility energy manager, who regularly oversees energy usage, will now be able to use historical energy consumption performance to analyze and set targets.

Targeted End Uses: Opportunities to monitor electricity consumption and demand for better real-time management

Delivery: LDC delivered. Additional detail is available:

- Schedule D-2 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-2%20Monitoring%20and%20Targeting%20Initiative.pdf and
- saveONenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:
Discussions took place at an individual customer level to introduce this program. The nature of this program only lends itself to a handful of CND customers, therefore individual, on-site engagement was utilized for promotion.

In Market Date: November 2011

Lessons Learned:

- The M&T Initiative was originally targeted at larger customers with the capacity to review the M&T data. This review requires the customer facility to employ an Energy Manager, or a person with equivalent qualifications, which has been a barrier for some customers. Through the change management process in 2012, changes are being made to both the M&T schedule and ERII to allow smaller facilities to employ M&T systems.

Energy Manager Initiative

Target Customer Type: Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to provide customers and LDCs the opportunity to access funding for the engagement of energy managers in order to deliver a minimum annual savings target.

Description: This Initiative provides customers the opportunity to access funding to engage an on-site, full time embedded energy manager, or an off-site roving energy manager who is engaged by the LDC. The role of the energy manager is to take control of the facility's energy use by monitoring performance, leading awareness programs, and identifying opportunities for energy consumption improvement, and spearheading projects. Participants are funded 80% of the embedded energy manager's salary up to $100,000 plus 80% of the energy manager's actual reasonable expenses incurred up to $8,000 per year. Each embedded energy manager has a target of 300 kW/year of energy savings from one or more facilities. LDCs receive funding of up to $120,000 for a Roving Energy Manager plus $8,000 for expenses.

Targeted End Uses: Individual or a grouping of customers who require additional technical resources to achieve end-use energy saving reductions

Delivery: LDC delivered. Additional detail is available:

- Schedule D-3 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-3%20Energy%20Manager%20Initiative%202011-2014.pdf and
- saveONenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:
Discussions took place at an individual customer level to introduce this program. The nature of this program only lends itself to a handful of CND customers,; therefore individual, on-site engagement was utilized for promotion.
Interest has been slow but there is uptake in 2012.

In Market Date: November 2011

Lessons Learned:

- The energy managers have proven to be a popular resource.
- At the beginning, it took longer than expected to set up the energy manager application process.
- Finding qualified resources to fill these positions has proved to be a challenge in the marketplace.

Key Account Manager Initiative

Target Customer Type: Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Description: Provide funding to employ a resource to assist in managing relationships with key accounts.

Objective: This Initiative offers LDCs the opportunity to access funding for the employment of a KAM in order to support them in fulfilling their obligations related to the PSUI. The KAM is considered to be a key element in assisting the consumer in overcoming traditional barriers related to energy management and help them achieve savings since the KAM can build relationships and become a significant resource of knowledge to the customer.

Targeted End Uses: LDC(s) who require additionally funded resources to perform sales functions

Delivery: LDC delivered. Additional detail is available:

- ScheduleD-4
  http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/projects_programs/pdfs/PSUI%20Initiative%20Schedule%20D-4.Key%20Account%20Manager.20110322.pdf

Initiative Activities/Progress:
The CKW Group applied jointly for KAM funding from the OPA, eligible for achieving 70% salary funding, based on eligible customers.

In Market Date: The CKW Group was approved in June, 2011 and went through the interview process in December, 2011. Actual contracted services were provided by the KAM starting in March 2012.

Lessons Learned:

- Customers appreciate dealing with a single contact to interface with an LDC, a resource that has both the technical and business background who can communicate easily with the customer and the LDC. Finding this type of skill set has been difficult resulting in longer lead times to acquire the right resource.

Demand Response 3

Target Customer Type: Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This Initiative provides for Demand Response (DR) payment for service to DR3 participants to compensate them for making available electricity demand response during a demand response event**.**

Description: Demand Response 3 (DR3) is a demand response Initiative for commercial and industrial customers, of 50 kW or greater to reduce the amount of power being used during certain periods of the year. The DR3 Initiative is a contractual resource that is an economic alternative to procurement of new generation capacity.DR3 comes with specific contractual obligations requiring participants to reduce their use of electricity relative to a baseline when called upon. This Initiative pays participants to be on standby and energy payments for the actual energy reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year depending on the contract.

Targeted End Uses: Qualified customers with the ability to perform load shedding/shifting.

Delivery: DR3 is delivered by Demand Response Providers, under contract to the OPA. The OPA administers contracts with all DRPs and Direct Participants that provide in excess of 5 MW of demand response capacity. OPA provides administration including settlement, measurement and verification, and dispatch. LDCs are responsible for outreach and marketing efforts. Additional detail is available:

- Schedule D-6 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-6%20Demand%20Response%203%202011-2014.pdf and
- saveONenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:

- The CKW Group met with the active provincial aggregators to assess the program, customer eligibility and offerings of each company.

- Discussions took place at an individual customer level to introduce this program. The nature of this program only lends itself to a handful of CND customers, therefore individual, on-site engagement was utilized for promotion.

In Market Date: February 2011

Lessons Learned:

- Customer data is not provided by the OPA on an individual customer basis due to contractual requirements with the aggregators. This limits LDCs' ability to effectively market to prospective participants. LDCs are now approaching the Aggregators individually and working to develop agreements in order to identify potential customers of this Initiative.

2.2.4 Pre-2011 Programs Completed in 2011

Electricity Retrofit Incentive Program (ERIP)

Target Customer Type: Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year Round

Objective: This captures savings attributed to projects applied for prior to 2011 but completed in 2011.

Description: Refer to Equipment Replacement Incentive Initiative

Delivery: LDC delivered.

Initiative Activities/Progress:
CND was responsible for reviewing the post-project submissions and approving final payment. No new applications were received in 2011 for this program.

High Performance New Construction

Target Customer Type: Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year round

Objective: This captures savings attributed to projects applied for prior to 2011 but completed in 2011.

Description: Refer to New Construction and Major Renovation Initiative

Delivery: Delivered through OPA contracts with Enbridge and Union Gas.

Initiative Activities/Progress:
CND was not responsible for the post-project submissions associated with this program.

2.3 Participation/Uptake by Initiative

Table 3: Participation/Uptake by Initiative

Initiative	Activity Unit	Uptake/ Participation Units
Consumer Program		
Appliance Retirement	Appliances	440
Appliance Exchange	Appliances	23
HVAC Incentives	Equipment	1,221
Conservation Instant Coupon Booklet	Coupons	4,812
Bi-Annual Retailer Event	Coupons	8,336
Residential Demand Response	Devices	0
New Construction Program	Houses	0
Business Program		
Efficiency: Equipment Replacement	Projects	22
Direct Installed Lighting	Projects	118
Existing Building Commissioning Incentive	Buildings	0
New Construction and Major Renovation Incentive	Buildings	0
Energy Audit	Audits	0
Commercial Demand Response (part of the Residential program schedule)	Devices	0
Demand Response 3 (part of the Industrial program schedule)	Facilities	3
Industrial Program		
Process & System Upgrades*	Projects	0
a) preliminary study		0
b) engineering study		0
c) project incentive		0
Monitoring & Targeting	Projects	0

Energy Manager	Managers	0
Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	Projects	22
Demand Response 3	Facilities	6
Home Assistance Program		
Home Assistance Program	Units	0
Pre 2011 Programs Completed in 2011		
Electricity Retrofit Incentive Program	Projects	64
High Performance New Construction	Projects	0

2.4 Spending

Table 4: Program Spending by Initiative

Initiative	Program Administration Budget (PAB)	Participant Based Funding (PBF)	Participant Incentives (PI)	Capability Building Funding (CBF)	TOTAL
Consumer Program					
Appliance Retirement	$37,651.86	$0	$0	$0	$37,651.86
Appliance Exchange	$4,212.15	$0	$0	$0	$4,212.15
HVAC Incentives	$20,479.62	$0	$0	$0	$20,479.62
Conservation Instant Coupon Booklet	$32,055.57	$0	$0	$0	$32,055.57
Bi-Annual Retailer Event	$0	$0	$0	$0	$0
Residential Demand Response	$12,115.07	$0	$0	$0	$12,115.07
New Construction Program	$4,498.68	$0	$0	$0	$4,498.68
Business Program					
Efficiency: Equipment Replacement	$64,351.91	$0	$132,998.23	$0	$197,350.14
Direct Install Lighting	$14,146.84	$28,792	$105,133.25	$0	$148,072.09
Existing Building Commissioning Incentive	$0	$0	$0	$0	$0
New Construction and Major Renovation Initiative	$9,422.69	$0	$0	$0	$9,422.68
Energy Audit	$11,043.89	$0	$3,247.50	$0	$14,291.39
Commercial Demand Response (part of the Residential program schedule)	$0	$0	$0	$0	$0
Demand Response 3 (part of the Industrial program schedule)	$0	$0	$0	$0	$0
Industrial Program					
Process & System Upgrades	$11,651.59	$0	$0	$0	$11,651.59
a) preliminary study	*$3,623.64*	*$0*	*$0*	*$0*	*$3,623.64*
b) engineering study	*$2,842.07*	*$0*	*$0*	*$0*	*$2,842.07*
c) program incentive	*$5,185.88*	*$0*	*$0*	*$0*	*$5,185.88*
Monitoring & Targeting	$0	$0	$0	$0	$0

Initiative	Program Administration Budget (PAB)	Participant Based Funding (PBF)	Participant Incentives (PI)	Capability Building Funding (CBF)	TOTAL
Energy Manager	$9,294.09	$0	$0	$0	$9,294.09
Demand Response 3	$2,842.06	$0	$0	$0	$2,842.06
Home Assistance Program					
Home Assistance Program	$6,218.29	$0	$0	$0	$6,218.29
Pre 2011 Programs Completed in 2011					
Electricity Retrofit Incentive Program	$0	$0	$0	$0	$0
High Performance New Construction	$0	$0	$0	$0	$0
TOTAL Province-wide CDM PROGRAMS	**$239,984.31**	**$28,792.00**	**$241,378.98**	**$0**	**$510,155.29**

2.5 Evaluation

Table 5 represents key findings from the OPA's province-wide evaluation of the provincial results.

Table 5: Key Evaluation Findings from the OPA

Initiative	Key Evaluation Findings
Appliance Retirement	Overall participation continues to decline year over year * Participation declined 17% from 2010 (from over 67,000 units in 2010 to over 56,000 units in 2011) 97% of net resource savings achieved through the home pick-up stream * Measure Breakdown: 66% refrigerators, 30% freezers, 4% Dehumidifiers and window air conditioners 3% of net resource savings achieved through the Retailer pick-up stream * Measure Breakdown: 90% refrigerators, 10% freezers Net-to-Gross ratio for the Initiative was 50% * Measure-level free ridership ranges from 82% for the retailer pick-up stream to 49% for the home pick-up stream * Measure-level spillover ranges from 3.7% for the retailer pick-up stream to 1.7% for the home pick-up stream
Appliance Exchange	Overall eligible units exchanged declined by 36% from 2010 (from over 5,700 units in 2010 to over 3,600 units in 2011) * Measure Breakdown: 75% window air conditioners, 25% dehumidifiers Dehumidifiers and window air conditioners contributed almost equally to the net energy savings achieved * Dehumidifiers provide more than three times the energy savings per unit than window air conditioners Window air conditioners contributed to 64% of the net peak demand savings achieved Approximately 96% of consumers reported having replaced their exchanged units (as opposed to retiring the unit) Net-to-Gross ratio for the Initiative is consistent with previous evaluations (51.5%)
HVAC Incentives	Total air conditioner and furnace installations increased by 14% (from over 95,800 units in 2010 to over 111,500 units in 2011) * Measure Breakdown: 64% furnaces, 10% tier 1 air conditioners (SEER 14.5) and 26% tier 2 air conditioners (SEER 15) * Measure breakdown did not change from 2010 to 2011 The HVAC Incentives Initiative continues to deliver the majority of both the energy (45%) and demand (83%) savings in the consumer program Furnaces accounted for over 91% of energy savings achieved for this Initiative Net-to-Gross ratio for the Initiative was 17% higher than 2010 (from 43% in 2010 to 60% in 2011)

	* Increase due in part to the removal of programmable thermostats from the program, and an increase in the net-to-gross ratio for both Furnaces and Tier 2 air conditioners (SEER 15)
Conservation Instant Coupon Booklet	Customers redeemed nearly 210,000 coupons, translating to nearly 560,000 products * Majority of coupons redeemed were downloadable (~40%) or LDC-branded (~35%) * Majority of coupons redeemed were for multi-packs of standard spiral CFLs (37%), followed by multi-packs of specialty CFLs (17%) Per unit savings estimates and net-to-gross ratios for 2011 are based on a weighted average of 2009 and 2010 evaluation findings Careful attention in the 2012 evaluation will be made for standard CFLs since it is believed that the market has largely been transformed
Bi-Annual Retailer Event	Customers redeemed nearly 370,000 coupons, translating to over 870,000 products * Majority of coupons redeemed were for multi-packs of standard spiral CFLs (49%), followed by multi-packs of specialty CFLs (16%) Per unit savings estimates and net-to-gross ratios for 2011 are based on a weighted average of 2009 and 2010 evaluation findings * Standard CFLs and heavy duty outdoor timers were reintroduced to the Initiative in 2011 and contributed more than 64% of the Initiative's 2011 net annual energy savings * While the volume of coupons redeemed for heavy duty outdoor timers was relatively small (less than 1%), the measure accounted for 10% of net annual savings due to high per unit savings Careful attention in the 2012 evaluation will be made for standard CFLs since it is believed that the market has largely been transformed.
Residential Demand Response	Approximately 20,000 new devices were installed in 2011 * 99% of the new devices enrolled controlled residential central AC (CAC) 2011 only saw 1 atypical event (in both weather and timing) that had limited participation across the province * The ex-ante impact developed through the 2009/2010 evaluations was maintained for 2011; residential CAC: 0.56 kW/device, commercial CAC: 0.64 kW/device, and Electric Water Heaters: 0.30 kW/device
Residential New Construction	Initiative was not evaluated in 2011 due to limited uptake Business case assumptions were used to calculate savings
Efficiency: Equipment Replacement	Gross verified energy savings were boosted by lighting projects in the prescriptive and custom measure tracks Lighting projects overall were determined to have a realization rate of 112%; 116% when including interactive energy changes * On average, the evaluation found high realization rates as a result of both longer operating hours and larger wattage reductions than initial assumptions * Low realization rates for engineered lighting projects due to overstated operating hour assumptions

	Custom non-lighting projects suffered from process issues such as: the absence of required M&V plans, the use of inappropriate assumptions , and the lack of adherence to the M&V plan The final realization rate for summer peak demand was 94% * 84% was a result of different methodologies used to calculate peak demand savings * 10% due to the benefits from reduced air conditioning load in lighting retrofits Overall net-to-gross ratios in the low 70's represent an improvement over the 2009 and 2010 ERIP program where net-to-gross ratios were in the low 60's and low 50's, respectively. Strict eligibility requirements and improvements in the pre-approval process contributed to the improvement in net-to-gross ratios
Direct Install Lighting	Though overall performance is above expectations, participation continues to decline year over year as the Initiative reaches maturity 70% of province-wide resource savings persist to 2014 * Over 35% of the projects for 2011 included at least one CFL measure * Resource savings from CFLs in the commercial sector only persist for the industry standard of 3 years Since 2009 the overall realization rate for this program has improved * 2011 evaluation recorded the highest energy realization rate to date at 89.5% * The hours of use values were held constant from the 2010 evaluation and continue to be the main driver of energy realization rate * Lights installed in "as needed" areas (e.g., bathrooms, storage areas) were determined to have very low realization rates due to the difference in actual energy saved vs. reported savings
Existing Building Commissioning Incentive	Initiative was not evaluated in 2011, no completed projects in 2011
New Construction and Major Renovation Incentive	Initiative was not evaluated in 2011 due to low uptake Assumptions used are consistent with preliminary reporting based on the 2010 Evaluation findings and consultation with the C&I Work Group (100% realization rate and 50% net-to-gross ratio)
Energy Audit	The evaluation is ongoing. The sample size for 2011 was too small to draw reliable conclusions.
Process & System Upgrades	Initiative was not evaluated in 2011, no completed projects in 2011
Monitoring & Targeting	Initiative was not evaluated in 2011, no completed projects in 2011
Energy Manager	Initiative was not evaluated in 2011, no completed projects in 2011
Demand Response 3	Program performance for Tier 1 customers increased with DR-3 participants providing 75% of contracted MW for both sectors

	* Industrial customers outperform commercial customers by provide 84% and 76% of contracted MW, respectively Program continues to diversify but still remains heavily concentrated with less than 5% of the contributors accounting for the majority (~60%) of the load reductions. By increasing the number of contributors in each settlement account and implementation of the new baseline methodology the performance of the program is expected to increase
Home Assistance Program	Initiative was not evaluated in 2011 due to low uptake Business Case assumptions were used to calculate savings

This table was supplied by the OPA in the 2011 Final Results Report for CND.

2.5.1 Evaluation Results

Table 6: Evaluated Results by Initiative

Initiative	NTG		Gross Savings		Net Savings		Contribution to Targets	
	kW	kWh	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Program-to-Date: Net Annual Peak Demand Savings (kW) in 2014	Program-to-Date: 2011-2014 Net Cumulative Energy Savings (kWh)
Residential Programs								
Appliance Retirement	50%	51%	50	364,466	24	175,906	**24**	**703,419**
Appliance Exchange	52%	52%	4	5,219	2	2,690	**1**	**9,409**
HVAC Incentives	60%	60%	596	1,121,468	359	670,601	**359**	**2,682,402**
Conservation Instant Coupon Booklet	114%	111%	10	163,628	11	179,901	**11**	**719,606**
Bi-Annual Retailer Event	113%	110%	14	257,628	16	281,459	**16**	**1,125,836**
Residential Demand Response	-	-	0	0	0	0	**0**	**0**
New Construction Program	-	-	0	0	0	0	**0**	**0**
Business Programs								
Efficiency: Equipment Replacement	74%	76%	347	1,750,908	256	1,336,743	**256**	**5,346,972**
Direct Installed Lighting	93%	93%	148	429,688	158	398,982	**130**	**1,515,148**
Existing Building Commissioning Incentive	-	-	0	0	0	0	**0**	**0**
New Construction and Major Renovation Incentive	-	-	0	0	0	0	**0**	**0**
Energy Audit	-	-	0	0	0	0	**0**	**0**
Demand Response 3 (part of the Industrial program schedule)*	n/a	n/a	237	7,018	179	7,018	**0**	**7,018**

Industrial Programs								
Process & System Upgrades	-	-	0	0	0	0	**0**	**0**
Monitoring & Targeting	-	-	0	0	0	0	**0**	**0**
Energy Manager	-	-	0	0	0	0	**0**	**0**
Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	74%	76%	634	4,045,237	466	3,083,118	**466**	**12,332,473**
Demand Response 3*	n/a	n/a	645	31,908	544	31,908	**0**	**31,908**
Low Income Program								
Home Assistance Program	-	-	0	0	0	0	**0**	**0**
Pre-2011 Programs								
Electricity Retrofit Incentive Program	52%	52%	2,288	12,898,238	1,191	6,710,956	**1,191**	**26,843,823**
High Performance New Construction	50%	50%	2	9,261	1	4,631	**1**	**18,522**

*Assumes demand response resources have a persistence of one year

Table 7: Summary of Results

Program	Gross Savings		Net Savings		Contribution to Targets	
	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Program-to-Date: Net Annual Peak Demand Savings (kW) in 2014	Program-to-Date: 2011-2014 Net Cumulative Energy Savings (kWh)
Residential Program Total	674	1,912,135	412	1,310,556	410	5,240,672
Commercial & Institutional Program Total	732	2,187,614	594	1,742,744	386	6,869,138
Industrial Program Total	1,279	4,077,144	1,009	3,115,026	466	12,364,380
Home Assistance Program Total	0	0	0	0	0	0
Pre-2011 Programs completed in 2011 Total	2,290	12,907,499	1,191	6,715,586	1,191	26,862,345
Total OPA Contracted Province-Wide CDM Programs	**4,975**	**21,084,393**	**3,206**	**12,883,912**	**2,453**	**51,336,535**

2.6 Additional Comments

2011 should be considered a year focused on laying the groundwork for 2012-2014. The complexity of new programs, rule changes, procurement processes and resourcing, delayed the ability to offer 'market ready' initiatives as indicated in Section 2.2. The Initiatives were in start-up mode, and this was a learning curve for CND and its customers, channel partners and stakeholders. Every effort was made to encourage continuity from pre-2011 but much of the momentum from previous years was lost. Re-engaging the market has proved to be challenging.

More than half of the attributed savings to target are expected to come from the Business Initiatives and PSUI. These projects have very long cycles from engagement to application and completion. The pipeline of applications is encouraging but many of these savings will not be achieved until 2013 and 2014 and are still subject to risk.

In 2012, additional internal resources have been hired to increase capacity. As well, approvals to hire a KAM, EEMs and REMs will result in a greater workforce to educate, engage and motivate participants.

Increased marketing in all sectors has been employed for 2012 and is expected to yield improved awareness and participation. One-on-one engagement for general service customers will continue to be utilized as the driving force to provide site-specific targeting of efficiency opportunities.

Based on the 2011 results, 2012 pipeline information and a maturing program structure, CND is optimistic in its ability to achieve the 2014 CDM targets.

3 Combined CDM Reporting Elements

3.1 Progress Towards CDM Targets

Table 8: Net Peak Demand Savings at the End User Level (MW)

Implementation Period	Annual (MW)			
	2011	2012	2013	2014
2011 - Verified	3.21	2.48	2.48	2.45
2012				
2013				
2014				
Verified Net Annual Peak Demand Savings in 2014:				**2.45**
CND 2014 Annual CDM Capacity Target:				**17.68**
Verified Portion of Peak Demand Savings Target Achieved (%):				**14%**
CND Strategy, Milestone submitted for 2011 (%):				**28%**
Variance	5.0			**(14%)**

Variances in the 2011 Net Peak Demand Savings as reported by the OPA can be attributed to a few key items;

- Initiatives such as DR3 and Residential Demand Response weigh heavily in the success of meeting our peak demand target. These programs proved to be a challenge to deliver in 2011, as discussed earlier in the report.
- The assumed one year persistence of DR3, the results above do not reflect approximately 730kW currently under contract. Should these contracts persist until 2014 the variance would be reduced to 10%.
- Large projects that will have the most significant impact on peak demand savings will not be seen in the results until 2012 and following years.

Table 9: Net Energy Savings at the End-User Level (GWh)

Implementation Period	Annual (GWh)				Cumulative (GWh)
	2011	2012	2013	2014	2011-2014
2011 - Verified	12.88	12.84	12.84	12.76	51.34
2012					
2013					
2014					
Verified Net Cumulative Energy Savings 2011-2014:					**51.34**
CND 2011-2014 Cumulative CDM Energy Target:					**73.66**
Verified Portion of Cumulative Energy Target Achieved (%):					**70%**
CND Strategy, Milestone submitted for 2011 (%):					**30%**
Variance	22.35 *cumulative*				**40%**

Variances in the 2011 Net Energy Savings as reported by the OPA can be attributed to a few key items;

- Energy Savings attributed from pre-2011 Initiatives contributed to 52% of the total achieved in 2011.
- The HVAC Incentive Initiative represents the greatest portion of savings in the residential programs. This Initiative had not previously been delivered by CND and the participation rates and associated savings were best estimates at the time CND filed its strategy.
- The cumulative effect of Net Energy Savings is greater than anticipated when the strategy was written. Savings have demonstrated a significantly higher rate of persistence, resulting in a higher cumulative contribution towards the 2014 target.

3.2 CDM Strategy Modifications

CND does not have any modifications to make to its strategy. Comments regarding enhancements to delivery can be found in section 2.6 Additional Comments.

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Guelph Hydro Electric Systems Inc.

EB 2012-0015

Conservation and Demand Management

2011 Annual Report

Submitted to:

Ontario Energy Board

October 1, 2012

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Executive Summary

Guelph Hydro Electric Systems Inc. (GHESI) is responsible for the safe and reliable supply of electricity to over 50,000 residents and businesses of the City of Guelph and the Village of Rockwood. A key component of GHESI's daily operations now includes the delivery of energy efficiency and demand management programs, to assist customers of all rate classes in managing their electricity costs, and to support of creation of a culture of conservation in the province of Ontario.

The Ontario Energy Board (OEB) has set Conservation and Demand Management (CDM) targets for all electricity distributors, as a condition of their distribution licence. GHESI's CDM targets were set as 79.53 GWh of net cumulative energy savings and 16.71 MW of net summer peak demand savings, over the period January 1, 2011 through December 31, 2014. The Conservation and Demand Management Code (CDM Code) requires every electrical distributor to file an annual report with the OEB that shows the distributor's progress in meeting CDM targets. This 2011 annual report outlines GHESI's CDM program activities undertaken and energy and peak demand savings achieved in 2011. This report also provides information on GHESI's plans in the upcoming years, to ensure the 2014 targets are met or exceeded.

In its November 1, 2010 CDM Strategy, GHESI indicated that it intended to achieve its 2011-2014 CDM targets primarily through the use of a suite of OPA-Contracted Province Wide (Tier 1) Initiatives. GHESI also proposed the development of several OEB Approved Tier 2 / Tier 3 programs, with these programs intended to either make up any Tier 1 shortfalls, or potentially exceed the 2014 targets. This report also summarizes 2011 activities undertaken towards the development of potential OEB Approved programs.

2011 Program Results Achieved

In 2011 GHESI achieved 3.42 MW of Net Peak Demand Savings and 14.41 GWh of Net Cumulative Energy Savings. These results indicate good progress towards the 2014 targets.

GHESI's net peak demand savings are reported as 17.5% of the 2014 target of 16.71 MW, or slightly ahead of GHESI's CDM Strategy document 2011 target of 16.1%. GHESI notes that these results do not include any potential contribution from customers participating in either the residential or commercial/industrial Demand Response (DR) programs in 2011, based on the assumption that the persistence of customers enrolled in DR programs is only 1 year.

GHESI's net energy savings are reported as 72.2% of the 2014 target of 79.53 GWh, or significantly ahead of GHESI's CDM Strategy document 2011 target of 9.6%. A significant component (over 50%) of the 2014 cumulative energy savings is a result of the contribution of Pre-2011 Programs completed in 2011, primarily the Electricity Retrofit Incentive Program (ERIP) program.

Program Delivery Strategic Priorities

Based on 2011 results achieved, GHESI at this time does not see a need for significant deviation from its current strategic priorities. The positive net energy savings results achieved in 2011 will permit GHESI to continue to work with customers of all rate classes to encourage continued participation in completion of energy efficiency projects, but will also allow GHESI to focus more closely on programs designed to

manage demand to improve the net demand savings results. GHESI's 2012 activities will include focus on the following:

- Continue to build and maintain a trusted brand and solid customer relationships, and leverage GHESI's trusted brand to generate CDM projects;
- Continued proactive and reactive sales calls as well as business and industrial customer education outreach and events;
- GHESI also intends to launch to market programs not proactively pursued in 2011, such as consumer Retailer Events, the ***peaksaver***PLUS ™ program, Low Income Initiative and channel partner training. With its Smart Meter Zigbee chip deployment, GHESI believes there is an excellent opportunity to develop and implement a unique customer focused In-Home Display offering, to reinforce promotion of the Residential Demand Response (RDR) program; and
- GHESI will to continue to work collaboratively with other LDCs in the administration and delivery of the saveONenergy programs.

Recommendations

In order to be successful in meeting the 2014 Net Peak Demand Target, GHESI provides the following recommendations for consideration:

- Establishment of a mechanism for sharing DR3 program participant information between aggregators, the OPA and the affected LDC in a transparent and timely manner;
- Recognize that some Initiatives (PSUI, DR3, ERII) have the potential to significantly impact the achievement of the 2014 demand target. Projects undertaken through these initiatives may have a significant sales cycle and may be at risk for completion by December 31, 2014. Changes to these programs can affect the LDC's ability to meet target if program criterion or customer eligibility is removed or compromised;
- As a result of its initial investigation into Smart Meter Zigbee based IHD offerings, GHESI anticipates that ongoing operational and maintenance support costs for this type of deployment will not be adequately supported through the existing program funding model, and may require a review;
- Evaluation, Measurement and Verification (EM&V) Protocols used in evaluating IHD delivery should reflect the technology deployed and customer engagement and experience achieved;
- The early review and consideration of potential impacts of the transition to a future tranche of CDM programs. LDC concerns may include:
    - 2014-2015 transition, particularly for long sales cycle projects and Initiatives such as PSUI, ERII, and DR3;
    - How will how energy and demand target results be accounted for should an LDC exceed one target but fall short on the other? How will this be reflected against 2014 and 2015 target results years? and
    - A streamlined ready for market transition to the next tranche of CDM programs is essential to avoid customers frustrated with the delays, damaged LDC-customer relationships and lost marketplace momentum.

- An anticipated streamlining of program processes and reporting requirements will permit LDCs to focus more effort on enrolling customers into Initiatives to meet the mandatory targets, and less effort in administering the programs.

Conclusion

2011 should be considered a start-up year of the launch of a suite of new province-wide saveONenergy CDM programs, as well as the rebranding and modification of several successful legacy programs previously in the market.

In spite of a slow 2011 program roll out, GHESI has demonstrated solid performance and progress in 2011. GHESI is confident that pursuing its strategic priorities will continue to show positive results towards its CDM targets in the coming years.

Background

On March 31, 2010, the Minister of Energy and Infrastructure of Ontario, under the guidance of sections 27.1 and 27.2 of the *Ontario Energy Board Act, 1998*, directed the Ontario Energy Board (OEB) to establish Conservation and Demand Management (CDM) targets to be met by electricity distributors. Accordingly, on November 12, 2010, the OEB amended the distribution licence of Guelph Hydro Electric Systems Inc. (GHESI) to require GHESI, as a condition of its licence, to achieve 79.53 GWh of net cumulative energy savings and 16.71 MW of summer peak demand savings, over the period beginning January 1, 2011 through December 31, 2014.

In accordance with the same Minister's directive, the OEB issued the Conservation and Demand Management Code for Electricity Distributors (the Code) on September 16, 2010. The code sets out the obligations and requirements with which electricity distributors must comply in relation to the CDM targets set out in their licences. To comply with the Code requirements, GHESI submitted its CDM Strategy on November 1, 2010 which provided a high level of description of how GHESI intended to achieve its CDM targets.

The Code also requires a distributor to file annual report with the Board. This Annual Report is therefore prepared accordingly and covers the period from January 1, 2011 to December 31, 2011.

This document was developed based a template prepared by Hydro One Networks Inc. The template was reviewed by the Reporting and Evaluation Working Group and the Ontario Power Authority (OPA) through May and June 2012. OEB Staff were consulted on May 28th, 2012. It was sent to the Electricity Distributors Associate (EDA) on July 17th, 2012, for circulation to all LDCs to use for their reporting requirement to the OEB.

1 Board-Approved CDM Programs

1.1 Introduction

Provide a general overview of all of the Board-Approved CDM Programs that are being offered in the distributor's service area.

In its Decision and Order dated November 12 2010 (**EB-2010-0215 & EB-2010-0216**), the OEB ordered that, (to meet its mandatory CDM targets), "Each licensed electricity distributor must, as a condition of its licence, deliver Board-Approved CDM Programs, OPA-Contracted Province-Wide CDM Programs, or a combination of the two".

At this time, the implementation of Time-of-Use ("TOU") Pricing is the only Board-Approved Conservation and Demand Management ("CDM") program that is being offered in GHESI's service area.

1.2 TOU Pricing

1.2.1 BACKGROUND

In its April 26, 2012 CDM Guidelines, the OEB recognizes that a portion of the aggregate electricity demand target was intended to be attributable to savings achieved through the implementation of TOU Pricing. The OEB establishes TOU prices and has made the implementation of this pricing mechanism mandatory for distributors. On this basis, the OEB has determined that distributors will not have to file a Board-Approved CDM program application regarding TOU pricing. The OEB has deemed the implementation of TOU pricing to be a Board-Approved CDM program for the purposes of achieving the CDM targets. The costs associated with the implementation of TOU pricing are recoverable through distribution rates, and not through the Global Adjustment Mechanism ("GAM").

In accordance with a Directive dated March 31, 2010 by the Minister of Energy and Infrastructure, the OEB is of the view that any evaluations of savings from TOU pricing should be conducted by the Ontario Power Authority (OPA) for the province, and then allocated to distributors. GHESI will report these results upon receipt from the OPA. As of September 30, 2012, the OPA has not released its preliminary results of TOU savings to distributors. Therefore GHESI is not able to provide any verified savings related to GHESI's TOU program at this time.

1.2.2 TOU PROGRAM DESCRIPTION

Target Customer Type(s): Residential and small business customers (up to 250,000 kWh per year)

Initiative Frequency: Year-Round

Objectives: TOU pricing is designed to incent the shifting of energy usage. Therefore peak demand reductions are expected, and energy conservation benefits may also be realized.

Description: In August of 2010, the OEB issued a final determination to mandate TOU pricing for Regulated Price Plan ("RPP") customers by June 2011, in order to support the Government's expectation for 3.6 million RPP consumers to be on TOU pricing by June 2011, and to ensure that smart meters funded at ratepayer expense are being used for their intended purpose.

The RPP TOU price is adjusted twice annually by the OEB. A summary of the RPP TOU pricing is provided below:

RPP TOU		**Rates (cents/kWh)**	
Effective Date	**On Peak**	**Mid Peak**	**Off Peak**
November 1, 2010	9.9	8.1	5.1
May 1, 2011	10.7	8.9	5.9
November 1, 2011	10.8	9.2	6.2
May 1, 2012	11.7	10.0	6.5

Delivery: The OEB set the rates; the LDC installs and maintains the meters; the LDC converts customers to TOU billing.

Initiative Activities/Progress:

GHESI began transitioning its RPP customers to TOU billing in May 2011, with the first TOU bills issued in June. At December 31st, 2011, 45,607 of GHESI's RPP customers were on TOU billing.

1.3 Guelph Hydro's Application with the OEB

In its November 1, 2010 CDM Strategy, GHESI provided a high level description of how GHESI anticipated achieving its CDM targets. This strategy document was based on the market availability of a full suite of OPA residential, business and industrial programs, also known as "OPA Tier 1 province-wide programs". These Tier 1 OPA programs were expected to be the primary vehicle for meeting the mandatory 4 year targets, with potential Tier 2 and/or Tier 3 programs intended to either make up any Tier 1 shortfalls, or potentially exceed the 2014 targets.

In 2011 GHESI undertook some activities towards the goal of developing an OEB Tier2/Tier 3 program funding application. Progress in 2011 included the following:

- Reviewed and analyzed the July 12, 2011 Ontario Energy Board Decision EB-2011-0011, the "Toronto Hydro decision", particularly with respect to the requirements of the "non-duplicative"

nature of proposed programs, and the need for OPA review and discussion prior to the submission of an application;

- Completed an analysis and comparison of the proposed programs and Tier 1 programs;
- Continued development of the preliminary set of proposals included in GHESI's CDM Strategy, including the refinement of program measures and development of preliminary program specific TRC calculations. Potential programs included:
    - **Home Efficiency Visit;**
    - **Education – "Generation Conservation";**
    - **Smart Wash; and**
    - **Royal Flush**.
- Preliminary discussions with the OPA regarding the proposal submission and review process commenced December 2011.

GHESI intends to continue working towards the development of a Tier2/Tier 3 program application in 2012.

2 OPA-Contracted Province-Wide CDM Programs

2.1 Introduction

Provide a general overview of all of the OPA-Contracted Province-Wide CDM Programs that are being offered in the distributor's service area.

Effective March 11, 2011, GHESI entered into an agreement with the OPA to deliver CDM programs extending from January 1, 2011 to December 31, 2014, which are listed below. In addition, results will be reported from projects started pre 2011 which completed in 2011:

Initiative	Schedule	Date schedule posted	Customer Class
Residential Program			
Appliance Retirement	Schedule B-1, Exhibit D	*Jan 26 2011*	*All residential rate classes*
Appliance Exchange	Schedule B-1, Exhibit E	*Jan 26 2011*	*All residential rate classes*
HVAC Incentives	Schedule B-1, Exhibit B	*Jan 26 2011*	*All residential rate classes*
Conservation Instant Coupon Booklet	Schedule B-1, Exhibit A	*Jan 26 2011*	*All residential rate classes*
Bi-Annual Retailer Event	Schedule B-1, Exhibit C	*Jan 26 2011*	*All residential rate classes*
Retailer Co-op		*Jan 26 2011*	*All residential rate classes*
Residential Demand Response	Schedule B-3	*Aug 22 2011*	*All general service classes*
New Construction Program	Schedule B-2	*Jan 26 2011*	*All residential rate classes*
Commercial & Institutional Program			
Efficiency: Equipment Replacement	Schedule C-2	*Jan 26 2011*	*All general service classes*
Direct Install Lighting	Schedule C-3	*Jan 26 2011*	*General Service < 50 kW*
Existing Building Commissioning Incentive	Schedule C-6	*Feb 2011*	*All general service classes*
New Construction and Major Renovation Initiative	Schedule C-4	*Feb 2011*	*All general service classes*
Energy Audit	Schedule C-1	*Jan 26, 2011*	*All general service classes*
Commercial Demand Response (part of the Residential program schedule)	Schedule B-3	*Jan 26, 2011*	*All general service classes*
Demand Response 3 (part of the Industrial program schedule)	Schedule D-6	*May 31, 2011*	*General Service 50 kW & above*

Industrial Program			
Process & System Upgrades	Schedule D-1	*May 31, 2011*	*General Service 50 kW & above*
Monitoring & Targeting	Schedule D-2	*May 31, 2011*	*General Service 50 kW & above*
Energy Manager	Schedule D-3	*May 31, 2011*	*General Service 50 kW & above*
Key Account Manager	Schedule D-4	*May 31, 2011*	*General Service 50 kW & above*
Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	Schedule C-2	*May 31, 2011*	*General Service 50 kW & above*
Demand Response 3	Schedule D-6	*May 31, 2011*	*General Service 50 kW & above*
Home Assistance Program			
Home Assistance Program	Schedule E-1	*May 9, 2011*	*All residential rate classes*
Pre-2011 Programs completed in 2011			
Electricity Retrofit Incentive Program	n/a	*n/a*	*All general service classes*
High Performance New Construction	n/a	*n/a*	*All general service classes*
Toronto Comprehensive	n/a	*n/a*	*All general service classes*
Multifamily Energy Efficiency Rebates	n/a	*n/a*	*All general service classes*
Data Centre Incentive Program	n/a	*n/a*	*All general service classes*
EnWin Green Suites	n/a	*n/a*	*All general service classes*

Several initiatives that were included in the schedules were not in market in 2011. The OPA has communicated that the initiatives listed in the table below were not in market in 2011 and that they represent a very small percentage* of the forecasted energy and demand savings. During the 2011 program year, the OPA placed emphasis on supporting the implementation of initiatives believed to offer the greatest ratepayer value and greatest amount of persisting savings.

GHESI confirms that the initiatives identified as “not in market” in 2011 did not represent a significant component of GHESI’s forecasted energy and demand savings.

Initiative Not in Market in 2011	Objective	Status
Residential Program		
Midstream Electronics	The objective of this initative is to encourage retailers to promote and sell high efficency televisions, and for distributors to distribute high efficiency set top boxes.	Not launched to market
Midstream Pool Equipment	The objective of this initiative is to encourage pool installers to sell and install efficient pool pump equipment in residential in-ground pools.	Not launched to market
First Nations Program	First Nations programs are delivered by the OPA and results are attributed to LDCs for reporting.	Not launched to market
Home Energy Audit Tool	This is a provincial online audit tool to engage customers in conservation and help drive customer participation to CDM programs.	Not launched to market
Commercial & Institutional Program		
Direct Service Space Cooling	The objective of this initiative is to offer free servicing of air conditioning systems and refrigeration units for the purpose of achieving energy savings and demand reduction.	Not launched to market in 2011. As per the OPA, there are no plans to launch this initiative 2012
Demand Response 1 (DR1)	This initiative allows distribution customers to voluntarily reduce electricity demand during certain periods of the year pursuant to the DR 1 contract. The initiative provides DR payment for service for the actual electricity reduction provided during a demand response event.	No customer uptake for this initiative
Industrial Program		
Demand Response 1 (DR1)	As above	No customer uptake for this initiative

The Master CDM Program Agreement includes a program change management provisions in Article 3. Collaboration between the OPA and the Local Distribution Companies (LDCs) commenced in 2011 as the change management process was implemented to enhance the saveONenergy program suite. The change management process allows for modifications to the Master Service Agreement and Initiative Schedules. The program enhancements give LDCs additional tools and greater flexibility to deliver programs in a way that meets the needs of customers and further drives participation in the initiatives.

2.2 Program Descriptions

Programs that are being offered in the distributor's service area. For each program, include the targeted customer type(s) for the OPA-Contracted Province-Wide CDM Program, the objectives of the OPA-Contracted Province - Wide CDM Program, and any activities associated with the OPA-Contracted Province-Wide CDM Program.

2.2.1 RESIDENTIAL PROGRAM

2.2.1.1 APPLIANCE RETIREMENT INITIATIVE (Exhibit D)

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objectives: Achieve energy and demand savings by permanently decommissioning certain older, inefficient refrigeration appliances located in Ontario.

Description: This is an energy efficiency Initiative that offers individuals and businesses free pick-up and decommissioning of old large refrigerators and freezers. Window air conditioners and portable dehumidifiers will also be picked up if a refrigerator or a freezer is being collected.

Targeted End Uses: Large refrigerators, large freezers, window air conditioners and portable dehumidifiers.

Delivery: OPA centrally contracts for the province-wide marketing, call centre, appliance pick-up and decommissioning process. LDC provides local marketing and coordination with municipal pick-up where available.

Additional detail is available:

- Schedule B-1, Exhibit D: http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf, and
- saveONenergy website: https://saveONenergy.ca/Consumer/Programs/Appliance-Retirement.aspx

Initiative Activities/Progress:

GHESI provided local marketing and customer support for this initiative as summarized in the following table.

Market Date: Q1 2011

Initiatives/Activities	***Timeframe***	***Progress***
Community Event: *- Guelph Firefighters Benevolent Foundation*	***Q1***	*- interactive promotion to encourage FFP participation* *- very effective, will be repeated in 2012*
On-Bus Advertisement	***Q2 – Q4***	*- effective in creating phone calls during the high purchase seasons for appliance replacement*
Community Events: *- Multi-cultural Fest* *- Ribfest*	***Q2, Q3***	*- highest attended community events, excellent engagement and program education, noticeable results*
Newspaper Advertisements	***Q2 - Q3***	*- dedicated advertisements for FFP in community focused paper*
Phone System	***Q2 – Q4***	*- dedicated messaging for FFP*
Banner	***Q3***	*- effective for internal and external events*
Brochures	***Q2 - Q4***	*- fold with other programs and tips* *- 2 different sets*

GHESI is planning to expand appliance retailer participation in 2012.

Lessons Learned:

- The Appliance Retirement Initiative (previously The Great Refrigerator Round-Up) has been offered by LDCs since 2007. This initiative is approaching market saturation.
- While the OPA and the LDCs have reviewed this initiative to assess whether to include other products, appliances have a natural life cycle and the initiative cannot be expected to continually deliver the high level of results in perpetuity. As per the OPA, these lower expectations have been taken into account when developing conservation portfolios.
- This initiative now faces some competition from independent retailers and municipalities.
- Results are very responsive to province wide advertising.

2.2.1.2 APPLIANCE EXCHANGE INITIATIVE (Exhibit E)

Target Customer Type(s): Residential Customers

Initiative Frequency: Spring and Fall

Objective: The objective of this Initiative is to remove and permanently decommission older, inefficient window air conditioners and portable dehumidifiers that are in Ontario.

Description: This Initiative involves appliance exchange events. Exchange events are held at local retail locations and customers are encouraged to bring in their old room air conditioners (AC) and dehumidifiers in exchange for coupons/discounts towards the purchase of new energy efficient equipment.

Targeted End Uses: Window air conditioners and portable dehumidifiers

Delivery: OPA contracts with participating retailers for collection of eligible units.

Additional detail is available:

- Schedule B-1, Exhibit C: http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website: https://saveONenergy.ca/Consumer.aspx

Initiative Activities/Progress:

GHESI provided some local marketing and customer support for this initiative.

In Market Date: Q2 2011

Lessons Learned:

- The spring event had the participation of 3 retailers with 300 – 400 locations across the province. However, the Fall 2011 event had no retailer participation, therefore savings budgeted by the LDCs did not materialize.
- Evaluation, Measurement, and Verification (EMV) results indicated that the value of savings for retired room AC has dropped.
- The initiative may be achieving market saturation.
- The type of unit turned in is very dependent upon what is promoted by the retailers.
- More clarity with respect to participating retailers is required at the onset of the program.
- Some LDC's had no participation from local retailers. Limited engagement of local franchised retailers can restrict the savings potential for this initiative.

2.2.1.3 HVAC INCENTIVES INITIATIVE (Exhibit B)

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage the replacement of existing heating systems with high efficiency furnaces equipped with Electronically Commutated Motors (ECM), and to replace existing central air conditioners with ENERGY STAR qualified systems and products**.**

Description: This is an energy efficiency Initiative that provides rebates for the replacement of old heating or cooling systems with high efficiency furnaces (equipped with ECM) and Energy Star qualified central air conditioners by approved Heating, Refrigeration, and Air Conditioning Institute (HRAI) qualified contractors.

Targeted End Uses: Central air conditioners and furnaces

Delivery: OPA contracts centrally for delivery of the program. LDCs provide local marketing and encouraged local contractors to participate in the Initiative.

Additional detail is available:

- Schedule B-1, Exhibit B http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveONenergy.ca/Consumer.aspx

Initiative Activities/Progress:

GHESI provided local marketing and customer support for this initiative as summarized in the following table.

In Market Date: Q2 2011

Initiatives/Activities	***Timeframe***	***Progress***
On-Bus Advertisement	***Q2 – Q4***	- *effective in creating phone calls during the high purchase seasons for AC and furnace*
Community Events: - *Multi-cultural Fest* - *Ribfest*	***Q2, Q3***	- *highest attended city events, excellent engagement and program education*
Banners	***Q3***	- *very effective visual for internal and external events*

Newspaper Advertisements	***Q3 - Q4***	- *community driven newspaper, excellent accompaniment to AC replacements ads and fliers*
Brochures	***Q2 - Q4***	- *4 fold and 3 fold brochures for all outreach initiatives*
Community Events: - *Habitat for Humanity*	***Q4***	- *excellent exposure of all programs*
Fall Energy Fair	***Q4***	- *sustainability measures for churches and sacred spaces*

Lessons Learned:

- Channel engagement is a highly effective method of connecting with customers; however channel partners require timeliness of the Rebate process to maintain a positive relationship between consumers, contractors, the OPA, and the participating LDC.
- There appears to be spillover from non-HRAI contractors who are ineligible for this initiative. There are cases where smaller independent contractors are offering their own incentives (by discounting their installations to match value of the OPA incentive) to make the sale. As this occurs outside of the initiative, these installations not being attributed to any LDC.
- Channel Partner education and partnerships are necessary to capture any missed opportunities at the customer level, including savings towards target for the LDC.

2.2.1.4 CONSERVATION INSTANT COUPON BOOKLET INITIATIVE (Exhibit A)

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage households to purchase energy efficient products by offering discounts.

Description: This Initiative provides customers with year round coupons. The coupons offer instant rebates towards the purchase of a variety of low cost, easy to install energy efficient measures and can be redeemed at participating retailers. Booklets were directly mailed to customers and were also available at point-of-purchase. Downloadable coupons were also available at www.saveONenergy.ca.

Targeted End Uses: ENERGY STAR® qualified Standard Compact Fluorescent Lights (CFLs), ENERGY STAR® qualified light fixtures, lighting control products, weatherstripping, hot water pipe wrap, electric water

heater blanket, heavy duty plug-in timers, advanced power bars, clotheslines, baseboard programmable thermostats.

Delivery: The OPA contracts centrally for the distribution of the coupon booklets across Ontario. LDCs distribute coupons at local events and market the initiative locally. The OPA enters into agreements with retailers to honour the coupons.

Additional detail is available:

- Schedule B-1, Exhibit A: http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website: https://saveONenergy.ca/Consumer.aspx

Initiative Activities/Progress:

GHESI provided local marketing and customer support for this initiative as summarized in the following table.

In Market Date: Q1 2011

Initiatives/Activities	***Timeframe***	***Progress***
Coupon Booklets, Brochures	***Q1 – Q4***	- *effective during the high purchase seasons*
Retail Event: - *Home Depot*	***Q2***	- *distribution on site*
Mass Press Release	***Q3***	- *picked up by newspaper, local radio and television news*

Lessons Learned:

- The downloadable coupons proved to be more successful than the mailed out booklets.
- This Initiative may benefit from an enabler such as a Conservation Card / Loyalty Card to increase customer participation.
- The timeframe for retailer submission of redeemed coupons vary from retailer to retailer. This delays the results reporting, which in turn limits the OPA and LDC abilities to react and respond to initiative performance or changes in consumer behaviour.
- Many customers requested inclusion of coupons for LED lamps.

- The Product list should be distinctive from the Bi-Annual Retailer Event Initiative in order to gain more consumer interest and uptake.

- Program evolution, including new products (for example, LED lighting) and review of incentive pricing for coupons, should be a regular activity to ensure continued consumer interest.

2.2.1.5 BI-ANNUAL RETAILER EVENT INITIATIVE (Exhibit C)

Target Customer Type(s): Residential Customers

Initiative Frequency: Bi-annual events

Objective: The objective of this Initiative is to provide instant point of purchase discounts to individuals at participating retailers for a variety of energy efficient products.

Description: Twice a year (Spring and Fall), participating retailers host month-long rebate events. During the months of April and October, customers are encouraged to visit participating retailers where they can find coupons redeemable for instant rebates towards a variety of low cost, easy to install energy efficient measures.

Targeted End Uses: Same as the conservation instant coupon booklet initiative

Delivery: The OPA enters into arrangements with participating retailers to promote the discounted products, and to post and honour related coupons. LDCs also refer retailers to the OPA.

Additional detail is available:

- Schedule B-1, Exhibit C: http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website: https://saveONenergy.ca/Consumer.aspx

Initiative Activities/Progress:

GHESI provided limited local marketing and for this initiative in 2011.

In Market Date: Q3 2011

GHESI plans to more proactively market and promote this initiative in 2012 in order to increase customer participation.

Lessons Learned:

- The Product list has changed very little over the past four years.

- Program evolution, including new products (for example, LED lighting) and review of incentive pricing for the coupon initiatives, must be a regular activity to ensure continued consumer interest.
- A review conducted by the Residential Working Group in Q4 2011 identified three areas of need for initiative evolution: 1) introduction of product focused marketing; 2) enhanced product selection and 3) improved training for retailers.
- The Product list should be distinctive from the Conservation Instant Coupon Booklet Initiative in order to gain more consumer interest and uptake.

2.2.1.6 RETAILER CO-OP

Target Customer Type(s): Residential Customers

Initiative Frequency: Year Round

Objective: Hold promotional events to encourage customers to purchase energy efficiency measures (and go above-and-beyond the traditional Bi-Annual Coupon Events).

Description: The Retailer Co-op Initiative provides LDCs with the opportunity to work with retailers in their service area by holding special events at retail locations. These events are typically special promotions that encourage customers to purchase energy efficiency measures (and go above-and-beyond the traditional Bi-Annual Coupon Events).

Targeted End Uses: As per the Conservation Instant Coupon Booklet Initiative

Delivery: Retailers apply to the OPA for co-op funding to run special promotions that promote energy efficiency to customers in their stores. LDCs can refer retailers to the OPA. The OPA provides each LDC with a list of retailers who have qualified for Co-Op Funding as well as details of the proposed special events.

Initiative Activities/Progress:

GHESI was unable to participate in retailer co-op events in 2011 due to limited resources.

In Market Date: not to market in 2011

Lessons Learned:

- The availability of retailer and/or LDC staff with product knowledge and the ability to conduct demonstration in store during the events would be an asset. This could be a valuable role for LDCs, however many LDCs are limited by available resources and are unable to participate.

2.2.1.7 NEW CONSTRUCTION PROGRAM (Schedule B-2)

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this initiative is to provide incentives to participants for the purpose of promoting the construction of energy efficient residential homes in the Province of Ontario.

Description: This is an energy efficiency Initiative that provides incentives to homebuilders for constructing new homes that are efficient, smart, and integrated (applicable to new single family dwellings). Incentives are provided in two key categories as follows:

- Incentives for homebuilders who install electricity efficiency measures as determined by a prescriptive list or via a custom option.
- Incentives for homebuilders who meet or exceed aggressive efficiency standards using the EnerGuide performance rating system.

Targeted End Uses: all off switch, ECM motors, ENERGY STAR qualified central A/C, lighting control products, lighting fixtures, Energuide 83 whole home, Energuide 85 whole homes

Delivery: Local engagement of builders will be the responsibility of the LDC and will be supported by OPA air coverage driving builders to their LDC for additional information.

Additional detail is available:

- Schedule B-1, Exhibit C: http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-2%20New%20Construction%20Program.pdf and
- saveONenergy website: https://saveONenergy.ca/Consumer.aspx

Initiative Activities/Progress:

GHESI's primary focus for 2011 program delivery was to attempt to continue the delivery of successor programs for those that were well known in the market and had significant customer connection (ie. ERIP/Retrofit, Power Savings Blitz/Small Business Lighting, The Great Refrigerator Roundup/Appliance Pickup, ***peaksaver®***Extension/***peaksaver***PLUS ™). GHESI did not actively pursue this initiative in 2011, but monitored the marketplace for resolution of issues such as those identified under Lessons Learned.

GHESI expects to offer this program to customers in 2012.

In Market Date: not to market in 2011

Lessons Learned:

- There were limited (5) participants in the program. Because the online application system is a one to one relationship, this program was only practical for custom builders who were building

one home at a time. Tract builders who might build 250 homes in a single phase would have to submit 250 applications to qualify for incentives. This administrative challenge has deterred all tract builders from participating in the program to date.

- Administrative requirements must align with perceived stakeholder payback. Changes are being processed through change management for 2012.

2.2.1.8 RESIDENTIAL DEMAND RESPONSE PROGRAM (Schedule B-3)

Target Customer Type(s): Residential and Small Commercial Customers

Initiative Frequency: Year round

Objective: The objectives of this Initiative are to enhance the reliability of the IESO-controlled grid by accessing and aggregating specified residential and small commercial end uses for the purpose of load reduction, increasing consumer awareness of the importance of reducing summer demand and providing consumers their current electricity consumption and associated costs.

Description*: In* ***peaksaver***PLUS ™ participants are eligible to receive a free programmable thermostat or switch, including installation. Participants also receive access to price and real-time consumption information on an In Home Display (IHD). LDCs were given the choice to continue to offer the standard load control program (programmable thermostat or switch with a $25 bill credit) for the first 8 months of 2011 (referred to as ***peaksaver®***Extension). After August 2011, the Extension ended and the program (including marketing) ceased until new IHD product were available.

Targeted End Uses: central air conditioning, electric water heaters and pool pumps

Delivery: LDC's recruit customers and procure technology

Additional detail is available:

- Schedule B-1, Exhibit C: http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/SCHED_2011_ResDR_B_3_110727%28MJB%29v15_redacted.pdf and
- saveONenergy website: https://saveONenergy.ca/Consumer.aspx

Initiative Activities/Progress:

GHESI provided local marketing and customer support for the ***peaksaver®***Extension as summarized in the following table.

In Market Date: ***peaksaver®***Extension – Q1-Q3 2011

peaksaverPLUS ™ - not in market in 2011

Initiatives/Activities	***Timeframe***	***Progress***
Community Events: *- Multi-cultural Fest* *- Ribfest*	***Q2, Q3***	*- best attended community events effective for* ***peaksaver®***Extension *enrollment, program was halted in August 2011*
Retailer Participation	***Q2***	*- encouraging enrollment before the existing program ended*
Phone System, Website	***Q1 – Q3***	*- toll free number to order the peaksaver thermostat*
Banner	***Q3***	*- effective branding for internal and external events*
Website	***Q1 - Q3***	*- encouraging customers to enroll*
Press Release	***Q3***	*- announcing final opportunity to enroll in* ***peaksaver®***Extension

Status of GHESI's *peaksaver*PLUS ™ Program Delivery:

For GHESI's Smart Meter implementation, GHESI chose to include one unique feature which exceeded the minimum functional specification of the Advanced Metering Infrastructure (AMI) initiative. This feature is a second communication chip known as a "Zigbee" chip, which permits communication with Zigbee-compliant devices, such as IHDs or programmable thermostats inside the home, through the AMI communication network. This was done several years in advance of the current CDM program, in anticipation of the future need to support CDM programs through communication with Zigbee-enabled devices inside the home.

Throughout 2010 and 2011 GHESI experimented with a number of IHDs on a test bench in our Meter Shop, to understand various IHD capabilities and functionality, smart meter-IHD pairing requirements and process, device stability and capacity to maintain the device-smart meter pairing. These understandings helped guide GHESI's thinking towards IHD delivery as part of a CDM program. A number of these devices offered the potential for a customer to build a basic but expandable mini-home automation system, in addition to supplying the required IHD functionality. Unfortunately, these devices were not supportable through the OPA IHD budget, neither for the initial system purchase and deployment, nor for ongoing operating and support costs. In working with these devices, GHESI also came to the conclusion that there was a risk to deploying technology that met the basic ***peaksaver***PLUS ™ program requirements, but did not offer the end consumer something more. GHESI was concerned that with many of the limited functionality devices available in the market, the novelty of the IHD would quickly wear off, device use would soon be discontinued, and customer behavioral change would not result. As a result, GHESI chose to continue searching the marketplace for other potential IHD products late in 2011 and into 2012.

Late in 2011 GHESI also focused more closely on the back-office IT hardware and software infrastructure that would be required to support the IHD portion of the ***peaksaver***PLUS ™ program, as GHESI intended to leverage its smart meter Zigbee chip investment. More specifically, GHESI reviewed the existing AMI software capabilities to determine if it was suitable for the following:

- managing an inventory of IHDs;
- managing the pairing of the IHD and smart meter;
- managing multiple rates in the back-office software, including pushing the rates to the IHD on a regular basis so the display could calculate basic consumption pricing information;
- providing tools to permit a service delivery agent to perform ongoing customer support and device re-pairing, as required, in an automated fashion.

GHESI's work to the end of 2011 determined that while the existing back-office software was functional and met the basic program delivery requirements for a small pilot project, it was not scalable to manage a larger deployment. Work with the AMI vendor would continue in 2012 to attempt to address some of these concerns. The configuration, complexity and cost of implementing and operating such a system would not be known until 2012.

The requirements to properly investigate and address concerns such as those noted above has led GHESI to realize that the real implementation of the ***peaksaver***PLUS ™ program complete with functional IHD could not be delivered to market until mid or late 2012. This anticipated almost 2-year delay represents a noticeable impact to GHESI's forecasted energy and demand savings identified in GHESI's CDM Strategy – almost 40% of the anticipated program enrollment was forecast for the 2011-2012 timeframe.

When the program is fully launched to market, GHESI does anticipate that the delays in program delivery will have resulted in an improved program offering, customer experience, and ideally program uptake and behavioral change. GHESI anticipates that an IHD with a strong customer connection will be an excellent vehicle to help promote the ***peaksaver***PLUS ™ program, and will somewhat mitigate the impact of the deployment delay.

Lessons Learned:

- The schedule for ***peaksaver***PLUS ™ was posted in August 2011, but this did not provide adequate time for product procurement for 2011, and part of 2012. The product procurement process uncovered that the In Home Display units that communicate with installed smart meter technology were still in development and not ready for market deployment. Consequently, LDCs could not be in market with the Peaksaver Plus program until 2012 or later.

- Introduction of new technology requires incentives for the development of such technology. Appropriate lead times for LDC analysis and assessment, product procurement, and testing and integration into the Smart Meter environment are also required. Making seemingly minor changes to provincial technical specifications can create significant issues when all LDCs attempt to implement the solution in their individual environments.

- Where a provincial solution is not available to all participants, attention to addressing specific LDC concerns is needed.

2.2.2 COMMERCIAL AND INSTITUTIONAL PROGRAM

2.2.2.1 EFFICIENCY: EQUIPMENT REPLACEMENT INCENTIVE (ERII) (Schedule C-2)

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives to non-residential distribution customers to achieve reductions in electricity demand and consumption by upgrading to more energy efficient equipment for lighting, space cooling, ventilation and other measures.

Description: The Equipment Replacement Incentive Initiative (ERII) offers financial incentives to customers for the upgrade of existing equipment to energy efficient equipment. Upgrade projects can be classified into either: 1) prescriptive projects where prescribed measures replace associated required base case equipment; 2) engineered projects where energy and demand savings and incentives are calculated for associated measures; or 3) custom projects for other energy efficiency upgrades.

Targeted End Uses: lighting, space cooling, ventilation and other measures

Delivery: LDC delivered.

Additional detail is available:

- Schedule C-2: http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-2%20ERII%20Initiative.pdf and
- saveONenergy website: https://saveONenergy.ca/Business/Program-Overviews/Retrofit-for-Commercial.aspx

Initiative Activities/Progress:

GHESI provided local marketing and customer support for this initiative as summarized in the following table.

In Market Date: Q2 2011

Initiatives/Activities	***Timeframe***	***Progress***
Proactive Sales Calls	***Q1 – Q4***	- *regular proactive and reactive direct sales calls by Key Accounts Manager and Energy Services Representatives to sell energy efficiency projects*
Business Events: - *Retrofit Workshop*	***Q1, Q3, Q4***	- *events targeting the business community as well as institutional and industrial customers to promote*

- *Chamber Event* - *Lunch & Learn* - *Solar Open House*		*saveONenergy programs, incentive potential and local success stories*
Community & Retailer Events: - *Multi-cultural Fest* - *Ribfest* - *Habitat for Humanity* - *Fall Energy Fair*	***Q1 – Q4***	- *while these events primarily focused on the Consumer segment, collateral materials were available for distribution and conversations were had with some customers on the Business program offerings*
Advertising in Local Business Publications	***Q1 - Q4***	- *Chamber of Commerce, Business Ventures, Moving Business Forward, etc business program advertising*
Case Studies, Matte Articles, Press Releases	***Q3 – Q4***	- *program promotion and case studies to showcase success stories beyond the "low hanging fruit" of lighting projects*
CRM Applicant Representative Training	***Q4***	- *personalized CRM orientation / training for customers, their agents and applicant reps to provide improved CRM self-service and minimize the number of application entry and administration issues*

Lessons Learned:

- ERII (previously Equipment Replacement Incentive Program – ERIP) has been offered by LDCs for many years. It is a high performing, cost-effective program, and there were many pre-2011 projects completing in 2011 (via ERIP).

- A major challenge for the ERII program in 2011 was payment delays. The centralized electronic processes were not ready as required by the Master Agreement. The lack of having these automated processes, exasperated by a greater than expected volume of pre-2011 projects completing in 2011, caused considerable payment delays. As a result, LDCs either utilized their working capital to pay customer incentives in order to preserve customer relations, or delayed payments to their customers. Based on the lessons learned in the 2011 process, the centralized process review used for 2012 project payment has been streamlined by the OPA.

- In March 2011, the revised iCON system was launched by the OPA. This is the major online application system implemented to aid the 2011-2014 ERII application process. With system applications of this size and functionality, it was expected that there would be various issues identified at the time of the release, and on-going, to prove that the system was "ready for

market." Unfortunately, the resolution of these issues, with the corresponding time lags and workarounds, was seen to be a significant barrier to some customer participation in the 2011 program year. In addition, there were also on-going issues and limitations with the back-end CRM system that affected LDCs ability to effectively review and approve applications. Given these difficulties, some LDCs (and their third party service providers) have needed to develop parallel systems to monitor their applications.

- Another major challenge for 2011 was the ERIP-ERII program transition "hard stop" of the program, as the ERIP program ended December 31, 2010 and the new ERII program was not available until March 2011. Without a streamlined transition into a new program at the end of the old, many customers become frustrated and refuse to participate. LDCs struggle to repair customer and channel partner relationships and gain momentum in the marketplace once again.

- The business cycle for ERII projects can be significant, especially for larger projects that typically require internal business justification, including basic project design, review, approval and budgeting / funding processes.

- The transition to any successor business conservation program needs to be completed in a timely manner more seamless to the customer and to the LDC from an administration perspective. The significant sales cycle needs to be recognized as part of planning around this transition process.

2.2.2.2 DIRECT INSTALL LIGHTING INITIATIVE (DIL) (Schedule C-3)

Target Customer Type(s): Small Commercial, Institutional, Agricultural facilities and Multi-family buildings

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer a free installation of eligible lighting and water heating measures of up to $1,000 to eligible owners and tenants of commercial, institutional and agricultural facilities and multi-family buildings, for the purpose of achieving electricity savings and peak demand savings.

Description: The Direct Install Lighting Initiative targets customers in the General Service <50kW account category. This Initiative offers turnkey lighting and electric hot water heater measures with a value up to $1,000 at no cost to qualifying small businesses. In addition, standard prescriptive incentives are available for eligible equipment beyond the initial $1,000 limit.

Target End Uses: Lighting and electric water heating measures.

Delivery: Participants can enroll directly with the LDC, or would be contacted by the LDC/LDC-designated representative.

Additional detail is available:

- Schedule C-3:

http://www.powerauthority.on.ca/sites/default/files/page/Schedule%20C-3%20Direct%20Install%20Initiative%20-%20redacted.pdf and

- saveONenergy website: https://saveONenergy.ca/Business.aspx

Initiative Activities/Progress:

GHESI provided local marketing and customer support for this initiative as summarized in the following table.

In Market Date: Q2 2011

Initiatives/Activities	***Timeframe***	***Progress***
Proactive door-to-door sales calls	***Q2-Q4***	- *Customers canvassed door-to-door for free audit and no-charge measures*
Call centre	***Q2-Q4***	- *Outbound call centre calls as well as inbound calls received through various marketing efforts & word-of-mouth*
Business Events: - *Retrofit Workshop* - *Solar Open House*	***Q3, Q4***	- *events targeting the business community to promote saveONenergy programs including DIL*
Community Events: - *Multi-cultural Fest* - *Ribfest* - *Habitat for Humanity* - *Fall Energy Fair*	***Q2, Q3***	- *highest attended community events, excellent engagement and program education* - *collateral materials available for distribution and conversations were had with some customers on the Business program offerings*
On-Bus Advertisement	***Q2 – Q4***	- *another program promotional vehicle*
Phone system	***Q2 – Q4***	- *messaging to encouraging customers to enroll*
Advertising in Local Business Publications	***Q2 - Q4***	- *Chamber of Commerce, Business Ventures, Moving Business Forward, etc business program advertising*
Case Studies, Matte Articles, Press Releases	***Q2 – Q4***	- *program promotion and case studies to showcase success stories and encourage enrollment*

The Power Savings Blitz and its successor Direct Install Lighting Initiative have been highly successful programs for GHESI since 2008. GHESI notes, however, that this program in its current form is a mature program, and may be close to end of life.

An analysis of market uptake since program inception to Q3 2011 showed a 36% program uptake of eligible participants, which has been described by program delivery agents as in the range of saturation (35-40% uptake). An additional 19% of accounts had been dismissed from participation as their facilities already had energy efficient measures installed. An additional 18% of potential program participants indicated no interest in participating for a variety of reasons. This left a remaining 27% of potential eligible participants, but applying uptake assumptions based on the historical results, the potential for this program to continue and achieve results is greatly diminished.

Lessons Learned:

- The Direct Install Lighting Initiative is a continuation of the Power Saving Blitz Initiative offered by LDCs from 2008-2010. Successful execution of the previous rendition of this Initiative has resulted in diminished potential for the 2011-2014 Initiative in some LDC territories.

- The inclusion of a standard ERII incentive for additional measures increased project size and drove higher energy and demand savings results in some situations.

- Currently LDCs are unable to offer these standard incentives to prior participants. The ability to return to prior participants and offer a standard incentive on the remaining measures has the potential to provide additional energy and demand savings.

- As with the equipment replacement program, the Direct Install lighting Initiative lost momentum in some LDC service territories due to the “hard stop” of the program in 2010 and subsequent program delay in 2011.

- The cost of materials has experienced price increases, reducing the margins of the electrical contractors and has led to a reduction in vendor channel participation in some regions.

- Due to backlogs in the payment system, participant incentive payment from the OPA to the LDC, and therefore to the customer, was commonly delayed.

- To address these issues, the LDCs have been working with the OPA through Change Management to address:
  - extending the target initiative population to include small agricultural customers;
  - increasing the incentive envelope of $1,000 to $1,500 to ensure ongoing marketability of the program; and
  - reviewing the eligible measure price list to support contractor participation.

2.2.2.3 EXISTING BUILDING COMMISSIONING INCENTIVE INITIATIVE (Schedule C-6)

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives for optimizing (but not replacing) existing chilled water systems for space cooling in non-residential facilities for the purpose of achieving implementation phase energy savings, implementation phase demand savings, or both.

Description: This Initiative offers Participants incentives for the following:

- scoping study phase
- investigation phase
- implementation phase
- hand off/completion phase

Targeted End Uses: Chilled water systems for space cooling

Delivery: LDC delivered.

Additional detail is available:

- Schedule C-6: http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-6%20Commissioning%20Initiative.pdf and
- saveONenergy website: https://saveONenergy.ca/Business/Program-Overviews/Existing-Building-Commissioning.aspx

Initiative Activities/Progress:

GHESI did not actively pursue this initiative in 2011, but expects to more proactively market this program to customers in 2012.

In Market Date: not to market in 2011

Lessons Learned:

- There was no customer uptake for this Initiative. It is suspected that the scope of the Initiative being limited to space cooling contributed to the lack of participation. Accordingly chilled water systems used for other purposes should be made eligible and considered through Change Management.
- The customer expectation is that the program be expanded to include broader building improvements for a more holistic approach to building re-commissioning.

2.2.2.4 NEW CONSTRUCTION AND MAJOR RENOVATION INITIATIVE (HPNC) (Schedule C-4)

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage builders of commercial, institutional, and industrial buildings (including multi-family buildings and agricultural facilities) to reduce electricity demand and/or consumption by designing and building new buildings with more energy-efficient equipment and systems for lighting, space cooling, ventilation and other Measures.

Description: The New Construction initiative provides incentives for new buildings to exceed existing codes and standards for energy efficiency. The initiative uses both a prescriptive and custom approach.

Targeted End Uses: Building modeling, lighting, space cooling, ventilation and other Measures

Delivery: LDC delivers to customers and design decision makers.

Additional detail is available:

- Schedule C-4: http://www.powerauthority.on.ca/sites/default/files/page/ScheduleC-4NewContructionInitiativeV2.pdf and
- saveONenergy website: https://saveONenergy.ca/Business/Program-Overviews/New-Construction.aspx

Initiative Activities/Progress:

GHESI's primary focus for 2011 program delivery was to attempt to continue the delivery of successor programs for those that were well known in the market and had significant customer connection (ie. ERIP/Retrofit, Power Savings Blitz/Small Business Lighting, The Great Refrigerator Roundup/Appliance Pickup, ***peaksaver®***Extension/***peaksaver***PLUS™). Programs new to the market with limited previous customer engagement or expectation would be offered as GHESI's program understanding and capacity to implement evolved, and the new program's administration/delivery mechanisms matured. GHESI chose not to offer the New Construction Initiative in 2011, and continued to monitor the marketplace for resolution of issues such as those identified under Lessons Learned.

GHESI expects to offer this program to customers in 2012.

In Market Date: not to market in 2011

Lessons Learned:

- This is a continuation of the High Performance New Construction program previously delivered by Enbridge Gas under contract with the OPA (and subcontracted to Union Gas), which ran until December 2010.

- For 2011, new industry participation was limited due to the delays in redesign of certain aspects of the Initiative such as:
    - 2011 prescriptive incentives needed to be aligned with ERII incentives
    - In the cases of delivering large projects (i.e. custom applications), 2011 participation was limited due to 1) building code changes and 2) level of documentation required.

2.2.2.5 ENERGY AUDIT INITIATIVE (Schedule C-1)

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives to owners and lessees of commercial, institutional, multi-family buildings and agricultural facilities for the purpose of undertaking assessments to identify all possible opportunities to reduce electricity demand and consumption within their buildings or premises.

Description: This Initiative provides participants incentives for the completion of energy audits of electricity consuming equipment located in the facility. Energy audits include development of energy baselines, use assessments and performance monitoring and reporting.

Targeted End Uses: Various

Delivery: LDC delivered.

Additional detail is available:

- Schedule C-1: http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-1%20Energy%20Audit%20Initiative.pdf and
- saveONenergy website: https://saveONenergy.ca/Business/Program-Overviews/Audit-Funding.aspx

Initiative Activities/Progress:

GHESI provided local marketing and customer support for this initiative as summarized in the following table.

In Market Date: Q3 2011

Initiatives/Activities	***Timeframe***	***Progress***
Business Events: *- Retrofit Workshop*	***Q3, Q4***	*- events targeting the business community as well as institutional and industrial customers to promote saveONenergy programs, incentive*

- *Solar Open House*		*potential and local success stories*
Community & Retailer Events: - *Multi-cultural Fest* - *Ribfest* - *Habitat for Humanity* - *Fall Energy Fair*	***Q1 – Q4***	- *while these events primarily focused on the Consumer segment, collateral materials were available for distribution and conversations were had with some customers on the Business program offerings*
Advertising in Local Business Publications	***Q1 - Q4***	- *Chamber of Commerce, Business Ventures, Moving Business Forward, etc business program advertising*
Brochures	***Q2 - Q4***	- *4 fold and 3 fold brochures for all outreach initiatives*

Lessons Learned:

- Customer uptake in 2011 was limited.
- The Energy Audit Initiative is considered an "enabling" initiative. There are no direct savings attributed to LDC targets as a result of the audit.
- LDCs and participants would benefit from a greater connection with other saveONenergy Initiatives as a result of completing the Energy Audit. The Initiative should be reviewed under Change Management for the means to readily incent Participants with Audits in hand to implement other electricity savings Initiatives.
- GHESI's first interaction with a customer interested in Audit funding occurred in Q4-2011. As the program becomes more well-known in 2012, GHESI anticipates an increase in the Energy Audit program participation.
- It will be extremely important to leverage the audit results into tangible projects. The existing audit report requirements should be enhanced to require this form of connection to saveONenergy programs and customer incentive potential.

2.2.3 INDUSTRIAL PROGRAM

2.2.3.1 PROCESS & SYSTEMS UPGRADES INITIATIVE (PSUI) (Schedule D-1)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objectives: The objectives of this Initiative are to:

- Offer distribution customers capital incentives and enabling initiatives to assist with the implementation of large projects and project portfolios;
- Implement system optimization project in systems which are intrinsically complex and capital intensive; and
- Increase the capability of distribution customers to implement energy management and system optimization projects.

Description: PSUI is an energy management Initiative that includes three Initiatives: (preliminary engineering study, detailed engineering study, and project incentive Initiative). The incentives are available to large distribution connected customers with projects or portfolio projects that are expected to generate at least 350 MWh of annualized electricity savings or, in the case of Micro-Projects, 100 MWh of annualized electricity savings. The capital incentive for this Initiative is the lowest of:

a) $200/MWh of annualized electricity savings

b) 70% of projects cost

c) A one year payback

Targeted End Uses: Process and systems

Delivery: LDC delivered with Key Account Management support, in some cases.

Additional detail is available:

- Schedule D-1 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-1%20Process%20and%20Systems%20Upgrades%20Initiative.pdf and
- SaveONenergy website https://saveONenergy.ca/Business.aspx

Initiative Activities/Progress:

GHESI provided local marketing and customer support for this initiative.

In Market Date: Q4 2011

GHESI had preliminary discussions with a large potential on-site Load Displacement (Co-Generation) project late in 2011.

Lessons Learned:

- The PSUI program targets large customers that are undertaking large capital projects. There is typically a long sales cycle for these projects, and then a long project development cycle. As such, results from PSUI did not appear in 2011. Limited results are expected to appear in 2012. The majority of the results are expected in 2013-2014, with a much reduced benefit to cumulative energy savings targets.
- Steps are being taken in the 2012 change management process to simplify and streamline the micro-project application process and to allow smaller projects to be directed to the ERII stream.
- Given the size of the projects involved, the contract required for PSUI is a lengthy and complicated document. Attempts are being made through change management in 2012 to simplify the document while still protecting the ratepayer.
- With the considerable customer interest in on-site Load Displacement (Co-Generation) projects, the Initiative should be reviewed to ensure that these projects may be accepted as part of the PSUI Initiative.

2.2.3.2 MONITORING & TARGETING INITIATIVE (Schedule D-2)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This Initiative offers access to funding for the installation of Monitoring and Targeting systems in order to deliver a minimum savings target at the end of 24 months and sustained for the term of the M&T Agreement.

Description: This Initiative offers customers funding for the installation of a Monitoring and Targeting system to help them understand how their energy consumption might be reduced. A facility energy manager, who regularly oversees energy usage, will now be able to use historical energy consumption performance to analyze and set targets.

Targeted End Uses: Processes and systems

Delivery: LDC delivered with Key Account Management support, in some cases.

Additional detail is available:

- Schedule D-2
  http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_e

lectricity_contracts/pdfs/Schedule%20D-2%20Monitoring%20and%20Targeting%20Initiative.pdf and

- SaveONenergy website https://saveONenergy.ca/Business.aspx

Initiative Activities/Progress:

GHESI provided limited local marketing and for this initiative in 2011.

In Market Date: Q4 2011

Lessons Learned:

- The M&T initiative was originally targeted at larger customers with the capacity to review the M&T data. This review requires the customer facility to employ an Energy Manager, or a person with equivalent qualifications, which has been a barrier for some customers. In addition, the savings target required for this Initiative can present a significant challenge for smaller customers. Through the change management process in 2012, changes are being made to both the M&T schedule and ERII to allow smaller facilities to employ M&T systems.

2.2.3.3 ENERGY MANAGER INITIATIVE (Schedule D-3)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: The objective of this initiative is to provide customers and LDCs the opportunity to access funding for the engagement of energy managers in order to deliver a minimum annual savings target.

Description: This Initiative provides customers the opportunity to access funding to engage an on-site, full time embedded energy manager, or an off-site roving energy manager who is engaged by the LDC. The role of the energy manager is to take control of the facility's energy use by monitoring performance, leading awareness programs, and identifying opportunities for energy consumption improvement, and spearheading projects. Participants are funded 80% of the embedded energy manager's salary up to $100,000 plus 80% of the energy manager's actual reasonable expenses incurred up to $8,000 per year. Each embedded energy manager has a target of 300 kW/year of energy savings from one or more facilities. LDCs receive funding of up to $120,000 for a Roving Energy Manager plus $8,000 for expenses.

Targeted End Uses:

Delivery: LDC delivered with Key Account Management support, in some cases.

Additional detail is available:

- Schedule D-3 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_

electricity_contracts/pdfs/Schedule%20D-3%20Energy%20Manager%20Initiative%202011-2014.pdf and

- saveONenergy website https://saveONenergy.ca/Business.aspx

Initiative Activities/Progress:

In Market Date: not to market in 2011

Through GHESI's CDM Strategy document GHESI indicated its intent to pursue funding for a Roving Energy Manager (REM) to support program uptake for its Industrial customers. This was highlighted in the CDM Strategy, without having the benefit of clarity of details around the various final program offerings. Since release of the final program specifics, GHESI's focus changed from REM support to Key Account Manager (KAM) support, as further described in the following section. This change in focus was due to concerns over potential customer and program delivery confusion around specific REM and Embedded Energy Manager (EEM) targets relative to non-REM/EEM project proposals, as well as the potential difficulty in finding the appropriate skilled REM/EEM support willing to undertake the obligations of a short term contract and associated energy target.

Lessons Learned:

- At the beginning, it took longer than expected to set up the energy manager application process.
- Some LDCs are reporting difficulties in hiring capable Energy Managers.
- LDCs that are too small to qualify for their own Roving Energy Manager (REM), are teaming up with other utilities to hire an REM.

2.2.3.4 KEY ACCOUNT MANAGER (KAM) (Schedule D-4)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This initiative offers LDCs the opportunity to access funding for the employment of a KAM in order to support them in fulfilling their obligations related to the PSUI.

Description: This initiative provides LDCs the opportunity to utilize a KAM to assist their customers. The KAM is considered to be a key element in assisting the consumer in overcoming traditional barriers related to energy management and help them achieve savings since the KAM can build relationships and become a significant resource of knowledge to the customer.

Targeted End Uses: Process and systems

Delivery: LDC delivered

Additional detail is available:

- ScheduleD-4: http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/projects_programs/pdfs/PSUI%20Initiative%20Schedule%20D-4.Key%20Account%20Manager.20110322.pdf

Initiative Activities/Progress:

GHESI received approval for 50% funding of one part-time KAM prorated to 50% of a full-time KAM May 25, 2011. GHESI pursued hiring the 50% KAM during Q3 2011, with no success. This was based on the skill set being sought as well as the lack of qualified people interested in working under a short term contract. In Q3 2011 GHESI hired an additional resource in the form of a full time Energy Services Representative (ESR), and between the ESR and other GHESI staff, customers have been provided reactive KAM support through these individuals on a part time basis. GHESI intends to revisit the marketplace for a 50% KAM in 2012.

In Market Date: Q2 2011

Lessons Learned:

- Customers appreciate dealing with a single contact to interface with an LDC, a resource that has both the technical and business background who can communicate easily with the customer and the LDC. In addition, the short term contract and associated energy target discourages some skilled applicants. This has resulted in difficulties in finding the right resource with the appropriate skill set.
- Clear communication is required between LDC staff, delivery agents, KAMs and Energy Managers to ensure customers are not approached multiple times, by multiple individuals and become confused with regards to their point of contact for the Initiatives.
- As the KAM contracts are limited, and PSUI projects have long lead times, it is anticipated that customers may be left without the assistance of the KAM prior to project completion. As such, LDCs should be prepared with a transition plan to ensure their customers are adequately supported through to project completion.

2.2.3.5 DEMAND RESPONSE 3 (Schedule D-6)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This Initiative provides for Demand Response (DR) payments to contracted DR3 participants to compensate them for reducing electricity consumption by a pre-determined amount during a demand response event**.**

Description: Demand Response 3 (DR3) is a demand response Initiative for commercial and industrial customers, of 50 kW or greater to reduce the amount of power being used during certain periods of the

year. The DR3 Initiative is a contractual resource that is an economic alternative to procurement of new generation capacity. DR3 comes with specific contractual obligations requiring participants to reduce their use of electricity relative to a baseline when called upon. This Initiative makes payments for participants to be on standby and payments for the actual electricity reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year depending on the contract.

Targeted End Uses: Commercial and Industrial operations

Delivery: DR3 is delivered by Demand Response Providers (DRPs), under contract to the OPA. The OPA administers contracts with all DRPs as well as Direct Participants that provide in excess of 5 MW of demand response capacity. OPA provides administration including settlement, measurement and verification, and dispatch. LDCs are responsible for local customer outreach and marketing efforts.

Additional detail is available:

- Schedule D-6: http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-6%20Demand%20Response%203%202011-2014.pdf and
- saveONenergy website: https://saveONenergy.ca/Business.aspx

Initiative Activities/Progress:

GHESI provided local marketing and customer support for this initiative.

In Market Date: Q1 2011

It is noted that while the Schedule for this initiative was not posted until May 2011, the Aggregators were reporting they were able to enroll customers as of January 2011.

Lessons Learned:

- Customer data is not provided by the OPA on an individual customer basis due to contractual requirements with the aggregators. This limits LDCs' ability to effectively market to prospective participants. LDCs are now approaching the Aggregators individually and working to develop agreements in order to identify potential customers of this initiative. However, not all aggregators are open to sharing this information.
- The lack of LDC knowledge regarding customer DR3 program enrollment specifics also prevents LDCs from validating LDC specific results or allocations as provided by the OPA. LDCs should have the ability to verify results allocated to them through knowledge of customer specific enrollment data. This is particularly critical for programs such as DR3 that can greatly influence the achievement of the summer peak demand savings MW target, especially when the LDC's Distributors Licence is potentially at risk in the event of not meeting their target.

2.2.4 LOW INCOME INITIATIVE (HOME ASSISTANCE PROGRAM) (Schedule E)

Target Customer Type(s): Income Qualified Residential Customers

Initiative Frequency: Year Round

Objective: The objective of this Initiative is to offer free installation of energy efficiency measures to income qualified households for the purpose of achieving electricity and peak demand savings.

Description: This is a turnkey Initiative for income qualified customers. It offers residents the opportunity to take advantage of free installation of energy efficient measures that improve the comfort of their home, increase efficiency, and help them save money. All eligible customers receive a Basic and Extended Measures Audit, while customers with electric heat also receive a Weatherisation Audit. The Initiative is designed to coordinate efforts with gas utilities.

Targeted End Uses: End use measures based on results of audit

Delivery: LDC delivered.

Additional detail is available:

- Schedule E: http://www.powerauthority.on.ca/sites/default/files/page/Low%20Income%20Schedule%20-%20redacted%20version.pdf

Initiative Activities/Progress:

GHESI's primary focus for 2011 program delivery was to attempt to continue the delivery of successor programs for those that were well known in the market and had significant customer connection (ie. ERIP/Retrofit, Power Savings Blitz/Small Business Lighting, The Great Refrigerator Roundup/Appliance Pickup, ***peaksaver®***Extension/***peaksaver***PLUS™). Programs new to the market with limited previous customer engagement or expectation would be offered as GHESI's program understanding and capacity to implement evolved, and the new program's administration/delivery mechanisms matured. GHESI chose not to offer the Low Income Initiative (Home Assistance Program) in 2011, and continued to monitor the marketplace for resolution of issues such as those identified under Lessons Learned.

GHESI expects to offer this program to customers in 2012.

In Market Date: not to market in 2011

Lessons Learned:

- Difficulty identifying eligible customers.
- This Initiative Schedule was finalized later (May 2011) than the rest of the OPA Initiatives and as a result in 2011 only 2 LDCs were in market.

- Centralized payment processes were not developed in 2011, but were in place mid-2012. As a result, some LDCs delaying their launch to market, or for some pulling out of the market until the payment processes were completed.
- The financial scope, complexity, and customer privacy requirements of this Initiative resulted in a lengthy procurement process. Some LDCs must adhere to very transparent procurement processes which meant that delivery of the program did not start in 2011.

2.2.5 PRE-2011 PROGRAMS COMPLETED IN 2011

2.2.5.1 ELECTRICITY RETROFIT INCENTIVE PROGRAM

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year Round

Objective: Refer to section 2.2.2.1

Description: The Equipment Replacement Incentive Program (ERIP) offered financial incentives to customers for the upgrade of existing equipment to energy efficient equipment. This program was available in 2010 and allowed customers up to 11 months following Pre-Approval to complete their projects. As a result, a number of projects Pre-Approved in 2010 were not completed and in-service until 2011. The electricity savings associated with these projects are attributed to 2011.

Targeted End Uses: Electricity savings measures

Delivery: LDC delivered

Initiative Activities/Progress:

GHESI provided local marketing and customer support for this initiative as summarized in the following table.

Initiatives/Activities	***Timeframe***	***Progress***
Proactive Sales Calls	***2010 Q1 – Q4***	- *regular proactive and reactive direct sales calls by Key Accounts Manager to sell energy efficiency projects*
Business Events: - *ERIP Workshop* - *Large Customer Breakfast Meeting*	***2010***	- *events targeting the business community as well as institutional and industrial customers to promote ERIP projects and local success stories*
Advertising in Local	***2010 Q1 - Q4***	- *Chamber of Commerce, Business*

Business Publications		*Ventures, Moving Business Forward, etc business program advertising*
Case Studies, Matte Articles, Press Releases	***2010 Q1 – Q4***	- *program promotion and case studies to showcase success stories*

Lesson Learned:

- The ERIP program has been highly successful for GHESI. A significant percentage of GHESI's 2011 year-end results are attributable to ERIP projects that were started in 2010 and completed by the customer in 2011.
- The business cycle for these types of projects can be significant, especially for larger projects that typically require internal business justification, including basic project design, review, approval and budgeting / funding processes.
- The transition to any successor business conservation program needs to be completed in a manner more seamless to the customer and to the LDC from an administration perspective. The significant sales cycle needs to be recognized as part of planning around this transition process.

2.2.5.2 HIGH PERFORMANCE NEW CONSTRUCTION

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year round

Objective: Refer to section 2.2.2.4

Description: The High Performance New Construction Initiative provided incentives for new buildings to exceed existing codes and standards for energy efficiency. The Initiative uses both a prescriptive and custom approach and was delivered by Enbridge Gas under contract with the OPA (and subcontracted to Union Gas), which ran until December 2010

Targeted End Uses: New building construction, building modeling, lighting, space cooling, ventilation and other Measures

Delivery: Through Enbridge Gas (and subcontracted to Union Gas)

Initiative Activities/Progress: not applicable

In Market Date: not applicable

Lesson Learned: not applicable

2.2.5.3 TORONTO COMPREHENSIVE INITIATIVE

Target Customer Type(s): Commercial and Institutional Customers

Initiative Frequency: Year round

Objective: not applicable

Description: This Initiative is specific to Toronto Hydro's Service Area and was not available to GHESI customers.

Targeted End Uses: not applicable

Delivery: not applicable

Initiative Activities/Progress: not applicable

In Market Date: not applicable

Lesson Learned: not applicable

2.2.5.4 MULTIFAMILY ENERGY EFFICIENCY REBATES

Target Customer Type(s): Residential multi-unit buildings

Initiative Frequency: Year round

Objective: Improve energy efficiency of multifamily buildings

Description: OPA's Multifamily Energy Efficiency Rebates (MEER) Initiative applies to multifamily buildings of six units or more, including rental buildings, condominiums, and assisted social housing. The OPA contracted with GreenSaver to deliver the MEER Initiative outside of the Toronto Hydro service territory. Activities delivered in Toronto were contracted with the City.

Similar to ERII and ERIP, MEER provides financial incentives for prescriptive and custom measures, but also funds resident education. Unlike ERII, where incentives are paid by the LDC, all incentives through MEER are paid through the contracted partner (i.e. GreenSaver).

Targeted End Uses: Electricity savings measures

Delivery: OPA contracted with GreenSaver

Initiative Activities/Progress: not applicable

In Market Date: not applicable

Lesson Learned: not applicable

2.2.5.5 DATA CENTRE INCENTIVE PROGRAM

Target Customer Type(s): not applicable

Initiative Frequency: Year round

Objective: not applicable

Description: This Initiative is specific to Powerstream's Service Area, and was not available to GHESI customers.

Targeted End Uses: not applicable

Delivery: not applicable

Lesson Learned: not applicable

2.2.5.6 ENWIN GREEN SUITES

Target Customer Type(s): not applicable

Initiative Frequency: Year round

Objective: not applicable

Description: This Initiative is specific to EnWin's Service Area, and was not available to GHESI customers.

Targeted End Uses: not applicable

Delivery: not applicable

Lesson Learned: not applicable

2.3 Participation

Include the detailed participation levels (i.e., the number of participants by customer type) for each of the OPA-Contracted Province-Wide CDM Programs that the distributor offered in its service area.

Table 1: Participation

#	Initiative	Activity Unit	Uptake/ Participation Units
Consumer Program			
1	Appliance Retirement	Appliances	794
2	Appliance Exchange	Appliances	24
3	HVAC Incentives	Equipment	1,460
4	Conservation Instant Coupon Booklet	Coupons	4,560
5	Bi-Annual Retailer Event	Coupons	7,818
6	Retailer Co-op	Items	0
7	Residential Demand Response	Devices	222
10	New Construction Program	Houses	0
Business Program			
11	Efficiency: Equipment Replacement	Projects	21
12	Direct Installed Lighting	Projects	198
14	Existing Building Commissioning Incentive	Buildings	0
15	New Construction and Major Renovation Incentive	Buildings	0
16	Energy Audit	Audits	0
17	Commercial Demand Response (part of the Residential program schedule)	Devices	3
19	Demand Response 3 (part of the Industrial program schedule)	Facilities	5

Industrial Program			
20	Process & System Upgrades	Projects	0
	a) preliminary engineering study		0
	b) detailed engineering study		0
	c) project incentive		0
21	Monitoring & Targeting	Projects	0
22	Energy Manager	Managers	0
23	Key Account Manager	Managers	0
24	Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	Projects	13
26	Demand Response 3	Facilities	0
Home Assistance Program			
27	Home Assistance Program	Units	0
Pre 2011 Programs Completed in 2011			
28	Electricity Retrofit Incentive Program	Projects	52
29	High Performance New Construction	Projects	4
30	Toronto Comprehensive	Projects	0
31	Multifamily Energy Efficiency Rebates	Projects	0
32	Data Centre Incentive Program	Projects	0
33	EnWin Green Suites	Projects	0

2.4 Spending

Describe and detail the funds the distributor spent, both cumulatively and in the one year period applicable to the Annual Report, on each of the OPA-Contracted Province-Wide CDM Programs that the distributor offered in its service area.

Table 2: Spending

#	Initiative	Program Administration Budget (PAB)	Participant Based Funding (PBF)	Participant Incentives (PI)	Capability Building Funding (CBF)	TOTAL
Consumer Program						
1	Appliance Retirement	$44,248.27	$0.00	$0.00	$0.00	$44,248.27
2	Appliance Exchange	$18,768.42	$0.00	$0.00	$0.00	$18,768.42
3	HVAC Incentives	$29,491.42	$0.00	$0.00	$0.00	$29,491.42
4	Conservation Instant Coupon Booklet	$28,276.42	$0.00	$0.00	$0.00	$28,276.42
5	Bi-Annual Retailer Event	$22,224.42	$0.00	$0.00	$0.00	$22,224.42
6	Retailer Co-op	$0.00	$0.00	$0.00	$0.00	$0.00
7	Residential Demand Response	$47,876.42	$0.00	$0.00	$0.00	$47,876.42
10	New Construction Program	$33,468.42	$0.00	$0.00	$0.00	$33,468.42
Business Program						
11	Efficiency: Equipment Replacement	$139,854.93	$0.00	$509,154.00	$0.00	$649,008.93
12	Direct Installed Lighting	$65,595.43	$57,630.00	$229,974.50	$0.00	$353,199.93
14	Existing Building Commissioning	$12,381.93	$0.00	$0.00	$0.00	$12,381.93

	Incentive					
15	New Construction and Major Renovation Initiative	$14,109.93	$0.00	$0.00	$0.00	$14,109.93
16	Energy Audit	$14,110.53	$0.00	$0.00	$0.00	$14,110.53
17	Commercial Demand Response (part of the Residential program schedule)	see Initiative #7	see Initiative #7	see Initiative #7	see Initiative #7	see Initiative #7
19	Demand Response 3 (part of the Industrial program schedule)	see Initiative #26	see Initiative #26	see Initiative #26	see Initiative #26	see Initiative #26
Industrial Program						
20	Process & System Upgrades					
	a) preliminary engineering study	$3,507.27			$0.00	$3,507.27
	b) detailed engineering study	$3,507.27			$0.00	$3,507.27
	c) program incentive	$3,507.27			$0.00	$3,507.27
21	Monitoring & Targeting	$3,507.27			$0.00	$3,507.27
22	Energy Manager	$10,007.27	$0.00	$0.00	$0.00	$10,007.27
23	Key Account Manager	$11,432.27	$0.00	$0.00	$0.00	$11,432.27
24	Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	see Initiative #11	see Initiative #11	see Initiative #11	see Initiative #11	see Initiative #11
26	Demand Response 3	$6,182.27	$0.00	$0.00	$0.00	$6,182.27
Home Assistance Program						
27	Home Assistance Program	$0.00	$0.00	$0.00	$0.00	$0.00

Pre 2011 Programs Completed in 2011						
28	Electricity Retrofit Incentive Program	$0.00	$0.00	$1,288,860	$0.00	$1,288,860
29	High Performance New Construction	$0.00	$0.00	$0.00	$0.00	$0.00
30	Toronto Comprehensive	$0.00	$0.00	$0.00	$0.00	$0.00
31	Multifamily Energy Efficiency Rebates	$0.00	$0.00	$0.00	$0.00	$0.00
32	Data Centre Incentive Program	$0.00	$0.00	$0.00	$0.00	$0.00
33	EnWin Green Suites	$0.00	$0.00	$0.00	$0.00	$0.00
	TOTAL Province-wide CDM PROGRAMS	$512,057.43	$57,630.00	$2,027,988.50	$0.00	$2,597,675.93

Describe and detail the allocation of funds, both cumulatively and in the one year period applicable to the Annual Report, on each of the following OPA-Contracted Province-Wide CDM Programs that over the course of 2011 were Not In Market.

Table 2a: Allocation of PAB funding for Programs Not In Market

#	Initiative	Program Administration Budget (PAB)
Initiatives Not In Market		
8	Midstream Electronics	$0.00
9	Midstream Pool Equipment	$0.00
13	Demand Service Space Cooling	$12,381.93
18	Demand Response 1 (Commercial)	$3,507.27
25	Demand Response 1 (Industrial)	see Initiative #18
33	Home Energy Audit Tool	$0.00
	TOTAL Province-wide CDM PROGRAMS Not In Market	$15,889.20

2.5 Evaluation

Provide a detailed discussion that reports on the EM&V results for each of the distributor's OPA-Contracted Province-Wide CDM Programs using the OPA EM&V Protocols for peak demand savings (kW) and electricity savings (kWh).

2.5.1 EVALUATION FINDINGS

Table 3: Evaluation Findings

#	Initiative	Evaluation Findings
Consumer Program		

1	Appliance Retirement	* Overall participation continues to decline year over year
		  * Participation declined 17% from 2010 (from over 67,000 units in 2010 to over 56,000 units in 2011)
		* 97% of net resource savings achieved through the home pick-up stream
		  * Measure Breakdown: 66% refrigerators, 30% freezers, 4% Dehumidifiers and window air conditioners
		* 3% of net resource savings achieved through the Retailer pick-up stream
		  * Measure Breakdown: 90% refrigerators, 10% freezers
		* Net-to-Gross ratio for the initiative was 50%
		  * Measure-level free ridership ranges from 82% for the retailer pick-up stream to 49% for the home pick-up stream
		  * Measure-level spillover ranges from 3.7% for the retailer pick-up stream to 1.7% for the home pick-up stream

2	Appliance Exchange	* Overall eligible units exchanged declined by 36% from 2010 (from over 5,700 units in 2010 to over 3,600 units in 2011)
		  * Measure Breakdown: 75% window air conditioners, 25% dehumidifiers
		* Dehumidifiers and window air conditioners contributed almost equally to the net energy savings achieved
		  * Dehumidifiers provide more than three times the energy savings per unit than window air conditioners
		* Window air conditioners contributed to 64% of the net peak demand savings achieved
		* Approximately 96% of consumers reported having replaced their exchanged units (as opposed to retiring the unit)
		* Net-to-Gross ratio for the initiative is consistent with previous evaluations (51.5%)

3	HVAC Incentives	* Total air conditioner and furnace installations increased by 14% (from over 95,800 units in 2010 to over 111,500 units in 2011)
		  * Measure Breakdown: 64% furnaces, 10% tier 1 air conditioners (SEER 14.5) and 26% tier 2 air conditioners (SEER 15)
		  * Measure breakdown did not change from 2010 to 2011
		* The HVAC Incentives initiative continues to deliver the majority of both the energy (45%) and demand (83%) savings in the consumer program
		  * Furnaces accounted for over 91% of energy savings achieved for this initiative
		* Net-to-Gross ratio for the initiative was 17% higher than 2010 (from 43% in 2010 to 60% in 2011)
		  * Increase due in part to the removal of programmable thermostats from the program, and an increase in the net-to-gross ratio for both Furnaces and Tier 2 air conditioners (SEER 15)

4	Conservation Instant Coupon Booklet	* Customers redeemed nearly 210,000 coupons, translating to nearly 560,000 products
		  * Majority of coupons redeemed were downloadable (~40%) or LDC-branded (~35%)
		  * Majority of coupons redeemed were for multi-packs of standard spiral CFLs (37%), followed by multi-packs of specialty CFLs (17%)
		* Per unit savings estimates and net-to-gross ratios for 2011 are based on a weighted average of 2009 and 2010 evaluation findings
		* Careful attention in the 2012 evaluation will be made for standard CFLs since it is believed that the market has largely been transformed

5	Bi-Annual Retailer Event	* Customers redeemed nearly 370,000 coupons, translating to over 870,000 products
		  * Majority of coupons redeemed were for multi-packs of standard spiral CFLs (49%), followed by multi-packs of specialty CFLs (16%)
		* Per unit savings estimates and net-to-gross ratios for 2011 are based on a weighted average of 2009 and 2010 evaluation findings
		  * Standard CFLs and heavy duty outdoor timers were reintroduced to the initiative in 2011 and contributed more than 64% of the initiative's 2011 net annual energy savings

		* While the volume of coupons redeemed for heavy duty outdoor timers was relatively small (less than 1%), the measure accounted for 10% of net annual savings due to high per unit savings * Careful attention in the 2012 evaluation will be made for standard CFLs since it is believed that the market has largely been transformed.
6	Retailer Co-op	* Initiative was not evaluated in 2011 due to low uptake. Verified Bi-Annual Retailer Event per unit assumptions and free-ridership rates were used to calculate net resource savings
7	Residential Demand Response	* Approximately 20,000 new devices were installed in 2011 * 99% of the new devices enrolled controlled residential central AC (CAC) * 2011 only saw 1 atypical event (in both weather and timing) that had limited participation across the province * The ex ante impact developed through the 2009/2010 evaluations was maintained for 2011; residential CAC: 0.56 kW/device, commercial CAC: 0.64 kW/device, and Electric Water Heaters: 0.30 kW/device
10	New Construction Initiative	* Initiative was not evaluated in 2011 due to limited uptake * Business case assumptions were used to calculate savings
Business Program		
11	Efficiency: Equipment Replacement	Gross verified energy savings were boosted by lighting projects in the prescriptive and custom * measure tracks * Lighting projects overall were determined to have a realization rate of 112%; 116% when including interactive energy changes * On average, the evaluation found high realization rates as a result of both longer operating hours and larger wattage reductions than initial assumptions * Low realization rates for engineered lighting projects due to overstated operating hour assumptions Custom non-lighting projects suffered from process issues such as: the absence of required M&V * plans, the use of inappropriate assumptions , and the lack of adherence to the M&V plan * The final realization rate for summer peak demand was 94%

		* 84% was a result of different methodologies used to calculate peak demand savings * 10% due to the benefits from reduced air conditioning load in lighting retrofits * Overall net-to-gross ratios in the low 70's represent an improvement over the 2009 and 2010 ERIP program where net-to-gross ratios were in the low 60's and low 50's, respectively. Strict eligibility requirements and improvements in the pre-approval process contributed to the improvement in net-to-gross ratios
12	Direct Installed Lighting	Though overall performance is above expectations, participation continues to decline year over year * as the initiative reaches maturity * 70% of province-wide resource savings persist to 2014 * Over 35% of the projects for 2011 included at least one CFL measure * Resource savings from CFLs in the commercial sector only persist for the industry standard of 3 years * Since 2009 the overall realization rate for this program has improved * 2011 evaluation recorded the highest energy realization rate to date at 89.5% * The hours of use values were held constant from the 2010 evaluation and continue to be the main driver of energy realization rate * Lights installed in "as needed" areas (e.g., bathrooms, storage areas) were determined to have very low realization rates due to the difference in actual energy saved vs. reported savings
14	Existing Building Commissioning Incentive	* Initiative was not evaluated in 2011, no completed projects in 2011
15	New Construction and Major Renovation Initiative	* Initiative was not evaluated in 2011 due to low uptake * Assumptions used are consistent with preliminary reporting based on the 2010 Evaluation findings and consultation with the C&I Work Group (100% realization rate and 50% net-to-gross ratio)

16	Energy Audit	* The evaluation is ongoing. The sample size for 2011 was too small to draw reliable conclusions.
17	Commercial Demand Response (part of the Residential program schedule)	* See residential demand response (#7)
19	Demand Response 3 (part of the Industrial program schedule)	* See Demand Response 3 (#26)
Industrial Program		
20	Process & System Upgrades	* Initiative was not evaluated in 2011, no completed projects in 2011
21	Monitoring & Targeting	* Initiative was not evaluated in 2011, no completed projects in 2011
22	Energy Manager	* Initiative was not evaluated in 2011, no completed projects in 2011
23	Key Account Manager	* Initiative was not evaluated in 2011, no completed projects in 2011
24	Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	* See Efficiency: Equipment Replacement (#11)
26	Demand Response 3	* Program performance for Tier 1 customers increased with DR-3 participants providing 75% of contracted MW for both sectors

		* Industrial customers outperform commercial customers by provide 84% and 76% of contracted MW, respectively * Program continues to diversify but still remains heavily concentrated with less than 5% of the contributors accounting for the majority (~60%) of the load reductions. * By increasing the number of contributors in each settlement account and implementation of the new baseline methodology the performance of the program is expected to increase
Home Assistance Program		
27	Home Assistance Program	* Initiative was not evaluated in 2011 due to low uptake * Business Case assumptions were used to calculate savings
Pre-2011 Programs completed in 2011		
28	Electricity Retrofit Incentive Program	* Initiative was not evaluated * Net-to-Gross ratios used are consistent with the 2010 evaluation findings (multifamily buildings 99% realization rate and 62% net-to-gross ratio and C&I buildings 77% realization rate and 52% net-to-gross ratio)
29	High Performance New Construction	* Initiative was not evaluated * Net-to-Gross ratios used are consistent with the 2010 evaluation findings (realization rate of 100% and net-to-gross ratio of 50%)
30	Toronto Comprehensive	* Initiative was not evaluated * Net-to-Gross ratios used are consistent with the 2010 evaluation findings
31	Multifamily Energy Efficiency Rebates	* Initiative was not evaluated * Net-to-Gross ratios used are consistent with the 2010 evaluation findings
32	Data Centre Incentive Program	* Initiative was not evaluated
33	EnWin Green Suites	* Initiative was not evaluated

2.5.2 EVALUATION RESULTS

Table 4: Evaluation Results

#	Initiative	Net:Gross Ratio		Gross Savings		Net Savings		Contribution to Targets	
		Peak Demand Savings	Energy Savings	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Program-to-Date: Net Annual Peak Demand Savings (kW) in 2014	Program-to-Date: 2011-2014 Net Cumulative Energy Savings (kWh)
Consumer Program									
1	Appliance Retirement	50%	50%	90	655,595	43	312,750	42	1,250,495
2	Appliance Exchange	52%	52%	5	6,458	3	3,328	1	12,086
3	HVAC Incentives	60%	60%	750	1,443,975	450	861,567	450	3,446,270
4	Conservation Instant Coupon Booklet	114%	111%	10	155,757	11	171,748	11	686,993
5	Bi-Annual Retailer Event	113%	110%	14	241,643	15	263,995	15	1,055,981
6	Retailer Co-op	-	-	0	0	0	0	0	0
7	Residential Demand Response	-	-	124	0	124	0	0	0
10	New Construction Program	-	-	0	0	0	0	0	0
Business Program									
11	Efficiency: Equipment Replacement	74%	76%	149	722,494	110	549,202	110	2,196,809
12	Direct Installed Lighting	93%	93%	292	838,947	313	778,995	257	2,939,918
14	Existing Building Commissioning Incentive	-	-	0	0	0	0	0	0
15	New Construction and Major Renovation Incentive	-	-	0	0	0	0	0	0

16	Energy Audit	-	-	0	0	0	0	0	0
17	Commercial Demand Response (part of the Residential program schedule)	-	-	2	0	2	0	0	0
19	Demand Response 3 (part of the Industrial program schedule)	n/a	n/a	405	11,993	306	11,993	0	11,993
Industrial Program									
20	Process & System Upgrades	-	-	0	0	0	0	0	0
21	Monitoring & Targeting	-	-	0	0	0	0	0	0
22	Energy Manager	-	-	0	0	0	0	0	0
23	Key Account Manager	-	-	0	0	0	0	0	0
24	Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	72%	75%	836	4,941,627	596	3,704,027	596	14,816,107
26	Demand Response 3	n/a	n/a	0	0	0	0	0	0
Home Assistance Program									
27	Home Assistance Program	-	-	0	0	0	0	0	0
Pre-2011 Programs completed in 2011									
28	Electricity Retrofit Incentive Program	52%	52%	2,663	14,283,325	1,385	7,431,466	1,385	29,725,863
29	High Performance New Construction	50%	50%	123	634,181	62	317,091	62	1,268,363
30	Toronto Comprehensive	-	-	0	0	0	0	0	0
31	Multifamily Energy Efficiency Rebates	-	-	0	0	0	0	0	0
32	Data Centre Incentive Program	-	-	0	0	0	0	0	0
33	EnWin Green Suites	-	-	0	0	0	0	0	0
	Assumes demand response resources have a persistence of 1 year.								

Table 5: Summarized Program Results

Program	Gross Savings		Net Savings		Contribution to Targets	
	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Program-to-Date: Net Annual Peak Demand Savings (kW) in 2014	Program-to-Date: 2011-2014 Net Cumulative Energy Savings (kWh)
Residential Program Total	992	2,503,429	645	1,613,390	519	6,451,825
Commercial & Institutional Program Total	848	1,573,434	731	1,340,190	367	5,148,720
Industrial Program Total	836	4,941,627	596	3,704,027	596	14,816,107
Home Assistance Program Total	0	0	0	0	0	0
Pre-2011 Programs completed in 2011 Total	2,787	14,917,506	1,447	7,748,556	1,447	30,994,225
Total OPA Contracted Province-Wide CDM Programs	**5,463**	**23,935,996**	**3,418**	**14,406,163**	**2,928**	**57,410,878**

2.6 Additional Comments

Provide any additional information related to the OPA-Contracted Province-Wide CDM Programs that the distributor feels is appropriate.

2011 should be considered a start-up year for the launch of a suite of new province-wide saveONenergy CDM programs. The transition from several successful legacy programs previously in market also included the modification, rebranding and re-launch of new successor programs as components of the suite of OPA province wide programs.

Much of 2011 was spent on finalizing the development and launch of the new programs, including the release and implementation of entirely new processes and tools for customer program enrollment, application submission, application modification, approvals, payment processing and reconciliation. LDCs undertook efforts to procure the resources and delivery service agents needed to manage and deliver the new suite of programs. These requirements needed to be fulfilled before LDCs could effectively market the new Initiatives to customers.

In spite of a slow 2011 program roll out and customer engagement, GHESI's results demonstrated solid performance and progress in 2011. With many of the program processes established and maturing, moving forward GHESI's efforts can shift from the program start-up and launch phases to a greater customer engagement phase.

In 2011 GHESI worked collaboratively through an informal arrangement with a large number of LDCs across south-western Ontario to improve understanding of the delivery requirements for the suite of saveONenergy programs, participate in the joint resolution of program delivery issues, and share information. This collaboration was invaluable to provide program status updates, highlight "best practices" as discovered by various LDCs, as well as showcase potential technologies and service provider capabilities, in a free flowing and non-committal manner.

In order to be successful in meeting the 2014 Net Peak Demand Target, GHESI providing the following recommendations for consideration:

- Establishment of a direct mechanism of sharing DR3 program participant information between aggregators, the OPA and the affected LDC. GHESI notes that the achievement of the 2014 demand target may be at risk without better transparency and visibility into the one program that can have a significant impact on the achievement of that target;
- Another Initiative that has the potential to significantly impact the achievement of the 2014 demand target is the Industrial Process and Systems Upgrade Initiative (PSUI). Based on GHESI's 2011 understanding of the PSUI process, a large amount of time and energy will need to be invested by the LDC as well as the customer and their consultants/agents to bring forward a viable project. GHESI also recognizes that for PSUI, as with some of the larger ERII projects, the sales cycle will be significant and projects may be at risk for completion by December 31, 2014, thereby adversely affecting the LDCs ability to achieve target. Although off to a slow start, the PSUI program will have projects that will be a significant portion of GHESI's target – in its CDM Strategy GHESI forecast the Industrial portfolio comprising 35% of GHESI's total CDM strategy

results. Late in 2011 GHESI had preliminary discussions with a large potential on-site Load Displacement (Co-Generation) project. PSUI projects such as this will require a long lead time and sales cycle. Any changes to the PSUI program can affect the LDC's ability to meet target if those projects are modified or eligibility is removed or compromised.

- As GHESI explores the opportunities for a Smart Meter Zigbee based IHD customer offering, GHESI anticipates that the requirements for deployment of this type of IHD will be significantly affected by the LDC's existing Advanced Metering Infrastructure (AMI) implementation, including smart meter and related communications infrastructure, as well as back-office IT capabilities. It is well understood through the AMI deployment, that systems such as these have ongoing operational and maintenance support costs. It is not clear at this time whether the existing ***peaksaver***PLUS ™ program IHD funding model has been designed with this element in mind. GHESI expects to better comment on this potential issue based on anticipated development work in 2012.
- GHESI also notes that Evaluation, Measurement and Verification (EM&V) Protocols that may be utilized in evaluating IHD delivery should truly reflect the technology deployed and customer engagement and experience achieved. Future EM&V efforts should be reflective of this anticipated distinction.
- Finally, GHESI also notes that early on in the 2011-2014 timeframe is the appropriate time to consider potential impacts of the transition to a future tranche of CDM programs. The transition from 2007-2010 programs to 2011-2014 programs left many administrative questions unanswered for some time.
    - A prime example was how ERIP projects started in 2010 but completed by the customer in 2011 would be managed. The LDC community rightly advocated for a recognition of project achievement results allocated to the first year of the next tranche of programs (ie 2011), so that for this issue the LDC would not be harmed by a hard program stop on December 31, 2010. Similar transition issues will arise in 2014, particularly for some long sales cycle projects and Initiatives such as PSUI, ERII, and DR3.
    - The LDC community will also be interested in in understanding in advance of the transition how exceeding the 2014 targets will be managed through the transition to another CDM tranche. Through the CDM Code LDCs have the potential to generate performance payments as an incentive to exceed both the energy and demand targets. By 2014 many LDCs may be in a position of exceeding one of these two targets, but facing a shortfall in the other target. How this scenario will be managed will be of interest to many LDCs. What may be of greater interest to many LDCs is how any energy and demand in excess of target will be accounted for through the next CDM tranche transition.
    - A streamlined ready for market transition to the next tranche of CDM programs is essential. The 2010-2011 transition was particularly difficult for ERIP/ERII, SBL/DIL and ***peaksaver®***Extension/***peaksaver***PLUS ™ customers and LDCs, as the program momentum developed over previous years was lost. GHESI experienced many customers frustrated with the delays through this transition, and struggled to repair customer relationships and regain momentum in the marketplace.
- An anticipated streamlining of program processes and reporting requirements will permit LDCs to focus more effort on enrolling customers into Initiatives to meet the mandatory targets, and less effort in administering the programs.

3 Combined CDM Reporting Elements

3.1 Progress Towards CDM Targets

3.1.1 Provide a summary of the distributor's progress towards meeting its CDM Targets, an explanation for any significant variances between the annual milestones contained in the distributor's CDM Strategy and the verified results achieved by the distributor for the reporting year, and an explanation of the potential impact that the aforementioned significant variances may have with respect to the distributor meeting its CDM Targets.

GHESI's November 1, 2010 CDM Strategy had originally assumed that all OPA Program Initiatives, Schedules, delivery channels as well as management and support processes would be in place January 1, 2011, to permit GHESI to proceed with resource and delivery agent procurement, and fully deploy and market the Initiatives. The Strategy also indicated that GHESI expected to achieve the 2014 targets primarily through the deployment of OPA province wide Tier 1 programs, and any potential OEB approved Tier 2 / Tier 3 programs would assist in making up any Tier 1 shortfalls, or potentially exceed the 2014 targets.

GHESI's 2011 results for Net Peak Demand Savings and Net Cumulative Energy Savings as summarized in Tables 6 and 8 indicate good progress towards the 2014 targets. The specific 2011 demand and energy savings results are discussed in more detail in the following sections.

Net Peak Demand Target: GHESI's net peak demand savings are reported as 17.5% of the 2014 target of 16.71 MW, or slightly ahead of GHESI's CDM Strategy document 2011 target of 16.1%.

As per the OPA reporting methodology, these results against 2014 target do not include any potential contribution from customers participating in either the residential or commercial/industrial Demand Response (DR) programs in 2011. This is due to the assumption that the persistence of customers enrolled in DR programs is only 1 year. In order for DR results to be included as a contribution towards the 2014 target, customers must be confirmed as enrolled in the programs in 2014.

When the incremental 2011 DR demand savings are factored into the 2014 demand results, (ie assume the DR resources remain in GHESI's service territory until 2014) the potential achievement against 2014 target is increased to over 20%. GHESI is of the belief that the majority of the DR3 resources under contract will remain under contract and be participants in 2014.

Table 6: Net Peak Demand Savings at the End User Level (MW)

Implementation Period	Annual (MW)

	2011	2012	2013	2014
2011 - Verified	3.42	2.99	2.98	2.93
2012				
2013				
2014				
Verified Net Annual Peak Demand Savings in 2014:				**2.93**
Guelph Hydro Electric Systems Inc. 2014 Annual CDM Capacity Target:				**16.71**
Verified Portion of Peak Demand Savings Target Achieved (%):				**17.52%**
Guelph Hydro Electric Systems Inc. Strategy milestone submitted for 2011[1]				**16.10%**
Variance				**1.42%**

[1] *2011 milestone submitted in Guelph Hydro Electric Systems Inc. Strategy document dated November 1, 2010 was based on preliminary provincial target allocation. The milestone been prorated to reflect final target allocation.*

Table 7 is provided to summarize the 2011 province wide Net Peak Demand Savings as reported in the OPA FINAL 2011 Results, as a comparison against GHESI's results. As indicated in the tables, GHESI's 2011 demand savings of 17.5% are tracking ahead of the provincial results of approximately 10%.

Table 7: Province wide Net Peak Demand Savings at the End User Level (MW)

Implementation Period	Annual (MW)			
	2011	2012	2013	2014
2011 - Verified	215.7	136.4	135.7	128.9
2012				
2013				
2014				
Verified Net Annual Peak Demand Savings in 2014:				**128.9**
2014 Annual CDM Capacity Target:				**1,330.0**

Verified Peak Demand Savings Target Achieved - 2011 (%):				**9.69%**
Province wide Milestone submitted for 2011:				**10.00%**
Variance				**-0.31%**

Net Energy Target: GHESI's net energy savings are reported as 72.2% of the 2014 target of 79.53 GWh, or significantly ahead of GHESI's CDM Strategy document 2011 target of 9.6%.

A significant component (over 50%) of the 2014 cumulative energy savings is a result of the contribution of Pre-2011 Programs completed in 2011. The program primarily responsible for this contribution is the Electricity Retrofit Incentive Program (ERIP). A significant number of ERIP projects commenced in 2010, but were not completed by the customer until 2011.

ERIP program marketing and promotion throughout 2009 and 2010 was vital to building customer relationships and leveraging the LDC's trusted brand, through customer engagement using internal staff, primarily GHESI's Key Accounts Manager. The results achieved in 2011 due to the efforts of 2009 and 2010 sales calls is evidence of the significant sales cycle for these types of projects, as well as the need to build and maintain a trusted LDC brand, and solid customer relationships.

The positive net energy savings results achieved in 2011 will permit GHESI to continue to work with customers to encourage participation in future energy efficiency projects, but will also allow GHESI to focus more closely on programs designed to manage demand to improve the net demand savings results.

Table 8: Net Energy Savings at the End-User Level (GWh)

Implementation Period	Annual (GWh)				Cumulative (GWh)
	2011	2012	2013	2014	2011-2014
2011 - Verified	14.41	14.39	14.38	14.23	57.41
2012					
2013					
2014					
Verified Net Cumulative Energy Savings 2011-2014:					**57.41**
Guelph Hydro Electric Systems Inc. 2011-2014 Cumulative CDM Energy Target:					**79.53**

Verified Portion of Cumulative Energy Target Achieved (%):					**72.19%**
Guelph Hydro Electric Systems Inc. Strategy milestone submitted for 2011[1]:					**9.60%**
Variance					**62.59%**

[1] *2011 milestone submitted in Guelph Hydro Electric Systems Inc. Strategy document dated November 1, 2010 was based on preliminary provincial target allocation. The milestone been prorated to reflect final target allocation.*

Table 9 is provided to summarize the 2011 province wide Net Cumulative Energy Savings as reported in the OPA FINAL 2011 Results, as a comparison against GHESI's results. As indicated in the tables, GHESI's 2011 cumulative energy savings of over 70% are tracking ahead of the provincial results of approximately 40%.

Table 9: Province Wide Net Energy Savings at the End-User Level (GWh)

Implementation Period	**Annual (GWh)**				**Cumulative (GWh)**
	2011	**2012**	**2013**	**2014**	**2011-2014**
2011 – Verified	605.5	601.6	599.6	580.9	2,388.0
2012					
2013					
2014					
Verified Net Cumulative Energy Savings 2011-2014:					**2,388.0**
2011-2014 Cumulative CDM Energy Target:					**6,000.0**
Verified Portion of Energy Target Achieved - 2011 (%):					**39.79%**
Province wide Milestone submitted for 2011					**20.00%**
Variance					**19.79%**

3.2 CDM Strategy Modifications

Detail any changes or planned modifications to the distributor's CDM Strategy.

Based on the results achieved to date, GHESI at this time does not see a need for significant deviation from its current path. GHESI plans to continue to focus on building and maintaining solid customer relations with all rate classes, with a view to supporting the customer's needs in pursuing energy conservation and demand management information and goals.

As previously noted, GHESI's positive net energy savings results achieved in 2011 will permit GHESI to continue to work with customers to encourage participation in future energy efficiency projects, but will also allow GHESI to focus more closely on programs designed to manage demand to improve net demand savings results.

The OPA has developed a pipeline analysis tool which is useful in assessing the potential energy and demand savings from ERII (Retrofit) projects "in the pipeline". For 2012 this analysis indicates that projects in the pipeline may contribute over 2.5MW of net demand savings projects towards target, when projects are finalized.

GHESI also recognizes that several of its programs were not in market in 2011, for a variety of reasons described throughout this document. In 2012 GHESI intends to more proactively focus on these initiatives in support of improved results. Areas of focus will include consumer programs such as Retailer Events, the ***peaksaver***PLUS ™ program, Low Income Initiative and channel partner training. With its Smart Meter Zigbee chip deployment, GHESI believes there is a great opportunity to develop and implement a unique and customer focused In-Home Display offering, which should be an excellent vehicle for promoting the Residential Demand Response (RDR) program and engaging the consumer in a meaningful manner.

GHESI plans to continue proactive and reactive sales calls as well as business and industrial education outreach and events. As many of the CDM programs have now been in market for several years, the focus needs to shift from the "low hanging fruit" CDM savings potential (ie. lighting projects), to other savings potential, such as process and systems improvements, and non-traditional prescriptive measures such as VFDs.

GHESI will continue to use PAB funding strategically to support its customers in pursuit of energy and demand savings opportunities. An example of this is to co-fund process studies and audits currently not eligible for funding through existing saveONenergy programs. To date GHESI has supported several of its customers in co-funding the completion of unbiased compressed air studies, with excellent results in educating the customer, their plant operations and facility staff of the potential benefits of modifying existing behaviours and plant processes, typically with a resultant ERIP or ERII project application.

Moving forward, GHESI intends to continue to work collaboratively with other LDCs in the administration and delivery of the saveONenergy programs. GHESI found this to be an extremely useful vehicle to improve understanding of the saveONenergy programs requirements, highlight "best practices", as well as showcase potential technologies and service provider capabilities, and potentially jointly deliver initiatives with other LDCs where synergies exist.

In summary, GHESI plans to continue to pursue and implement those strategies that have demonstrated success to date, and revisit the planning assumptions on a regular basis as the 2011-2014 CDM delivery timeframe unfolds.

BY COURIER

September 28, 2012

Ms. Kirsten Walli
Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
Toronto, ON.
M4P 1E4

Dear Ms. Walli:

Hydro One Networks Inc. Conservation and Demand Management 2011 Annual Report

As per Section 2.2 of the Conservation and Demand Management Code for Electricity Distributors, please find enclosed a paper copy of Hydro One Networks Inc.'s 2011 Conservation and Demand Management Annual Report. This report provides a review of the activities undertaken by Hydro One Networks Inc. from January 1, 2011 to December 31, 2011 in order to achieve its Conservation and Demand Management Targets.

An electronic version of this report has been filed through the Board's Regulatory Electronic Submission System ("RESS").

For more information please contact Anne-Marie Reilly at 416-345-6482.

Sincerely,

ORIGINAL SIGNED BY SUSAN FRANK

Susan Frank

Attach.

Hydro One Networks Inc.

Conservation and Demand Management

2011 Annual Report

Submitted to:

Ontario Energy Board

Submitted on September 30, 2012

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Executive Summary

The CDM Code requires every electricity distributor to file an annual report with the Board that shows the distributor's progress in meeting the 2011-2014 CDM Targets set out in its distribution license. Accordingly, this annual report outlines Hydro One's CDM program activities carried out in 2011 and peak demand and energy savings achieved in 2011. The report also provides details on the activities planned in the coming years to ensure that the 2011-2014 targets of 214 MW demand savings and 1,130 GWh energy savings are met. In its November 1, 2010 Strategy Plan submission to the Ontario Energy Board, Hydro One indicated that it intends to achieve its CDM target for the 2011-2014 period by using a suite of OPA-Contracted Province Wide Initiatives and Board Approved Programs, delivering approximately 80% and 20% of its target respectively. However, Hydro One's results in 2011 were achieved using solely available OPA Programs Initiatives.

The Green Energy Act established a new framework for electricity conservation and demand management where Local Distribution Companies (LDCs) are the primary delivery agents of customer programs in Ontario, which resulted in 2011 being a transitional year from centralized delivery for CDM. Hydro One had been successful at launching all the 2011-2014 OPA-Contracted Province Wide programs made available by the OPA by the end of 2011. These programs spanned across all sectors, including Residential, Commercial and Institutional, and Industrial.

Most of 2011 was spent on the development of programs for Provincial roll-out. Hydro One worked with the OPA to finalize the schedules for some of the OPA-Contracted Province Wide Initiatives, including the Low Income Program and PeakSaver Plus. Hydro One also engaged procurement processes that took most of the year, and played a key role in identifying obstacles and proposing solutions to improve the delivery of Province-Wide initiatives. Only a few OPA-Contracted programs, such as Midstream incentives, Online Home Energy Audit Tool, and Direct Service Cooling were not available to customers by the end of 2011 and continue to be unavailable in 2012.

Hydro One's results for 2011 were 35.1 MW (16.4%) demand savings, and 86 GWh of annual energy savings. These energy savings will produce 335.9 GWh (or 29.7% of cumulative energy savings) towards the 2011-2014 targets. The OPA estimate of demand savings which persist to 2014 is 17.4 MW (or 8.2% of demand savings). These results reflect conservative estimates, assuming that Demand Response 3 and peaksaver projects will persist for only 1 year rather than the more likely assumption of high persistence through 2014 (for example peaksaver thermostats have a twelve year life so it is reasonable to assume that demand savings persist to 2014 and beyond). Hydro One's CDM Strategy Plan, submitted November 1, 2010, forecasted demand savings of 42 MW for 2011 versus the 35 MW achieved. Hydro One expects that this variance of 7 MW can be recovered for 2014. Hydro One's Strategy Plan also forecasted energy savings of 96 GWh for 2011 versus the 86 GWh achieved. This 10 GWh variance is more challenging to recuperate as it has a cumulative effect of approximately 40 GWh by 2014. Hydro One expects that the energy savings variance, though challenging, can be recovered in 2012 to 2014. The above results are discussed in section 3 of this report.

Hydro One's results were a product of its extensive efforts to implement all available Initiatives in an expeditious manner, take full advantage of all available marketing and delivery channels, and to facilitate customer participation. In addition, Hydro One was active in business development and procurement involving large commercial accounts with multiple branch offices which assisted several LDCs in achieving significant savings through implementing the Head Office Model.

Hydro One intends to meet the 2011-2014 cumulative demand and energy savings target by looking at different options. These include, but are not limited to, the following alternatives:

1) Realize savings from enhanced and new OPA-Contracted Province Wide Initiatives
2) Realize savings from potential new Board Approved Programs
3) Leverage other initiatives (such as province-wide marketing activities and savings from Time-of-Use rates)

As we go forward, and to better serve our customers, clarity about the future of CDM beyond 2014 is needed as sustained programs will be more economical in the longer term.

Background

On March 31, 2010, the Minister of Energy and Infrastructure of Ontario, under the guidance of sections 27.1 and 27.2 of the *Ontario Energy Board Act, 1998*, directed the Ontario Energy Board ("OEB") to establish Conservation and Demand Management ("CDM") targets to be met by electricity distributors. Accordingly, on November 12, 2010, the OEB amended the distribution license of Hydro One to require Hydro One, as a condition of its license, to achieve 1,130 GWh of cumulative energy savings and 214 MW of persistent summer peak demand savings, over the period beginning January 1, 2011 through December 31, 2014.

In accordance with the same Minister's directive, the OEB issued the Conservation and Demand Management Code for Electricity Distributors (the "Code") on September 16, 2010. The code sets out the obligations and requirements with which electricity distributors must comply in relation to the CDM targets set out in their licenses. To comply with the Code requirements, Hydro One submitted its CDM Strategy on November 1, 2010, which provided a high level description of how Hydro One intended to achieve its CDM targets.

The Code also requires a distributor to file annual report with the Board. This Annual Report is therefore prepared accordingly and covers the period from January 1, 2011 to December 31, 2011.

This document was developed based a template prepared by Hydro One Networks Inc. The template was reviewed by the Reporting and Evaluation Working Group and the Ontario Power Authority ("OPA") through May and June 2012. OEB Staff were consulted on May 28th, 2012. It was sent to the Electricity Distributors Association ("EDA") on July 17th, 2012, for circulation to all LDCs to use for their reporting requirement to the OEB.

1) Board-Approved CDM Programs

1.1 Introduction

1.1.1 Provide a general overview of all of the Board-Approved CDM Programs that are being offered in the distributor's service area.

In its Decision and Order dated November 12 2010 (**EB-2010-0215 & EB-2010-0216**), the OEB ordered that, (to meet its mandatory CDM targets), "Each licensed electricity distributor must, as a condition of its license, deliver Board-Approved CDM Programs, OPA-Contracted Province-Wide CDM Programs, or a combination of the two".

At this time, the implementation of Time-of-Use ("TOU") Pricing is the only Board-Approved Conservation and Demand Management ("CDM") program that is being offered in Hydro One's service area.

1.2 TOU Pricing

1.2.1 Background

In its April 26, 2012 CDM Guidelines, the OEB recognizes that a portion of the aggregate electricity demand target was intended to be attributable to savings achieved through the implementation of TOU Pricing. The OEB establishes TOU prices and has made the implementation of this pricing mechanism mandatory for distributors. On this basis, the OEB has determined that distributors will not have to file a Board-Approved CDM program application regarding TOU pricing. The OEB has deemed the implementation of TOU pricing to be a Board-Approved CDM program for the purposes of achieving the CDM targets. The costs associated with the implementation of TOU pricing are recoverable through distribution rates, and not through the Global Adjustment Mechanism ("GAM").

In accordance with a Directive dated March 31, 2010 by the Minister of Energy and Infrastructure, the OEB is of the view that any evaluations of savings from TOU pricing should be conducted by the Ontario Power Authority ("OPA") for the province, and then allocated to distributors. Hydro One will report these results upon receipt from the OPA. As of September 30, 2012, the OPA has not released its preliminary results of TOU savings to distributors. Therefore Hydro One is not able to provide any verified savings related to Hydro One's TOU program at this time.

1.2.2 TOU Program Description

Initiative Frequency: Year-Round

Target Customer Type(s): Residential and small business customers (up to 250,000 kWh per year)

Objectives: TOU pricing is designed to incent the shifting of energy usage. Therefore peak demand reductions are expected, and energy conservation benefits may also be realized.

Description: In August of 2010, the OEB issued a final determination to mandate TOU pricing for Regulated Price Plan ("RPP") customers by June 2011, in order to support the Government's expectation for 3.6 million RPP consumers to be on TOU pricing by June 2011, and to ensure that smart meters funded at ratepayer expense are being used for their intended purpose.

The RPP TOU price is adjusted twice annually by the OEB. A summary of the RPP TOU pricing is provided below:

RPP TOU		**Rates (cents/kWh)**	
Effective Date	**On Peak**	**Mid Peak**	**Off Peak**
November 1, 2010	9.9	8.1	5.1
May 1, 2011	10.7	8.9	5.9
November 1, 2011	10.8	9.2	6.2
May 1, 2012	11.7	10.0	6.5

Delivery: OEB set rates; LDC installation and maintenance of the meter, LDC converts customers to Time-of-Use ("TOU") billing.

Initiative Activities/Progress:

Hydro One began transitioning its RPP customers to TOU billing on May 1, 2010. As of the end of December 2011, Hydro One had about 1,060,000 RPP customers on TOU billing.

According to OPA's preliminary estimates, as of April 2010, TOU savings were estimated to be 308 MW province-wide[1]. If we apply Hydro One's percentage share of the total provincial demand target, 49 MW of TOU demand savings would be attributed to Hydro One[2] **.**

The CDM Guideline indicates that LDCs would be able to attribute savings achieved through the implementation of TOU prices towards their conservation targets.

[1] 2011-2014 LDC-OPA Province-wide Programs: Portfolio Roll-up 1 Forecast Presentation to EDA CDM Caucus. April 27, 2010.

[2] Methodology for calculating Hydro One's share of TOU allocation is by applying Hydro One's share of the Provincial Peak Demand Savings Target (214 MW / 1330 MW=16%) to the estimated Province-Wide 308 MW TOU savings (308 MW x 16% = 49 MW).

1.3 Hydro One's Application with the OEB

In its Strategy Plan submitted on November 1, 2010, Hydro One included a description of how it intends to achieve its CDM target over the 2011-2014 period. Together with the Strategy Plan, Hydro One submitted an application to the OEB seeking an order granting approval of approximately $32 million in funding for six individual Board-Approved CDM programs. Hydro One's Board-Approved Programs were expected to provide Hydro One with 49 MW and 179 GWh (approximately 20% of Hydro One's target) in savings over the period 2011 to 2014, and 12 MW and 19 GWh for 2011.

An oral hearing of the application occurred on March 4, 2011. On March 7, the OEB provided its oral Decision on the issues discussed at the hearing. In their decision, the OEB stated that Hydro One had not developed a complete Evaluation, Monitoring and Verification ("EM&V") plan. They also stated that it must be determined whether the OPA-Contracted Province-Wide Programs had been established and "taken-up" such that the OEB could determine that Hydro One's proposed Board-Approved Programs were non-duplicative. A letter from the OEB dated March 8, 2011 ordered that Hydro One:

1) File complete TRC models of all cost effectiveness calculations.

2) File a full concordance or mapping of all its proposed Board Approved Programs to the OPA-Contracted Province-Wide Programs, discussing the similarities and differences of each program.

3) File complete evaluation plans for each program, based on the OPA's EM&V protocols.

4) File complete budgetary and staffing level information for its CDM department.

Hydro One responded to the OEB in a letter dated March 10. The letter expressed concern that Hydro One would take a considerable amount of time to fulfil the OEB's request regarding evaluation plans for each program. As a result, Hydro One indicated that it would withdraw its application for Board-Approved Programs at this time.

Hydro One's November 1, 2010 Strategy Plan proposed a suite of six Board-Approved Programs to help supplement OPA contracted programs. These programs were:

- Neighbourhood Benchmarking
- Community Education
- Monitoring and Targeting
- Small Commercial Energy Management and Load Control
- Municipal and Hospital Energy Efficiency Performance
- Double Return Plus

Hydro One's proposed Board-Approved Programs continued to be evaluated in 2011. Since Hydro One's proposed Board Approved Programs were based on a solid program design, OPA stated its intention to

adopt four of them on a province-wide basis and to the benefit of all Ontario customers. By adopting these programs, OPA would be leveraging Hydro One's expertise in developing CDM programs in Ontario, as well as Hydro One's extensive involvement in the design of programs with the OPA, Electricity Distributors Association, and its consultations with the Coalition of Large Distributors, Enbridge Gas Distribution and Union Gas Limited.

The four programs are Neighbourhood Benchmarking Program, Community Education, Monitoring and Targeting, and Small Commercial Energy Management and Load Control Program. However, these programs have not been in market in 2011.

Neighbourhood Benchmarking Program:
Hydro One is assisting OPA in launching a Neighborhood Benchmarking Pilot which mirrors Hydro One's proposed Board Approved Program with potentially new enhanced features. Each report recipient has their energy consumption compared to a control group of undisclosed neighbours and is provided recommendations for energy conservation. The pilot may be paper or web based with the next generation of the program using social media (e.g.: Facebook) allowing customers to form their own peer groups and/or competitions.

The OPA is expected to issue an RFP in October, 2012 with contracting finalized by OPA in late 2012. Hydro One is named in the OPA RFP process. Other LDCs participating in the RFP are Milton Hydro and PowerStream. This Pilot is expected to start by the end of 2012 / early 2013.

Community Education: Hydro One's application highlighted the importance and benefit of customer education to our electricity customers. While the OPA did not set out "customer education" as a separate program, it ensured that customer education could be funded under its current Program Administrative Budget (e.g. marketing).

Monitoring and Targeting: Monitoring and Targeting was first introduced by Hydro One as a Board-Approved Program, followed by Toronto Hydro's application to the Board. The LDCs have requested, through the Change Management process, that M&T be added as an eligible measure for the existing ERII province-wide initiative; this has now been implemented in 2012.

Small Commercial Energy Management and Load Control: This program was first introduced as part of Hydro One's Board Approved Program Application, November 1, 2010, and then by Toronto Hydro as part of its proposed suite of Board-Approved Programs on January 10, 2011. The OPA indicated that it expects to introduce this program to market on a province-wide basis by the end of 2012.

Hydro One will continue to identify gaps between the OPA-Contracted Province Wide initiatives and the specific customer base in its service territory. Based on this review, Hydro One may come forward to the OEB with future request for Board-Approved Programs. For example, Hydro One may reapply for the Double Return Plus Program, or, the Residential Voltage Reduction Program as referred to by Hydro One's Strategy Plan.

2) OPA-Contracted Province-Wide CDM Programs

2.1 Introduction

Provide a general overview of all of the OPA-Contracted Province-Wide CDM Programs that are being offered in the distributor's service area.

Effective January 1, 2011, Hydro One entered into an agreement with the OPA to deliver CDM programs extending from January 1, 2011 to December 31, 2014, which are listed below. In addition, results will be reported from projects started pre 2011 which completed in 2011:

LDC to strike through Initiative(s) for which the LDC did not register an agreement.

Initiative	Schedule	Date schedule posted	Customer Class
Residential Program			
Appliance Retirement	Schedule B-1, Exhibit D	*Jan 26 2011*	*All residential rate classes*
Appliance Exchange	Schedule B-1, Exhibit E	*Jan 26 2011*	*All residential rate classes*
HVAC Incentives	Schedule B-1, Exhibit B	*Jan 26 2011*	*All residential rate classes*
Conservation Instant Coupon Booklet	Schedule B-1, Exhibit A	*Jan 26 2011*	*All residential rate classes*
Bi-Annual Retailer Event	Schedule B-1, Exhibit C	*Jan 26 2011*	*All residential rate classes*
Retailer Co-op		*Jan 26 2011*	*All residential rate classes*
Residential Demand Response	Schedule B-3	*Jan 26 2011*	*All general service classes*
New Construction Program	Schedule B-2	*Jan 26 2011*	*All residential rate classes*
Commercial & Institutional Program			
Efficiency: Equipment Replacement	Schedule C-2	*Jan 26 2011*	*All general service classes*
Direct Install Lighting	Schedule C-3	*Jan 26 2011*	*General Service < 50 kW*
Existing Building Commissioning Incentive	Schedule C-6	*Feb2011*	*All general service classes*
New Construction and Major Renovation Initiative	Schedule C-4	*Feb 2011*	*All general service classes*
Energy Audit	Schedule C-1	*Jan 26, 2011*	*All general service classes*

Residential Demand Response (part of the Residential program schedule)	Schedule B-3	*Jan 26, 2011*	*All general service classes*
Demand Response 3 (part of the Industrial program schedule)	Schedule D-6	*May 31, 2011*	*General Service 50 kW & above*
Industrial Program			
Process & System Upgrades	Schedule D-1	*May 31, 2011*	*General Service 50 kW & above*
Monitoring & Targeting	Schedule D-2	*May 31, 2011*	*General Service 50 kW & above*
Energy Manager	Schedule D-3	*May 31, 2011*	*General Service 50 kW & above*
Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	Schedule C-2	*May 31, 2011*	*General Service 50 kW & above*
Demand Response 3	Schedule D-6	*May 31, 2011*	*General Service 50 kW & above*
Home Assistance Program			
Home Assistance Program	Schedule E-1	*May 9, 2011*	*All residential rate classes*
Pre-2011 Programs completed in 2011			
Electricity Retrofit Incentive Program	n/a	*n/a*	*All general service classes*
High Performance New Construction	n/a	*n/a*	*All general service classes*
~~Toronto Comprehensive~~	~~n/a~~	~~*n/a*~~	~~*All general service classes*~~
Multifamily Energy Efficiency Rebates	n/a	*n/a*	*All general service classes*
~~Data Centre Incentive Program~~	~~n/a~~	~~*n/a*~~	~~*All general service classes*~~
~~EnWin Green Suites~~	~~n/a~~	~~*n/a*~~	~~*All general service classes*~~

Several initiatives that were included in the schedules were not in market in 2011. The OPA has communicated that the initiatives listed in the table below were not in market in 2011 and that they represent a very small percentage of the forecasted energy and demand savings. During the 2011 program year, the OPA placed emphasis on supporting the implementation of initiatives that would offer the greatest ratepayer value and greatest amount of persisting savings.

Initiative Not in Market in 2011	Objective	Status
Residential Program		
Midstream Electronics (Schedule B-1)	The objective of this initative is to encourage retailrs to promote, and sell, high efficency televisions, and for distributors to distribute high efficiency set top boxes.	Not launched to market
Midstream Pool Equipment (Schedule B-1)	The objective of this initiative is to encourage pool installers to sell and install efficient pool pump equipment in residential in-ground pools.	Not launched to market
First Nations Program	First Nations programs are delivered by OPA and results are attributed to LDCs for reporting.	Not launched to market
Home Energy Audit Tool (Schedule B-1)	This is a provincial online audit tool to engage customers in conservation and help drive customer participation to CDM programs.	Not launched to market
Commercial & Institutional Program		
Direct Service Space Cooling (Schedule C-5)	The objective of this initiative is to offer free servicing of air conditioning systems and refrigeration units for the purpose of achieving energy savings and demand reduction.	Not launched to market in 2011. The OPA has no plans to launch this initiative in 2012.
Demand Response 1 (Schedule D-5)	This initiative allows distribution customers to voluntarily reduce electricity demand during certain periods of the year pursuant to the DR 1 contract. The initiative provides DR payment for service for the actual electricity reduction provided during a demand response event.	No customer uptake for this initiative
Industrial Program		
Demand Response 1 (Schedule D-5)	As above	No customer uptake for this initiative

The Master CDM Program Agreement includes a program change management provisions in Article 3. Collaboration between the OPA and Local Distribution Companies ("LDCs") commenced in 2011 as the change management process was implemented to enhance the saveONenergy program suite. The change management process allows for modifications to the Master Service Agreement and initiative Schedules. The program enhancements give LDCs additional tools and greater flexibility to deliver programs in a way that meets the needs of customers and further drives participation in the initiatives.

2.2 Program Descriptions

Programs that are being offered in the distributor's service area. For each program, include the targeted customer type(s) for the OPA-Contracted Province-Wide CDM Program, the objectives of the OPA-Contracted Province- Wide CDM Program, and any activities associated with the OPA-Contracted Province-Wide CDM Program.

2.2.1 RESIDENTIAL PROGRAM

Hydro One strongly supported the distribution of the discount coupon booklets for energy efficient products throughout 2011. Hydro One printed and distributed over 2.2 million additional coupon booklets beyond those distributed by the OPA, while also making them available online and by request through its Call Centre.

Hydro One participated at a wide variety of community events across our service territory (almost 30 events) – increasing customer awareness of our CDM programs and developing a relationship with customers on how they could take actions to reduce their energy consumption.

Hydro One also participated in 55 retail events in order to support the two month long campaigns with participating retailers in order to encourage customers to purchase energy efficient products.

In Fall 2011, through an RFP process, Hydro One hired four firms to support the delivery of Residential CDM programs. We hired a creative development firm to assist with the development of marketing materials to support the programs. We also hired a roster of three event management firms to provide us with the staffing to allow our participation at Community and Retail events across our service territory.

Hydro One's Residential results in 2011 were 31.75 GWh saved and 7.5 MW saved.

2.2.1.1 APPLIANCE RETIREMENT INITIATIVE (Exhibit D)

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objectives: Achieve energy and demand savings by permanently decommissioning certain older, inefficient refrigeration appliances located in Ontario.

Description: This is an energy efficiency Initiative that offers individuals and businesses free pick-up and decommissioning of refrigerators and freezers which are operating, over 15 years old and between 10 and

27 cubic feet in size. Window air conditioners and portable dehumidifiers will also be picked up if a freezer or refrigerator is being collected. (if operating and over 10 years old)

Targeted End Uses: Refrigerators, Freezers, window air conditioners and portable dehumidifiers

Delivery: OPA centrally contracts for call centre, appliance pick-up and decommissioning process. The OPA provided some provincial advertising in 2011. LDC provides local marketing and coordination with municipal pick-up where available.

Additional detail is available:

- Schedule B-1, Exhibit D http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and

- Saveonenergy website https://saveonenergy.ca/Consumer/Programs/Appliance-Retirement.aspx

Initiative Activities/Progress:

- In 2011, Hydro One provided marketing support for this initiative through:
    - Bill inserts – 4.1 million of Appliance Retirement only inserts, 1 million of a two program insert, and another 1.1 million as part of a broader residential programs insert.
    - Promotion on billing envelope - 2.6 Million
    - Promotion in customer newsletter -1 Million
    - Television advertising (co-branded with some Golden Horseshoe area LDCs) - three two-week flights (in March, June and September)
    - Website promotion – all year
    - Direct mail – 170,000 (all seasonal & all French customers)
    - Promotion at 55 retail events
    - Promotion at just under 30 community events
    - Results reported by OPA for 2011 were 17,400 appliances removed. This number of units has been trending downward over the last few years (was 21,950 in 2010) due to saturation of the program. This decline is expected to continue as the minimum age of appliances increases to 20 years in 2013 (from 15 years).

- In 2011, however, Hydro One still maintained a strong 31% share of the provincial results for this initiative, which surpassed Hydro One's proportionate share of eligible customers.

In Market Date: January 26, 2011

Lessons Learned:

- The Appliance Retirement Initiative (previously The Great Refrigerator Round-Up) has been offered by LDCs since 2007. This initiative is approaching market saturation. Hydro One has had over 100,000 units picked up from its customers' homes since offering this program under Market Adjusted Revenue Requirement ("MARR") funding in 2006. While the province experienced a 17% decrease in volume, the decrease from Hydro One customer base was 21%.

- While the OPA and the LDCs have reviewed this initiative to assess whether to include other products, appliances have a natural life cycle and the initiative cannot be expected to continually deliver the high level of results in perpetuity. These lower expectations have been taken into account when developing conservation portfolios.

- This initiative now faces some competition from independent retailers and municipalities.

- Results are responsive to province wide advertising.

2.2.1.2 APPLIANCE EXCHANGE INITIATIVE (Exhibit E)

Target Customer Type(s): Residential Customers

Initiative Frequency: Spring and Fall

Objective: The objective of this Initiative is to remove and permanently decommission older, inefficient window air conditioners and portable dehumidifiers that are in Ontario.

Description: This Initiative involves appliance exchange events. Exchange events are held at local retail locations and customers are encouraged to bring in their old room air conditioners ("AC") and dehumidifiers in exchange for coupons/discounts towards the purchase of new energy efficient equipment or store gift cards.

Targeted End Uses: Window air conditioners and portable dehumidifiers

Delivery: OPA contracts with participating retailers for collection of eligible units.

Additional detail is available:

- Schedule B-1, Exhibit C http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and

- Saveonenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress:

- This Initiative was promoted on Hydro One's website.
- For the Spring 2011 Exchange event Hydro One held in-store events in 10 retail stores, which comprised of 24 event days.
- Hydro One had planned to participate in-store at the Fall 2011 event but the only participating retailer withdrew from any involvement shortly before the start date and thus the Fall phase was cancelled.

In Market Date: April 2011

Lessons Learned:

- The spring event had the participation of 3 retailers with 300 – 400 locations across the province. However, the Fall 2011 event had no retailer participation, therefore savings budgeted by the LDCs did not materialize.
- Evaluation, Measurement, and Verification ("EM&V") results indicated that the value of savings for retired room AC has dropped.
- The initiative may be achieving market saturation.
- The type of unit turned in is very dependent upon what is promoted by the retailers.

2.2.1.3 HVAC INCENTIVES INITIATIVE (Exhibit B)

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage the replacement of existing heating systems with high efficiency furnaces equipped with an Electronically Commutated Motor ("ECM"), and to replace existing central air conditioners with ENERGY STAR qualified systems and products**.**

Description: This is an energy efficiency Initiative that provides rebates for the replacement of old heating or cooling systems with high efficiency furnaces (equipped with ECMs) and Energy Star qualified central air conditioners by approved Heating, Refrigeration, and Air Conditional Institute ("HRAI") qualified contractors.

Targeted End Uses: Central air conditioners and furnaces

Delivery: OPA contracts centrally for delivery of the program and contractor network recruitment and administration. LDCs are encouraged to convince additional local contractors to participate in the Initiative.

Additional detail is available:

- Schedule B-1, Exhibit Bhttp://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and

- Saveonenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress:

- Hydro One promoted this initiative in 2011 through:
    - Bill inserts – 4.1 million stand-alone inserts, 1 million two program inserts, and another 1.1 million as part of a broader residential programs insert
    - Bill messaging - up to 0.9 Million
    - Website promotion – all year
    - Direct mail – 170,000 (all seasonal & all French customers)
    - Promotion at 55 retail events
    - Promotion at just under 30 community events.
- Hydro One's results increased by 20% in 2011 (from 11,700 units in 2010 to 14,000 units in 2011 for furnaces and central AC).
- Relative to other LDCs, Hydro One's customers had lower participation due to the overall lower prevalence of central air conditioning and forced air furnaces in its service area. The premium price of these high efficiency products is, even after the application of the rebate, relatively pricy for most of Hydro One's customers.

In Market Date: January 26, 2011

Lessons Learned:

- Channel engagement is a highly effective method of connecting with customers. However, channel partners require timeliness of the Rebate process to maintain a positive relationship between consumers, contractors, the OPA, and the participating LDC.

- There appears to be an unreported spillover from non-HRAI contractors who are ineligible for this initiative. There are cases where smaller independent contractors are offering their own incentives (by discounting their installations to match value of the OPA incentive) to make the sale. As this occurs outside of the initiative, these installations need to be attributed to the appropriate LDC.

2.2.1.4 CONSERVATION INSTANT COUPON BOOKLET INITIATIVE (Exhibit A)

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage households to purchase energy efficient products by offering instant discounts.

Description: This Initiative provides customers with year round coupons. The coupons offer instant rebates towards the purchase of a variety of low cost, easy to install energy efficient measures and can be redeemed at participating retailers. Booklets were directly mailed to customers and were also available at point-of-purchase. Downloadable coupons were also available on Hydro One's and the OPA's websites.

Targeted End Uses: ENERGY STAR® qualified standard and specialty Compact Fluorescent Lights (CFLs); ENERGY STAR® qualified Light Fixtures lighting control products; weatherstripping; hot water pipe wrap; electric water heater blanket; heavy duty plug-in Timers; Advanced power bars, clotheslines; baseboard programmable thermostats, motion sensors, timers, dimmers, and Energy Star ceiling fans.

Delivery: OPA contracts centrally for the distribution of the coupon booklets across Ontario. LDC distributes coupons at local events. The OPA enters into agreements with retailers to honour the coupons.

Additional detail is available:

- Schedule B-1, Exhibit A http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and

- Saveonenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress:

- Hydro One strongly supported this initiative. In addition to the Coupon booklets produced and distributed by the OPA, Hydro One printed additional coupon books and included booklets in customer mailings related to introduction of TOU rates (1 Million).

- The coupons were also included in Fall direct mailings to all seasonal customers and all French customers (170,000).

- The coupon booklet was also reformatted (as a roll-fold) and printed as a bill insert which was sent to all customers (1 Million).
- Coupon books were inserted in community newspapers as part of the promotion of the Fall Retail Event.
- Coupon program was promoted through a bill insert covering all Residential programs (1 Million) and a program specific bill insert (0.7 Million).
- Coupon books were distributed at over 80 retail and community events.
- Coupons were downloadable from the Hydro One website (as a booklet or individual coupons).
- Coupon books were available upon request from Hydro One's main Call Centre and from its Energy Conservation Team, a team of highly trained employees within the main Call Centre.
- Hydro One's provincial share of product sales as a result of annual coupons was a strong 34% due to its efforts to promote the Hydro One bar-coded coupons.

In Market Date: January 26, 2011

Lessons Learned:

- The downloadable coupons proved to be more successful than the mailed out booklets.
- This Initiative may benefit from an enabler such as a Conservation Card / Loyalty Card to increase customer participation.
- The timeframe for retailer submission of redeemed coupons vary from retailer to retailer. This delays the results reporting, which in turn limits the OPA and LDC abilities to react and respond to initiative performance or changes in consumer behaviour.
- With few Residential Initiatives in-market, and most in-market initiatives being very targeted, the annual coupons were a very useful offering that provided LDCs with a broad-based Initiative and allowed them to have an energy-efficiency offering for all customers.

2.2.1.5 BI-ANNUAL RETAILER EVENT INITIATIVE (Exhibit C)

Target Customer Type(s): Residential Customers

Initiative Frequency: Bi-annual events

Objective: The objective of this Initiative is to provide instant point of purchase discounts to individuals at participating retailers for a variety of energy efficient products.

Description: Twice a year (Spring and Fall), participating retailers host month-long rebate events. During the months of April and October, customers are encouraged to visit participating retailers where they can find coupons redeemable for instant rebates towards a variety of low cost, easy to install energy efficient measures.

Targeted End Uses: Same as the conservation instant coupon booklet initiative

Delivery: The OPA enters into arrangements with participating retailers to promote the discounted products, and to post and honour related coupons. LDCs also refer additional retailers to the OPA.

Additional detail is available:

- Schedule B-1, Exhibit C http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and

- Saveonenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress:

- Hydro One arranged for staffing for in-store booths in four participating retail stores spanning 8 event days during the Spring in order to promote the discounted products while also cross-promoting the other CDM Initiatives.

- Hydro One was on-site in 25 retail stores during the Fall event in October and in another 16 stores shortly after the event in November.

- Newspaper ads promoting the event and our presence at their local store on specific dates were placed in local community newspapers (along with insertion of the discount coupon book). Coupon booklets were also included in these newspapers at the same time.

In Market Date: April 2011 and October 2011

Lessons Learned:

- The Product list has changed very little over the past four years.

- Program evolution, including new products (for example, LED lighting) and review of incentive pricing for the coupon initiatives, must be a regular activity to ensure continued consumer interest.

- A review conducted by the Residential Working Group in Q4 2011 identified three areas of need for initiative evolution: 1) introduction of product focused marketing; 2) enhanced product selection and 3) improved training for retailers.

2.2.1.6 RETAILER CO-OP

Target Customer Type(s): Residential Customers

Initiative Frequency: Year Round

Objective: Hold promotional events to encourage customers to purchase energy efficiency measures (and go above-and-beyond the traditional Bi-Annual Coupon Events).

Description: The Retailer Co-op Initiative provides LDCs with the opportunity to work with retailers in their service area by holding special events at retail locations. These events are typically special promotions that encourage customers to purchase energy efficiency measures (and go above-and-beyond the traditional Bi-Annual Coupon Events).

Delivery: Retailers apply to the OPA for co-op funding to run special promotions that promote energy efficiency to customers in their stores. LDCs can refer retailers to the OPA. The OPA provides each LDC with a list of retailers who have qualified for Co-Op Funding as well as details of the proposed special events.

Initiative Activities/Progress:

Hydro One worked with a major retailer to customize their Home Tune-Up Initiative for Hydro One customers in late Fall 2011. This would have provided Hydro One customers with the opportunity to have a basic home energy audit done and have some energy efficiency measures installed at no cost. Approval was late for this initiative and ultimately it was decided to wait until 2012. Hydro One is hoping that the initiative will be re-approved by the OPA for 2012 and that it will be able to implement this initiative.

In Market Date: Not in market

Lessons Learned:

- The availability of retailer and/or LDC staff with product knowledge and the ability to conduct demonstration in store during the events would be an asset. This could be a valuable role for LDCs.

- Retailer Co-op Initiatives need to be approved by the OPA early in the year in order to allow time for the LDC and the Retailer to work together to develop, market, and implement the Initiative within the one year approval window.

2.2.1.7 NEW CONSTRUCTION PROGRAM (Schedule B-2)

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to provide incentives to participants for the purpose of promoting the construction of energy efficient residential homes in the Province of Ontario.

Description: This is an energy efficiency Initiative that provides incentives to homebuilders for constructing new homes that are efficient, smart, and integrated (applicable to new single family dwellings). Incentives are provided in two key categories as follows:

- Incentives for homebuilders who install electricity efficiency measures as determined by a prescriptive list or via a custom option.
- Incentives for homebuilders who meet or exceed aggressive efficiency standards using the Energuide performance rating system.

Targeted End Uses: All off switch, ECM motors, ENERGY STAR qualified central a/c, lighting control products, lighting fixtures, Energuide 83, and Energuide 85 home performance levels.

Delivery: Local engagement of builders will be the responsibility of the LDC and will be supported by OPA air coverage driving builders to their LDC for additional information.

Additional detail is available:

- Schedule B-1, Exhibit C http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-2%20New%20Construction%20Program.pdf and
- Saveonenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress:

- Hydro One promoted this initiative to customers to encourage them to request energy efficient features from builders when purchasing a new home.
- A program specific bill insert was produced and sent to all customers (1 Million).
- The Initiative was also promoted at over 80 retail and community events.
- Promoted on Hydro One's website.
- There has been low participation from builders to date. Discussions have been held with builders regarding the barriers to their participation in the program. Builders found the administrative process to be very time-consuming, onerous, and not cost-effective. They also found the incentive levels to be too low. Due to these challenges, results were limited in 2011.
- Hydro One has championed changes in the initiative processes which are to be implemented in Fall 2012 to address concerns of all builders, and which should lead to greater uptake in the program.

In Market Date: January 26, 2011

Lessons Learned:

- There were limited (5) participants in the program. Because the online application system is a one to one relationship, this program was only practical for custom builders who were building one home at a time. Tract builders who might build 250 homes in a single phase would have to submit 250 applications to qualify for incentives. This administrative challenge has deterred all tract builders from participating in the program to date.

- Administrative requirements must align with perceived stakeholder payback. Based on builder input changes to administrative forms and processes are being developed and implemented through change management for 2012.

2.2.1.8 RESIDENTIAL DEMAND RESPONSE PROGRAM (Schedule B-3)

Target Customer Type(s): Residential and Small Commercial Customers

Initiative Frequency: Year round

Objective: The objectives of this Initiative are to enhance the reliability of the IESO-controlled grid by accessing and aggregating specified residential and small commercial end uses for the purpose of load reduction, increasing consumer awareness of the importance of reducing summer demand and providing consumers their current electricity consumption and associated costs.

Description*:* In ***peaksaver*** PLUS ™ participants are eligible to receive a free programmable thermostat or switch, including installation. Participants also receive access to price and real-time consumption information on an In Home Display ("IHD"). LDCs were given the choice to continue to offer the standard load control program (programmable thermostat or switch with a $25 bill credit) for the first 8 months of 2011 (referred to as ***peaksaver®*** Extension). After August 2011, the Extension ended and the program (including marketing) ceased until new IHD products were available.

Targeted End Uses: central air conditioning, water heaters and pool pumps

Delivery: LDC's recruit customers and procure technology.

Additional detail is available:

- Schedule B-1, Exhibit C http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/SCHED_2011_ResDR_B_3_110727%28MJB%29v15_redacted.pdf and

- Saveonenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress:

- ***peaksaver®*** extension was marketed through an on-bill message.

- ***peaksaver®*** extension was also promoted through the ***peaksaver®*** website.

- Marketing activities like direct mail and bill inserts were not utilized under the anticipation that ***peaksaver*** PLUS™ would be launching soon. This contributed to very low participation level for the year 2011.

- ***peaksaver*** PLUS™ was not marketed due to the delay in program design and initiative schedule outlining the specification of the devices under the offer and consequential procurement process.

- There were less than 2,000 residential participants for 2011 and we received zero participation from small commercial customers.

- 2011 represented the lowest program penetration rate since the program was launched in 2006. This was the result of expiring ***peaksaver®*** extension at the end of August 2011 and the forced cessation of the program. Throughout 2011, a curtailed marketing campaign needed to be adopted to manage customer expectations during the transition period of the program. Going forward we expect significantly higher participation in 2012 and beyond.

In Market Date: January 26, 2011

Lessons Learned:

- The schedule for peaksaver PLUS™ was posted in August 2011, but this did not provide adequate time for product procurement for 2011, and part of 2012. The product procurement process uncovered that the In Home Display units that communicate with installed smart meter technology were still in development and not ready for market deployment. Consequently, LDCs, including Hydro One, could not be in market with the peaksaver PLUS™ program in 2011.

- Introduction of new technology requires incentives for the development of such technology. Appropriate lead times for LDC analysis and assessment, product procurement, and testing and integration into the Smart Meter environment are also required. Making seemingly minor changes to provincial technical specifications can create significant issues when all LDCs attempt to implement the solution in their individual environments.

- Where a provincial solution is not available to all participants, attention to addressing specific LDC concerns is needed.

2.2.2 COMMERCIAL AND INSTITUTIONAL PROGRAM

In 2011, the commercial portfolio of Initiatives benefited from considerable momentum and success that had been developed in previous years. Hydro One's marketing efforts in 2010 resulted in a total of about 880 ERIP applications being submitted to Hydro One at program close on December 31, 2010. Due to timing and the standard business cycles of 6 to 18 months, many of these projects were not completed

until 2011. Of the 880 applications received, 349 were completed in 2011. The ERII Initiative was off to a good start.

The better than average start was not sustainable as 2011 was a year spent mostly on procuring resources required to deliver the OEB mandated energy savings targets. Targets that were significantly higher than in previous years required a more strategic approach to CDM delivery such as bundling of similar services across various initiatives for delivery by a single vendor. This strategy also created cost efficiencies and a one stop shop for customers. Another aspect of the overall strategy involved engaging the Gas companies as they were already working with many of our customers and with similar initiatives or services.

The detailed assessment of the CDM services required for each initiative resulted in 5 RFP's being released dedicated to Commercial and Institutional ("C&I"): Commercial Account Management, Marketing, Evaluation Services, DIL Program Delivery, and HPNC Program Delivery. The RFPs did not close until Q3 / Q4 of 2011, with many of the services not being fully in market by Q4 2011. In addition to this, several staff resources were also hired in 2011.

Hydro One's Commercial and Institutional Program results in 2011 were 27.20 GWh and 8.65 MW saved.

2.2.2.1 EFFICIENCY: EQUIPMENT REPLACEMENT INCENTIVE (ERII) (Schedule C-2)

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives to non-residential distribution customers to achieve reductions in electricity demand and consumption by upgrading to more energy efficient equipment for lighting, space cooling, ventilation and other measures.

Description: The Equipment Replacement Incentive Initiative ("ERII") offers financial incentives to customers for the upgrade of existing equipment to energy efficient equipment. Upgrade projects can be classified into either: 1) prescriptive projects where prescribed measures replace associated required base case equipment; 2) engineered projects where energy and demand savings and incentives are calculated for associated measures; or 3) custom projects for other energy efficiency upgrades.

Targeted End Uses: lighting, space cooling, ventilation and other measures.

Delivery: LDC delivered.

Additional detail is available:

- Schedule C-2 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-2%20ERII%20Initiative.pdf and

- Saveonenergy website https://saveonenergy.ca/Business/Program-Overviews/Retrofity-for-Commercial.aspx

Initiative Activities/Progress:

Marketing Strategy:

In 2011 Hydro One continued to build on its key marketing strategy, by strengthening our relationships with trade allies and vendor channels. The same strategy had provided record results in 2010. Key elements of this strategy are:

- Top down – Bottom up Marketing: The ERII Initiative is marketed to Hydro One customers by engaging them directly through a tailored Account Management process or a mass market approach (Top Down). Hydro One also leveraged specific trade allies and vendor channels in order to work with our customers during the CDM project sales cycle (Bottom Up).
- Customer segmentation: Identifying and marketing to key segments such as municipalities, school boards, and farm customers.
- Mid-market alliances: Working with trade allies such as electrical wholesalers, consultants, and CDM service providers and leveraging their client relationships is a cornerstone of the ERII marketing strategy. Key aspects are the provision of training and upsell opportunities as well as sales tools.
- Increasing Awareness: Creating heightened awareness through direct mail campaigns and customer workshops directed at Hydro One's largest customers (approximately 1000).
- Leverage and Bundle: Cross promote and integrate initiatives wherever possible to create increased awareness and cost efficiencies.
- Face to Face Customer Engagement: At program launch Hydro One did not have resources available to sufficiently engage its largest customers adequately in order to provide face to face meetings and engagement. Due to Hydro One's large geographic area and low customer density, a cost effective strategy was devised that would engage customers between 200 kW and 5 MW in size. Commercial Key Account Managers ("CKAM"s) would be given responsibility for calling upon Hydro One customers in specific geographic regions. Larger customers (500 kW+) would benefit from personal visits by the CKAM to promote CDM projects within their facilities and assist them with the Initiative application process. Smaller customers would also receive customized services, but typically by telephone and electronically.

Resourcing:

In order to execute the 2011 marketing strategy several key resources needed to be put into place. For example, contracting marketing services, Key Account Managers, etc.

Our resourcing strategy included outsourcing all aspects of ERII project evaluation to address the growing uptake of the Retrofit program in recent years. The success of this Initiative (formerly PBIP & ERIP) is approaching approximately 900 applications received by Hydro One annually.

Due to lengthy procurement, some of the resources were not in place at year end.

Online Application Portal (iCON):

The late launch of the Online Application Portal had a direct impact on overall success of the RETROFIT Initiative in 2011. This, combined with a new and overly complex application process, contributed to some initial market backlash among Hydro One customers and the CDM market in general. Customer applications to ERII were down significantly in the first 3 months of 2011. With less than 100 ERII applications submitted in the first 3 months. Hydro One was also able to track an abandonment rate of almost 25% in the iCON system. Hydro One received a considerable amount of feedback from customers and trade allies throughout 2011 that conveyed general market displeasure with the functionality of the iCON system.

Change Management:

The Initiative Schedule contained known operational issues that were to be addressed through the Change Management process in 2011. A significant portion of internal staff resources were spent on Change Management and working with the OPA on remedies with the iCON online application system.

Success and Activities:

Many of the iCON issues were starting to be resolved by Q3 2011 and at the same time it appeared that RETROFIT applicants were also becoming more familiar with the online system. By year end 665 ERII applications had been submitted to Hydro One in iCON. This was significantly less than the 880 paper applications received in 2010 with a similar marketing effort.

A mailing to customers in Q3 along with several workshops helped to strengthen the results.

Throughout the year Hydro One worked with many of its large customers. A focus on large chain accounts yielded large RETROFIT projects with Sears Canada, M&M Meats and Pattison Signs in a Head Office representative capacity. Providing a one stop shop for these customers and representing all participating Ontario LDCs greatly simplified the Application process and reduced the administrative burden for these customers.

Through Hydro One's extensive efforts of promoting ERII and working with customers, as well as assisting other LDCs through the Head Office Model, 737 projects were completed in 2011 (including 2010 ERIP applications). This represents the highest yearly volume of completed projects since ERIP was first introduced in 2007.

In Market Date: January 26, 2011

Lessons Learned:

- ERII, (previously Equipment Replacement Incentive Program - ERIP), has been offered by LDCs for many years. It is a high performing, cost-effective program, and there were many pre-2011 projects completing in 2011 (via ERIP).

- A major challenge for the ERII program in 2011 was payment delays. The centralized electronic processes were not ready as required by the Master Agreement. The lack of having these automated processes, exasperated by a greater than expected volume of pre-2011 projects completing in 2011 caused considerable payment delays. Based on the lessons learned in the 2011 process, the centralized process review used for 2012 project payment has been streamlined.

- In March 2011, the revised iCON system was launched by the OPA. This is the major online application system implemented to aid the 2011-2014 ERII application process. With system applications of this size and functionality, it was expected that there would be various issues identified at the time of the release, and on-going, to prove that the system was "ready for market." Unfortunately, the resolution of these issues, with the corresponding time lags and workarounds, was seen to be a barrier to some customer participation in the 2011 program year. In addition, there were also on-going issues and limitations with the back-end CRM system that affected LDCs ability to effectively review and approve applications. Hydro One (and their third party service providers) have developed parallel systems to monitor their applications. Prior to the iCON system attaining basic functionality; Hydro One was unable to maintain service levels to its customers when processing ERII applications. In 2010, paper applications that were processed in several days took considerable more time in 2011 due to the lack of proper functionality of the iCON system. This created customer applications backlogs of several months. The backlog could only be cleared once Hydro One's vendor had completed building a parallel IT system as a work around that was able to properly handle the volume of ERII applications.

2.2.2.2 DIRECT INSTALL INITIATIVE (DIL) (Schedule C-3)

Target Customer Type(s): Small Commercial, Institutional, Agricultural facilities and multi-family buildings

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer a free installation of eligible lighting and water heating measures of up to $1,000 to eligible owners and tenants of commercial, institutional and agricultural facilities and multi-family buildings for the purpose of achieving electricity savings and peak demand savings.

Description: The Direct Installed Lighting Initiative targets customers in the General Service <50kW account category. This Initiative offers turnkey lighting and electric hot water heater measures with a value up to $1,000 at no cost to qualifying small businesses. In addition, standard prescriptive incentives are available for eligible equipment beyond the initial $1,000 limit.

Targeted End Uses: Lighting, water heating devices

Delivery: Participants can enroll directly with the LDC, or would be contacted by the LDC/LDC-designated representative.

Additional detail is available:

- Schedule C-3 http://www.powerauthority.on.ca/sites/default/files/page/Schedule%20C-3%20Direct%20Install%20Initiative%20-%20redacted.pdf and

- Saveonenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:

- A multi-tiered marketing approach was used to promote this Initiative:

  Phone Calls: There was a strong outreach program in place via Hydro One's contracted outbound call centre. In 2011, over 29,000 calls were placed to Hydro One's business customers resulting in contact with approximately 15,000 customers. There were a total of 4,000 customer assessments booked via the call centre.

  Door to Door Campaign: Hydro One assessors visited about 4,050 customers to offer a no obligation assessment (audit) of their lighting system. About 2,460 assessments were carried out during the door to door campaign.

  Total Assessments: 6,460 customer assessments were carried out in 2011.

- Hydro One's turnkey vendor created formal alliances within local communities with 180 electrical contracting companies that completed nearly 4,300 installations in 2011.

- In the 2009-2010 program years, the vendor was able to complete 17,000 installations in Hydro One's service territory, compared to approximately only 4,300 installations in 2011. High penetration rates in specific areas within Hydro One's territory resulted in overall reduction of customer participation due to market saturation. This resulted in the redeployment of assessors in certain geographic regions.

- In Q4 a plan was devised for localized marketing in order to improve participation rates.

- At the end of 2011, approximately 25% (since 2008) of Hydro One's eligible small business customers (GS<50 kW) had participated in the program and received $1,000 in free energy-efficient lighting upgrades.

In Market Date: January 26, 2011

Lessons Learned:

- The Direct Installed Lighting Initiative is a continuation of the Power Saving Blitz Initiative offered by LDCs from 2008-2010. Successful execution of the previous rendition of this Initiative has resulted in diminished potential for the 2011-2014 Initiative.

- The inclusion of a standard incentive for additional measures increased project size and drove higher energy and demand savings results.

- The cost of materials has experienced price volatility, reducing the margins of the electrical contractors, and has led to a reduction in vendor channel participation in some regions.

- Due to backlogs in the payment system, participant incentive payment from the OPA to the LDC, and therefore to the customer, was commonly delayed.

- To address these issues, the LDCs have been working with the OPA through Change Management to address:
    - Extending the target initiative population to include small agricultural customers;
    - Increasing the incentive envelope of $1,000 to $1,500 to ensure ongoing marketability of the program; and
    - Reviewing the eligible measures price list to support contractor participation.

2.2.2.3 EXISTING BUILDING COMMISSIONING INCENTIVE INITIATIVE (Schedule C-6)

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives for optimizing (but not replacing) existing chilled water systems for space-cooling in non-residential facilities for the purpose of achieving implementation phase energy savings, implementation phase demand savings, or both.

Description: This Initiative offers Participants incentives for the following:

- scoping study phase
- investigation phase
- implementation phase
- hand off/completion phase

Targeted End Uses: Chilled water systems for space-cooling

Delivery: LDC delivered.

Additional detail is available:

- Schedule C-6 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-6%20Commissioning%20Initiative.pdf and

- Saveonenergy website https://saveonenergy.ca/Business/Program-Overviews/Existing-Building-Commissioning.aspx

Initiative Activities/Progress:

- This Initiative was promoted during all of Hydro One's outreach events.
- Chilled water systems for space cooling are not prevalent in Hydro One territory. Such systems are typically found in large office or multi-family residential buildings located in large urban centres. This is not typical of Hydro One's customer base.
- Uptake has been affected due to the limited size of facilities in Hydro One's territory. There is also limited potential for savings with this initiative. We estimate that there are approximately 200 Hydro One customers who may benefit from this initiative.

In Market Date: February 2011

Lessons Learned:

- There was no customer uptake for this Initiative. It is suspected that the scope of the Initiative being limited to space cooling contributed to the lack of participation. Accordingly, chilled water systems used for other purposes should be made eligible and considered through Change Management.
- The customer expectation is that the program be expanded to include broader building improvements for a more holistic approach to building recommissioning.

2.2.2.4 NEW CONSTRUCTION AND MAJOR RENOVATION INITIATIVE (HPNC) (Schedule C-4)

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage builders of commercial, institutional and industrial buildings (including multi-family buildings and agricultural facilities) to reduce electricity demand and/or consumption by designing and building new buildings with more energy-efficient equipment and systems for lighting, space cooling, ventilation and other Measures.

Description: The New Construction initiative provides incentives for new buildings to exceed existing codes and standards for energy efficiency. The initiative uses both a prescriptive and custom approach.

Targeted End Uses: Building modeling, lighting, space cooling, ventilation and other Measures

Delivery: LDC delivers to customers and design decision makers.

Additional detail is available:

- Schedule C-4 http://www.powerauthority.on.ca/sites/default/files/page/ScheduleC-4NewContructionInitiativeV2.pdf and

- Saveonenergy website https://saveonenergy.ca/Business/Program-Overviews/New-Construction.aspx

Initiative Activities/Progress:

- Hydro One continued to process 2010 HPNC applications to ensure completion in 2011.

- A prolonged Change Management process slowed the implementation of this Initiative such that there was very limited participation in 2011. However, to maintain progress of the Initiative, Hydro One accepted applications during the Change Management process.

- In 2011, Hydro One customers accounted for 60% of the HPNC projects that were completed across the province.

In Market Date: February 2011

Lessons Learned:

- This is a continuation of the High Performance New Construction program previously delivered by Enbridge Gas under contract with the OPA (and subcontracted to Union Gas), which ran until December 2010.

- For 2011, new industry participation was limited due to the delays in the redesign of certain aspects of the Initiative, such as:

    - 2011 prescriptive incentives needed to be aligned with ERII incentives.

    - In the cases of delivering large projects (i.e. custom applications), 2011 participation was limited due to 1) building code changes and 2) level of documentation required.

2.2.2.5 ENERGY AUDIT INITIATIVE (Schedule C-1)

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives to owners and lessees of commercial, institutional, multi-family buildings and agricultural facilities for the purpose of undertaking assessments to identify all possible opportunities to reduce electricity demand and consumption within their buildings or premises.

Description: This Initiative provides participants incentives for the completion of energy audits of the electricity consuming equipment located in the facility. Energy audits include development of energy baselines, use assessments and performance monitoring and reporting.

Targeted End Uses: Various

Delivery: LDC delivered.

Additional detail is available:

- Schedule C-1 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-1%20Energy%20Audit%20Initiative.pdf and

- Saveonenergy website https://saveonenergy.ca/Business/Program-Overviews/Audit-Funding.aspx

Initiative Activities/Progress:

- This Initiative was promoted at all customer outreach events.
- Hydro One anticipated about 50 Audit applications and received 76 in 2011.
- A direct mail piece was sent to 7000 customers during Q3 of 2011 to increase awareness of this initiative.

In Market Date: January 26, 2011

Lessons Learned:

- Customer uptake in the beginning of 2011 was slow, and increased later in the year.
- Customers expect a greater connection with other CDM Initiatives as a result of completing the Energy Audit. The Initiative should be reviewed under Change Management for the means to readily incent Participants with Audits in hand to implement other electricity savings Initiatives.

2.2.3 INDUSTRIAL PROGRAM

2011 was a transitional year for industrial CDM programs. Demand Response 3 was the most successful industrial program in 2011 resulting in a total of 14.5 MW of demand reduction between Hydro One's

industrial and C&I customers. This program was delivered by Demand Response Providers under contract to the OPA. Hydro One met with all of the Demand Response Providers over the course of 2011.

Industrial ERII was available to industrial customers who implemented projects which would save 350 MWh or less annually. In 2012, this Initiative is undergoing Change Management to allow projects which receive up to a $500,000 incentive to be eligible. This will be a significant benefit and provide flexibility to customers implementing projects with greater than 350 MWh, but are reluctant to enter into a 5-10 year commitment as required under the Process & Systems Upgrade Initiative ("PSUI").

In 2011, several large customers had expressed interest in participating in PSUI. Three of the projects that were brought to Hydro One's attention were cogeneration load-displacement projects. These large-scale projects involved displacing the facilities' electrical load with electricity generated on-site with a natural gas fired generator. Waste heat collected from this process would also be used to create steam to be used in various plant processes. Due to long lead times, these projects are not likely to be In-service until late 2013 / 2014.

Hydro One's Industrial Program results in 2011 were 3.9 GWh and 14.04 MW saved.

2.2.3.1 PROCESS & SYSTEMS UPGRADE INITIATIVE (PSUI) (Schedule D-1))

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objectives: The objectives of this Initiative are to:

- Offer distribution connected customers capital incentives and enabling initiatives to assist with the implementation of large projects and project portfolios;
- Implement system optimization projects in systems which are intrinsically complex and capital intensive; and
- Increase the capability of distribution customers to implement energy management and system optimization projects.

Description: PSUI is an energy management Initiative that includes three Initiatives: (preliminary engineering study, detailed engineering study, and project incentive Initiative). The incentives are available to large distribution connected customers with projects or portfolio projects that are expected to generate at least 350 MWh of annualized electricity savings or, in the case of Micro-Projects, 100 MWh of annualized electricity savings. The capital incentive for this Initiative is the lowest of:

a) $200/MWh of annualized electricity savings;

b) 70% of project costs;

c) The amount that would provide a project payback of one year.

Targeted End Uses: Processes and systems

Delivery: LDC delivered with Key Account Management support, in some cases.

Additional detail is available:

- Schedule D-1 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-1%20Process%20and%20Systems%20Upgrades%20Initiative.pdf and

- Saveonenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:

- In mid-2011, three industrial customers expressed their interest in participating in PSUI to secure funding for their load displacement cogeneration projects. The OPA confirmed that these three projects, which would combine for a total of about 16 MW in peak demand reduction in 2014, would be considered eligible under the Initiative rules. Hydro One has continued to work with these customers to move them through the various stages of the program and to ensure that they receive the necessary approvals to connect their load displacement facilities before the December 31, 2014 deadline. One of these customers submitted an application and received approval for Detailed Engineering Study funding in 2011.

- Industrial CDM staff delivered a presentation to Hydro One's Large Distribution Account ("LDA") Representatives to educate them on PSUI and other industrial CDM initiatives. The LDA Representatives were encouraged to leverage their existing relationship with Hydro One's large industrial customers to promote CDM participation during site visits. CDM staff provided the LDA Representatives with a fact sheet that included details about the various industrial initiatives to share with customers.

- CDM staff also visited 5 industrial customers at their plant site to discuss opportunities for them to participate in PSUI. 5 other customers were given presentations on PSUI via webinars.

- The Monitoring and Targeting and Energy Manager Initiatives were discussed and promoted along with PSUI at all meetings and events.

- CDM staff received around a dozen inquiries from customers and consultants interested in obtaining more information about the Industrial programs. As a result, a toll-free phone line and dedicated mailbox was established for interested parties to call to speak directly with a Hydro One staff member in the industrial CDM group.

- Hydro One was an exhibitor at the Canadian Manufacturers and Exporters ("CME") "A Lean and Green Future: Energy 2011" on November 29 and 30. This event provided CDM staff the opportunity to meet with prospective participants and inform them about PSUI as well as other industrial and commercial CDM initiatives.

- Hydro One acted as the representative LDC (on behalf of Hydro One Networks Inc., Hydro One Brampton Networks Inc., Veridian Connections Inc., and Kingston Hydro) in an application for Key Account Manager ("KAM") funding. Funding for four KAMs was allocated to Hydro One. The KAMs will be engaged in 2012 and will be assigned to promoting PSUI to Hydro One's 88 LDAs.

- The focus of this year was to build awareness in the market and to encourage customers to begin preparing for Detailed Engineering Studies ("DES"). With one DES application already submitted in 2011 for a very large project and more expected in 2012, Hydro One is well positioned to continue building momentum for this Initiative beyond 2011.

- Clarity about CDM future beyond 2014 is needed now for continued uptake of PSUI projects which have long engineering and application phases (because incentives are not available to customers beyond 2014).

In Market Date: May 31, 2011

Lessons Learned:

- The PSUI program targets large customers that are undertaking large capital projects. There is typically a long sales cycle to sell these projects, and then a long project development cycle. As such, results from PSUI did not appear in 2011. Limited results are expected to appear in 2012. The majority of the results are expected in 2013-2014, with a much reduced benefit to cumulative energy savings targets.

- Steps are being taken in the 2012 change management process to simplify and streamline the micro-project application process and to allow smaller projects to be directed to the ERII stream.

- Given the size of the projects involved, the contract required for PSUI is a lengthy and complicated document. Attempts are being made through change management in 2012 to simplify the document while still protecting the ratepayer.

- With considerable customer interest in on-site Load Displacement projects, this Initiative should be reviewed to ensure that these projects may be accepted as part of the PSUI Initiative.

- This program relies on Technical Reviewers which were not contracted by the OPA until November, 2011. As a result, no engineering study applications were reviewed until this time, thus preventing any projects from receiving project incentive approval in 2011.

2.2.3.2 MONITORING & TARGETING INITIATIVE (Schedule D-2)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This Initiative offers access to funding for the installation of Monitoring and Targeting systems in order to deliver a minimum savings target at the end of 24 months and sustain the savings for the term of the M&T Agreement.

Description: This Initiative offers customers funding for the installation of a Monitoring and Targeting system to help them understand how their energy consumption might be reduced. A facility energy manager, who regularly oversees energy usage, will now be able to use historical energy consumption performance to analyze and set targets.

Delivery: LDC delivered with Key Account Management support, in some cases.

Additional detail is available:

- Schedule D-2 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-2%20Monitoring%20and%20Targeting%20Initiative.pdf and

- Saveonenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:

Refer to Section 2.2.3.1 (PSUI)

In Market Date: May 31, 2011

Lessons Learned:

- The M&T initiative was originally targeted at larger customers with the capacity to review the M&T data. This review requires the customer facility to employ an Energy Manager or a person with equivalent qualifications, which was a barrier for some customers. Through the Change Management process changes are being made to both the M&T schedule and ERII to allow smaller facilities to employ M&T systems.

2.2.3.3 ENERGY MANAGER INITIATIVE (Schedule D-3)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to provide customers and LDCs the opportunity to access funding for the engagement of energy managers in order to deliver a minimum annual savings target.

Description: This Initiative provides customers the opportunity to access funding to engage an on-site, full time embedded energy manager, or an off-site roving energy manager who is engaged by the LDC. The role of the energy manager is to take control of the facility's energy use by monitoring performance, leading awareness programs, and identifying opportunities for energy consumption improvement, and spearheading projects. Participants are funded 80% of the embedded energy manager's salary up to $100,000 plus 80% of the energy manager's actual reasonable expenses incurred up to $8,000 per year. Each embedded energy manager has a target of 300 kW/year of energy savings from one or more facilities. LDCs receive funding of up to $120,000 for a Roving Energy Manager plus $8,000 for expenses.

Targeted End Uses: Various

Delivery: LDC delivered with Key Account Management support, in some cases.

Additional detail is available:

- Schedule D-3 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-3%20Energy%20Manager%20Initiative%202011-2014.pdf and

- Saveonenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:

Refer to Section 2.2.3.1. (PSUI)

In Market Date: May 31, 2011

Lessons Learned:

- The energy managers have proven to be a popular resource.

- At the beginning, it took longer than expected to set it up the energy manager application process.

- Some LDCs are reporting difficulties in hiring capable roving energy managers ("REM"s).

2.2.3.4 KEY ACCOUNT MANAGER (KAM) (Schedule D-4)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This initiative offers LDCs the opportunity to access funding for the employment of a KAM in order to support them in fulfilling their obligations related to the PSUI. The KAM is considered to be a key element in assisting the consumer in overcoming traditional barriers related to energy management and help them achieve savings since the KAM can build relationships and become a significant resource of knowledge to the customer.

Additional detail is available:

- Schedule D-4 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/projects_

programs/pdfs/PSUI%20Initiative%20Schedule%20D-4.Key%20Account%20Manager.20110322.pdf

Initiative Activities/Progress:

Refer to Section 2.2.3.1. (PSUI)

In Market Date: May 31, 2011

Lessons Learned:

- Customers appreciate dealing with a single contact or interface with an LDC, a resource that has both the technical and business background who can communicate easily with the customer and the LDC. Finding this type of skill set has been difficult resulting in longer lead times to acquire the right resource.

2.2.3.5 DEMAND RESPONSE 3 (Schedule D-6)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This Initiative provides for Demand Response ("DR") payment for service to DR3 participants to compensate them for making available electricity demand response during a demand response event**.**

Description: Demand Response 3 ("DR3") is a demand response Initiative for commercial and industrial customers, of 50 kW or greater to reduce the amount of power being used during certain periods of the year. The DR3 Initiative is a contractual resource that is an economic alternative to procurement of new generation capacity. DR3 comes with specific contractual obligations requiring participants to reduce their use of electricity relative to a baseline when called upon. This Initiative makes payments for participants to be on standby and energy payments for the actual energy reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year depending on the contract.

Delivery: DR3 is delivered by Demand Response Providers ("DRP"s), under contract to the OPA. The OPA administers contracts with all DRPs and Direct Participants that provide in excess of 5 MW of demand response capacity. The OPA provides administration including settlement, measurement and verification, and dispatch. LDCs are responsible for outreach and marketing efforts.

Additional detail is available:

- Schedule D-6
  http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_e

lectricity_contracts/pdfs/Schedule%20D-6%20Demand%20Response%203%202011-2014.pdf and

- Saveonenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:

- 15 commercial and 21 industrial customers, totaling 0.9 MW and 13.6 MW, respectively, in contracted demand reduction potential participated in DR3 in Hydro One's service territory in 2011.
- Hydro One staff coordinated with meter technicians and aggregators to plan interval meter and KYZ pulse installations for DR3 participants who did not have the appropriate metering equipment.
- DR3 was promoted through customer site visits at 5 industrial facilities. Hydro One staff also hosted 5 individual webinars for customers who expressed an interest in demand response and other conservation opportunities. DR3 is also promoted on Hydro One's website which provides contact information for the all active DRPs responsible for enrolling participants in the initiative.
- Hydro One CDM had an exhibit booth at the 2011 Canadian Manufacturers and Exporters ("CME") Conference "A Lean and Green Future: Energy 2011" on November 29 and 30. This event provided CDM staff the opportunity to meet with prospective participants and inform them about DR3 as well as other industrial and commercial CDM initiatives.
- DR3 proved to be a very successful program, contributing to over 40% of Hydro One's peak demand savings in 2011.

In Market Date: May 31, 2011

Lessons Learned:

- Customer data is not provided by the OPA on an individual customer basis due to contractual requirements with the aggregators. This limits LDCs' ability to effectively market to prospective participants. LDCs are now approaching the Aggregators individually and working to develop agreements in order to identify potential customers of this initiative.

2.2.4 LOW INCOME INITIATIVE (HOME ASSISTANCE PROGRAM) (Schedule E)

Target Customer Type(s): Income Qualified Residential Customers

Initiative Frequency: Year Round

Objective: The objective of this Initiative is to offer free installation of energy efficiency measures to income qualified households for the purpose of achieving electricity and peak demand savings.

Description: This is a turnkey Initiative for income qualified customers. It offers residents the opportunity to take advantage of free installation of energy efficient measures that improve the comfort of their home, increase efficiency, and help them save money. All eligible customers receive a Basic and Extended Measures Audit, while customers with electric heat also receive a Weatherization Audit. The Initiative is designed to coordinate efforts with gas utilities.

Targeted End Uses: End uses based on results of audit

Delivery: LDC delivered.

Additional detail is available:

- Schedule E- http://www.powerauthority.on.ca/sites/default/files/page/Low%20Income%20Schedule%20-%20redacted%20version.pdf

Initiative Activities/Progress:

- The Home Assistance Program ("HAP") went through a number of changes in program elements through the OPA, as well as the Low Income Working Group, resulting in delays in implementation.
- Hydro One worked with CLD members to develop a HAP RFP template. Hydro One customized this RFP to address its unique needs in order to contract with a delivery firm responsible for executing the home audits and installing measures. Subsequently a deliberate RFP selection process began at the end of the year.
- The program was launched in mid-2012.

In Market Date: 2012

Lessons Learned:

- This Initiative Schedule was finalized later (May 2011) than the rest of the OPA Initiatives and in 2011 only 2 LDCs were in market.
- Centralized payment processes were not developed in 2011, and were still not implemented at the end of Q2 2012. This resulted in some LDCs delaying their launch to market, or for some, pulling out of the market until the payment processes were completed.
- The financial scope, complexity, and customer privacy requirements of this Initiative resulted in a lengthy procurement process. Some LDCs must adhere to very transparent procurement processes which meant that delivery of the program did not start in 2011.

- Some segments of the target market are not easily identified, and tend not to self-identify. However, Hydro One does have a significant list of Low-Income Energy Assistance Program ("LEAP") participants from the last 12 months with which it has initiated its outreach activities.

2.2.5 PRE-2011 PROGRAMS COMPLETED IN 2011

Hydro One's results from pre-2011 programs completed in 2011 were 23.1 GWh and 4.9 MW in savings.

2.2.5.1 ELECTRICITY RETROFIT INCENTIVE PROGRAM

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year Round

Objective: Refer to Section 2.2.2.1

Description: Refer to Section 2.2.2.1

Targeted End Uses: Refer to Section 2.2.2.1

Delivery: LDC delivered

Initiative Activities/Progress: Hydro One employed a similar strategy to promote ERIP as it is currently employing under the ERII Initiative. Hydro One combined a top down approach working directly with customers, as well as a bottom up approach working with trade allies. Utilizing this combined approach, the program saw immense growth from 2007 to 2010.

In Market Date: October 2007.

Lessons Learned:

- Annual reviews of measure incentive levels to maintain alignment with market conditions proved to be very important.
- The application process should be kept simple to encourage participation.

2.2.5.2 HIGH PERFORMANCE NEW CONSTRUCTION

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year Round

Objective: Refer to Section 2.2.2.4

Description: Refer to Section 2.2.2.4

Targeted End Uses: Refer to Section 2.2.2.4

Delivery: This program was managed by the OPA. Enbridge Gas Distribution was contracted by the OPA to deliver this Initiative.

In Market Date: 2008

2.2.5.3 TORONTO COMPREHENSIVE INITIATIVE

Target Customer Type(s): Commercial and Institutional Customers

Initiative Frequency: Year Round

Description: This Initiative is specific to Toronto Hydro and was not offered in Hydro One's service territory.

2.2.5.4 MULTIFAMILY ENERGY EFFICIENCY REBATES

Target Customer Type(s): Multifamily buildings of six units or more

Initiative Frequency: Year Round

Description: OPA's Multifamily Energy Efficiency Rebates ("MEER") Initiative applies to multifamily buildings of six units or more, including rental buildings, condominiums, and assisted social housing. The OPA contracted with GreenSaver to deliver the MEER Initiative outside of the Toronto Hydro service territory. Activities delivered in Toronto were contracted with the City.

Similar to ERII and ERIP, MEER provides financial incentives for prescriptive and custom measures, but also funds resident education. Unlike ERII, where incentives are paid by the LDC, all incentives through MEER are paid through the contracted partner (i.e. GreenSaver).

Delivery: This program was managed by the OPA. GreenSaver was contracted by the OPA to deliver this Initiative.

In Market Date: 2008 to December 2010

2.2.5.5 DATA CENTRE INCENTIVE PROGRAM

Initiative Frequency: Year Round

Description: This Initiative is specific to Powerstream and was not offered in Hydro One's service territory.

2.2.5.6 ENWIN GREEN SUITES

Initiative Frequency: Year Round

Description: This Initiative is specific to EnWin's Utilities and was not offered in Hydro One's service territory.

2.3 Participation

Include the detailed participation levels (i.e., the number of participants by customer type) for each of the OPA-Contracted Province-Wide CDM Programs that the distributor offered in its service area. This section is to be populated with OPA EM&V results for 2011 specific to the LDC as provided by the OPA on August 31st, 2012

Table 1: Participation

#	Initiative	Activity Unit	Uptake/ Participation Units
Consumer Program			
1	Appliance Retirement	Appliances	17,394
2	Appliance Exchange	Appliances	939
3	HVAC Incentives	Equipment	14,044
4	Conservation Instant Coupon Booklet	Products	190,168
5	Bi-Annual Retailer Event	Products	260,915
6	Retailer Co-op	Products	0
7	***peaksaver®*** extension	Devices	1,956
10	Residential New Construction	Houses	0
Business Program			
11	Equipment Replacement Incentive (ERII)	Projects	294
12	Direct Installed Lighting	Projects	4,291
14	Building Commissioning	Buildings	0
15	New Construction	Buildings	6
16	Energy Audit	Audits	3
17	***peaksaver®*** extension	Devices	0
19	Demand Response 3	Facilities	15
Industrial Program			

20	Process & System Upgrades*	Projects	
#	**Initiative**	**Activity Unit**	**Uptake/ Participation Units**
	a) Preliminary Engineering Study		0
	b) Detailed Engineering Study		1
	c) Project Incentive		0
21	Monitoring & Targeting	Projects	0
22	Energy Manager	Managers	0
23	Equipment Replacement Incentive (ERII)	Projects	55
25	Demand Response 3	Facilities	21
Home Assistance Program			
26	Home Assistance Program	Units	0
Pre 2011 Programs Completed in 2011			
27	Electricity Retrofit Incentive Program	Projects	388
28	High Performance New Construction	Projects	53
29	Toronto Comprehensive	Projects	N/A
30	Multifamily Energy Efficiency Rebates	Projects	0
31	Data Centre Incentive Program	Projects	N/A
32	EnWin Green Suites	Projects	N/A

2.4 Spending

Describe and detail the funds the distributor spent, both cumulatively and in the one year period applicable to the Annual Report, on each of the OPA-Contracted Province-Wide CDM Programs that the distributor offered in its service area.

Table 2: 2011 Spending

#	Initiative	Program Administration Budget (PAB)	Participant Based Funding (PBF)	Participant Incentives (PI)	Capability Building Funding (CBF)	TOTAL
Consumer Program						
1	Appliance Retirement	$209,097	0	0	0	$209,097
2	Appliance Exchange	$117,461	0	0	0	$117,461
3	HVAC Incentives	$189,277	0	0	0	$189,277
4	Conservation Instant Coupon Booklet	$389,414	0	0	0	$389,414
5	Bi-Annual Retailer Event	$297,704	0	0	0	$297,704
6	Retailer Co-op	0	0	0	0	0
7	***peaksaver®*** Extension	$631,083		$48,900	0	
10	Residential New Construction	$121,554	0	0	0	$121,554
Business Program						
11	Equipment Replacement Incentive	$764,367	0	$643,830	0	$1,408,197
12	Direct Installed Lighting	$454,550		$3,929,891	0	
14	Building Commissioning	$610	0	0	0	$610
15	New Construction	$31,757	0	0	0	$31,757

#	Initiative	Program Administration Budget (PAB)	Participant Based Funding (PBF)	Participant Incentives (PI)	Capability Building Funding (CBF)	TOTAL
16	Energy Audit	$14,060	0	$9,170	0	$23,230
17	***peaksaver®*** Extension	0	0	0	0	0
19	Demand Response 3	$7,221	0	0	0	$7,221
Industrial Program						
20	Process & System Upgrades	$182,545	0	0	0	$182,545
	a) Preliminary Engineering Study	0	0	0	0	0
	b) Detailed Engineering Study	0	0	0	0	0
	c) Project Incentive	0	0	0	0	0
21	Monitoring & Targeting	0	0	0	0	0
22	Energy Manager	0	0	0	0	0
23	Equipment Replacement Incentive	$72,940	0	0	0	$72,940
25	Demand Response 3	$33,687	0	0	0	$33,687
Home Assistance Program						
26	Home Assistance Program	$95,819	0	0	0	$95,819
Pre 2011 Programs Completed in 2011						
27	Electricity Retrofit Incentive Program	0	0	$2,780,401	0	$2,780,401
28	High Performance New Construction	0	0	0	0	0
29	Toronto Comprehensive	0	0	0	0	0

#	Initiative	Program Administration Budget (PAB)	Participant Based Funding (PBF)	Participant Incentives (PI)	Capability Building Funding (CBF)	TOTAL
30	Multifamily Energy Efficiency Rebates	0	0	0	0	0
31	Data Centre Incentive Program	0	0	0	0	0
32	EnWin Green Suites	0	0	0	0	0
	TOTAL Province-wide CDM PROGRAMS	**$3,613,146**	**$1,953,667**	**$7,412,192**	**0**	**$12,979,005**

Describe and detail the allocation of funds, both cumulatively and in the one year period applicable to the Annual Report, on each of the following OPA-Contracted Province-Wide CDM Programs that over the course of 2011 were Not In Market.

Table 2a: Allocation of PAB funding for Programs Not In Market

#	Initiative	Program Administration Budget (PAB)
Initiatives Not In Market		
8	Midstream Electronics	$23,801
9	Midstream Pool Equipment	$31,128
13	Demand Service Space Cooling	$2,951
18	Demand Response 1 (Commercial)	$20,907
19	Demand Response 1 (Industrial)	$40,287
33	Home Energy Assessment Tool	$2,492
	TOTAL Province-wide CDM PROGRAMS Not In Market	**$121,566**

2.5 Evaluation

Provide a detailed discussion that reports on the EM&V results for each of the distributor's OPA-Contracted Province-Wide CDM Programs using the OPA EM&V Protocols for peak demand savings (kW) and electricity savings (kWh).

2.5.1 Evaluation Findings

Table 3: Evaluation Findings—The following are province wide results and reflect provincial totals or averages.

#	Initiative	Evaluation Findings
Consumer Program		
1	Appliance Retirement	Overall participation continues to decline year over year • Participation declined 17% from 2010 (from over 67,000 units in 2010 to over 56,000 units in 2011) 97% of net resource savings achieved through the home pick-up stream • Measure Breakdown: 66% refrigerators, 30% freezers, 4% Dehumidifiers and window air conditioners 3% of net resource savings achieved through the Retailer pick-up stream • Measure Breakdown: 90% refrigerators, 10% freezers Net-to-Gross ratio for the initiative was 50% • Measure-level free ridership ranges from 82% for the retailer pick-up stream to 49% for the home pick-up stream • Measure-level spillover ranges from 3.7% for the retailer pick-up stream to 1.7% for the home pick-up stream
2	Appliance Exchange	Overall eligible units exchanged declined by 36% from 2010 (from over 5,700 units in 2010 to over 3,600 units in 2011) • Measure Breakdown: 75% window air conditioners, 25% dehumidifiers Dehumidifiers and window air conditioners contributed almost equally to the net energy savings

#	Initiative	Evaluation Findings
		achieved • Dehumidifiers provide more than three times the energy savings per unit than window air conditioners Window air conditioners contributed to 64% of the net peak demand savings achieved Approximately 96% of consumers reported having replaced their exchanged units (as opposed to retiring the unit) Net-to-Gross ratio for the initiative is consistent with previous evaluations (51.5%)
3	HVAC Incentives	Total air conditioner and furnace installations increased by 14% (from over 95,800 units in 2010 to over 111,500 units in 2011) • Measure Breakdown: 64% furnaces, 10% tier 1 air conditioners (SEER 14.5) and 26% tier 2 air conditioners (SEER 15) • Measure breakdown did not change from 2010 to 2011 The HVAC Incentives initiative continues to deliver the majority of both the energy (45%) and demand (83%) savings in the consumer program • Furnaces accounted for over 91% of energy savings achieved for this initiative Net-to-Gross ratio for the initiative was 17% higher than 2010 (from 43% in 2010 to 60% in 2011) • Increase due in part to the removal of programmable thermostats from the program, and an increase in the net-to-gross ratio for both Furnaces and Tier 2 air conditioners (SEER 15)
4	Conservation Instant Coupon Booklet	Customers redeemed nearly 210,000 coupons, translating to nearly 560,000 products • Majority of coupons redeemed were downloadable (~40%) or LDC-branded (~35%) • Majority of coupons redeemed were for multi-packs of standard spiral CFLs (37%), followed by multi-packs of specialty CFLs (17%) Per unit savings estimates and net-to-gross ratios for 2011 are based on a weighted average of 2009 and 2010 evaluation findings Careful attention in the 2012 evaluation will be made for standard CFLs since it is believed that the

#	Initiative	Evaluation Findings
		market has largely been transformed
5	Bi-Annual Retailer Event	Customers redeemed nearly 370,000 coupons, translating to over 870,000 products • Majority of coupons redeemed were for multi-packs of standard spiral CFLs (49%), followed by multi-packs of specialty CFLs (16%) Per unit savings estimates and net-to-gross ratios for 2011 are based on a weighted average of 2009 and 2010 evaluation findings • Standard CFLs and heavy duty outdoor timers were reintroduced to the initiative in 2011 and contributed more than 64% of the initiative's 2011 net annual energy savings • While the volume of coupons redeemed for heavy duty outdoor timers was relatively small (less than 1%), the measure accounted for 10% of net annual savings due to high per unit savings Careful attention in the 2012 evaluation will be made for standard CFLs since it is believed that the market has largely been transformed.
6	Retailer Co-op	Initiative was not evaluated in 2011 due to low uptake. Verified Bi-Annual Retailer Event per unit assumptions and free-ridership rates were used to calculate net resource savings
7	***peaksaver***® extension	Approximately 20,000 new devices were installed in 2011 • 99% of the new devices enrolled controlled residential central AC (CAC) 2011 only saw 1 atypical event (in both weather and timing) that had limited participation across the province • The ex ante impact developed through the 2009/2010 evaluations was maintained for 2011; residential CAC: 0.56 kW/device, commercial CAC: 0.64 kW/device, and Electric Water Heaters: 0.30 kW/device
10	Residential New Construction	Initiative was not evaluated in 2011 due to limited uptake Business case assumptions were used to calculate savings
Business Program		
11	Retrofit	Gross verified energy savings were boosted by lighting projects in the prescriptive and custom measure tracks Lighting projects overall were determined to have a realization rate of 112%; 116% when including

#	Initiative	Evaluation Findings
		interactive energy changes • On average, the evaluation found high realization rates as a result of both longer operating hours and larger wattage reductions than initial assumptions • Low realization rates for engineered lighting projects due to overstated operating hour assumptions Custom non-lighting projects suffered from process issues such as: the absence of required M&V plans, the use of inappropriate assumptions , and the lack of adherence to the M&V plan The final realization rate for summer peak demand was 94% • 84% was a result of different methodologies used to calculate peak demand savings • 10% due to the benefits from reduced air conditioning load in lighting retrofits Overall net-to-gross ratios in the low 70's represent an improvement over the 2009 and 2010 ERIP program where net-to-gross ratios were in the low 60's and low 50's, respectively. Strict eligibility requirements and improvements in the pre-approval process contributed to the improvement in net-to-gross ratios
12	Direct Installed Lighting	Though overall performance is above expectations, participation continues to decline year over year as the initiative reaches maturity 70% of province-wide resource savings persist to 2014 • Over 35% of the projects for 2011 included at least one CFL measure • Resource savings from CFLs in the commercial sector only persist for the industry standard of 3 years Since 2009 the overall realization rate for this program has improved • 2011 evaluation recorded the highest energy realization rate to date at 89.5% • The hours of use values were held constant from the 2010 evaluation and continue to be the main driver of energy realization rate • Lights installed in "as needed" areas (e.g., bathrooms, storage areas) were determined to have very low realization rates due to the difference in actual energy saved vs. reported

#	Initiative	Evaluation Findings
		savings
14	Building Commissioning	Initiative was not evaluated in 2011, no completed projects in 2011
15	New Construction	Initiative was not evaluated in 2011 due to low uptake Assumptions used are consistent with preliminary reporting based on the 2010 Evaluation findings and consultation with the C&I Work Group (100% realization rate and 50% net-to-gross ratio)
16	Energy Audit	The evaluation is ongoing. The sample size for 2011 was too small to draw reliable conclusions.
17	***peaksaver***® extension	See residential demand response (#7)
19	Demand Response 3	See Demand Response 3 (#20)
Industrial Program		
20	Process & System Upgrades	Initiative was not evaluated in 2011, no completed projects in 2011
21	Monitoring & Targeting	Initiative was not evaluated in 2011, no completed projects in 2011
22	Energy Manager	Initiative was not evaluated in 2011, no completed projects in 2011
23	Retrofit (Industrial Buildings)	See Efficiency: Equipment Replacement (#9)
25	Demand Response 3	Program performance for Tier 1 customers increased with DR-3 participants providing 75% of contracted MW for both sectors • Industrial customers outperform commercial customers by provide 84% and 76% of contracted MW, respectively Program continues to diversify but still remains heavily concentrated with less than 5% of the contributors accounting for the majority (~60%) of the load reductions. By increasing the number of contributors in each settlement account and implementation of the new baseline methodology the performance of the program is expected to increase
Home Assistance Program		
26	Home Assistance Program	Initiative was not evaluated in 2011 due to low uptake Business Case assumptions were used to calculate savings
Pre-2011 Programs completed in 2011		
27	Electricity Retrofit Incentive Program	Initiative was not evaluated Net-to-Gross ratios used are consistent with the 2010 evaluation findings (multifamily buildings

#	Initiative	Evaluation Findings
		99% realization rate and 62% net-to-gross ratio and C&I buildings 77% realization rate and 52% net-to-gross ratio)
28	High Performance New Construction	Initiative was not evaluated Net-to-Gross ratios used are consistent with the 2010 evaluation findings (realization rate of 100% and net-to-gross ratio of 50%)
29	Toronto Comprehensive	Initiative was not evaluated Net-to-Gross ratios used are consistent with the 2010 evaluation findings
30	Multifamily Energy Efficiency Rebates	Initiative was not evaluated Net-to-Gross ratios used are consistent with the 2010 evaluation findings
31	Data Centre Incentive Program	Initiative was not evaluated
32	EnWin Green Suites	Initiative was not evaluated

2.5.2 Evaluation Results

Table 4: Evaluation Results- The following results for Hydro One are based on the province-wide adjustment percentages. The adjustments are not LDC-pecific.

#	Initiative	Total Adjustments to Net Savings		Gross Savings		Net Savings		Contribution to Targets	
		Peak Demand Savings	Energy Savings	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Program-to-Date: Net Annual Peak Demand Savings (kW) in 2014	Program-to-Date: 2011-2014 Net Cumulative Energy Savings (kWh)
Consumer Program									
1	Appliance Retirement	51%	52%	2,093	14,273,538	1,045	7,306,925	1,007	29,193,946
2	Appliance Exchange	52%	52%	185	226,591	95	116,777	36	414,016
3	HVAC Incentives	60%	60%	7,092	13,575,382	4,255	8,101,055	4,255	32,404,220
4	Conservation Instant Coupon Booklet	115%	112%	434	6,678,166	497	7,415,670	497	29,662,680
5	Bi-Annual Retailer Event	113%	110%	451	8,064,075	504	8,810,008	504	35,240,033
6	Retailer Co-op	n/a	n/a	0	0	0	0	0	0
7	***peaksaver***® extension	n/a	n/a	1,095	2,836	1,095	2,836	0	2,836
10	Residential New Construction	n/a	n/a	0	0	0	0	0	0
Business Program									
11	Retrofit	73%	75%	3,201	17,735,323	2,346	13,286,676	2,346	53,146,706
12	Direct Installed Lighting	93%	93%	4,946	14,679,124	5,296	13,630,141	3,361	49,125,164
13	Direct Service Space Cooling	n/a	n/a	0	0	0	0	0	0
14	Building Commissioning	n/a	n/a	0	0	0	0	0	0

#	Initiative	Total Adjustments to Net Savings		Gross Savings		Net Savings		Contribution to Targets	
		Peak Demand Savings	Energy Savings	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Peak Demand Savings	Energy Savings
15	New Construction	50%	50%	174	504,015	87	252,008	87	1,008,030
16	Energy Audit	n/a	n/a	0	0	0	0	0	0
17	***peaksaver***® extension	n/a	n/a	0	0	0	0	0	0
19	Demand Response 3	n/a	n/a	1,218	36,069	921	36,069	0	36,069
Industrial Program									
20	Process & System Upgrades	n/a	n/a	0	0	0	0	0	0
21	Monitoring & Targeting	n/a	n/a	0	0	0	0	0	0
22	Energy Manager	n/a	n/a	0	0	0	0	0	0
23	Industrial Electricity Retrofit	72%	74%	627	4,203,617	453	3,097,420	453	12,389,680
25	Demand Response 3	n/a	n/a	16,125	797,689	13,590	797,689	0	797,689
Home Assistance Program									
26	Home Assistance Program	n/a	n/a	0	0	0	0	0	0
Pre-2011 Programs completed in 2011									
27	Electricity Retrofit Incentive Program	52%	52%	5,345	23,759,675	2,784	12,387,111	2,784	49,548,680
28	High Performance New Construction	50%	50%	4,174	21,439,878	2,087	10,719,939	2,087	42,879,755
29	Toronto Comprehensive		*Not Applicable to Hydro One Service Territory*						
30	Multifamily Energy Efficiency Rebates	n/a	n/a	0	0	0	0	0	0
31	Data Centre Incentive Program		*Not Applicable to Hydro One Service Territory*						
32	EnWin Green Suites		*Not Applicable to Hydro One Service Territory*						

Table 5: Summarized Program Results

Program	Gross Savings		Net Savings		Contribution to Targets	
	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Program-to-Date: Net Annual Peak Demand Savings (kW) in 2014	Program-to-Date: 2011-2014 Net Cumulative Energy Savings (kWh)
Residential Program Total	11,351	42,820,589	7,491	31,753,271	6,298	126,917,731
Commercial & Institutional Program Total	9,539	32,954,530	8,650	27,204,894	5,794	103,315,969
Industrial Program Total	16,752	5,001,306	14,042	3,895,109	453	13,187,370
Home Assistance Program Total	0	0	0	0	0	0
Pre-2011 Programs completed in 2011 Total	9,519	45,199,552	4,871	23,107,050	4,871	92,428,199
Total OPA Contracted Province-Wide CDM Programs	**47,162**	**125,975,978**	**35,054**	**85,960,324**	**17,416**	**335,849,268**

2.6 Additional Comments

Provide any additional information related to the OPA-Contracted Province-Wide CDM Programs that the distributor feels is appropriate.

2.6.1 2011 - A Transitional Year

Hydro One's 2011 results were achieved using the OPA-Contracted Province Wide programs made available by the OPA by the end of that year. This has been a transitional year for Conservation and Demand Management in Ontario, most of which was spent on the development of programs for Provincial roll-out.

Hydro One played a key role in addressing several of the obstacles which hindered Initiative implementation throughout 2011. Hydro One was engaged in the development of schedules, preparing innovative arrangements for procurement of products and services, and developing solutions to address concerns with payment and results tracking processes.

2.6.2 Procurement of Products and Services

Hydro One's procurement process must comply with provincial rules. Currently, the process can take up to six to eight months depending on the complexity of the services/products being procured. Due to the length of the process it is critical that OPA approved programs be released in a timely manner to facilitate the procurement process.

In 2011, Hydro One issued seven public Requests for Proposals (RFPs) for services and products in support of Hydro One's CDM Program Initiatives. Five of the RFP's were developed and/or issued in conjunction with members of the Coalition of Large Distributors ("CLD") and/or EDA Working Groups for enhanced efficiency.

The following table provides a list of public RFPs issued by Hydro One in 2011:

Table 6: List of Hydro One public RFPs

CDM RFPs	Comment	On-Street Release	Closed	Evaluation Complete	Contract Signed
Direct Install Lighting	**For Hydro One Delivery Services**	**May 2/11**	**May 16/11**	**May 31/11**	**Aug 24/11**

CDM RFPs	Comment	On-Street Release	Closed	Evaluation Complete	Contract Signed
Pre/Post Evaluations	**Participating CLD utilities develop common Terms of Reference for ERII and other Commercial Initiative Evaluations**	**Jun 7/11**	**Jun 27/11**	**Sep 23/11**	**Jan 31/12**
Peaksaver IHD Procurement	**Members of EDA DR Working Group act as Technical Advisors during product evaluation**	**Jul 15/11**	**Aug 15/11**	**--**	**--**
Industrial Key Account Managers (KAM)	**Hydro One acts as "Representative LDC" in procuring services on behalf of Hydro One and four other LDCs**	**Aug 12/11**	**Sep 8/11**	**Nov 11/11**	**Apr 25/12**
Commercial Account Managers	**Issued in conjunction with KAM RFP noted above**	**Aug 12/11**	**Sep 8/11**	**Nov 11/11**	**Mar 14/12**
Marketing Services	**Hydro One Creative Marketing and Event Management services**	**Sep 21/11**	**Oct 27/11**	**Dec 22/11**	**Mar 7/12**
Home Assistance Program	**A common Terms of Reference developed and used by several LDCs**	**Sep 30/11**	**Dec 30/11**	**Mar 12/12**	**Jun 26/12**

The procurement process for these products and services required relatively longer procurement lead time for several reasons. First, these RFPs were very diverse in scope, complexity, and degree of confidentiality. Second, Hydro One acted as the lead on behalf of other LDCs whereby a framework for procurement was developed to ensure that several LDCs could benefit from a streamlined competitive procurement process. This framework required upfront development time to engage and reflect the needs of other LDCs. Third, some RFPs required procurement of leading-edge technologies which are not commonly available. For example, finding an In-Home-Display (IHD) technology that met the OPA's mandatory specifications and that would integrate with the Hydro One Smart Meters required extensive engagement from Hydro One's Smart Meter team, Smart Meter supplier, IT resources, and vendors.

Delivery activity for programs requiring RFPs cannot commence until the contract is signed; results for 2011 reflect this. The contracts have been signed for periods of three or four years, and therefore we can expect improvement in participation levels.

2.6.3 Customer Needs

Conservation and Demand Management helps all classes of Hydro One customers better manage their electricity usage and cost. It is important to continue to serve our customers' CDM needs as we go forward, approaching 2014 and beyond through existing, enhanced, and new program offerings.

Several residential programs are nearing market saturation (e.g.: Appliance retirement). Customers need a wide range of enhanced and new initiatives to continue to gauge their interest and participation through the use of technology development and innovation. Business and industrial customers need innovative program offerings that enhance their competitiveness and recognize the nature of their planning and budgeting cycles as well as investment decisions.

Program initiatives need to be dynamic and flexible to accommodate residential and business customers' needs. Clarity about CDM beyond 2014 is critical to ensuring continued customer participation. This would help increase customers' confidence and prevent a "stop and go" environment which would also increase participation levels in 2011-2014. For example, several current Initiatives with long engineering and construction phases, such as High Performance New Construction (HPNC) intrinsically require long lead times. The planning for many large facilities, such as hotels, hospitals, factories, and processing plants must happen very soon for implementation before the end of 2014. This would also apply to PSUI, where applications for Detailed Engineering Studies need to be submitted soon to ensure projects are constructed, commissioned, and placed in-service before the end of 2014.

2.6.4 Conclusion

2011 presented significant transition for the OPA, LDCs, and Hydro One. In spite of this, Hydro One's results for 2011 were only 3.2% and 1.5% below target for peak demand and energy savings, respectively. With our services procured, the OPA-to-LDC reporting processes established and now maturing, and a more efficient change management process, Hydro One is positioned for significant traction and improved results from OPA Initiatives for the 2012-2014 reporting period. Clarity about CDM beyond 2014 would ensure that the needs of our customers are satisfied now and in the future.

2.6.5 Going Forward

Drawing from this experience, there are several lessons learned that would help bridge to a smooth transition for CDM beyond 2014 including a better understanding of the time and effort required to develop and implement new provincial programs. A new program cycle typically takes between 18-36 months to develop and launch. This involves:

- Program design, business case and cost effectiveness analysis, consultation, stakeholdering
- Schedule development with OPA
- RFP development and procurement
- Marketing and education
- Program awareness
- Launch to market
- Customer purchasing cycles

Forward thinking and planning is needed well in advance of 2014 to allow for a seamless transition, continuity in the market, and to ensure the development of new innovative Program Initiatives.

3.1 Progress Towards CDM Targets

Provide a summary of the distributor's progress towards meeting its CDM Targets, an explanation for any significant variances between the annual milestones contained in the distributor's CDM Strategy and the verified results achieved by the distributor for the reporting year, and an explanation of the potential impact that the aforementioned significant variances may have with respect to the distributor meeting its CDM Targets.

[Tables 7 and 8 measure the LDC performance in 2011 against its target for 2011 as set out by its Strategy Submission to the OEB for the same year.]

2011 was a transitional yet successful year for Hydro One. Hydro One's Strategy, which was presented to the OEB on November 1, 2010, had originally assumed all OPA Program Initiatives, schedules, delivery channels, and processes to be in place by January 1, 2011 in order to enable Hydro One to fully deploy Initiatives, proceed with marketing plans and progress with procurement. The Strategy also outlined that Hydro One's target would be achieved using a suite of both OPA-Contracted Province-Wide CDM Programs and Board Approved Programs Providing approximately 80% and 20% of Hydro One's target, respectively.

Hydro One's CDM Strategy Plan forecasted that, between the OPA-Contracted and OEB Approved Programs, 2011 would deliver about 42 MW or 19.6% of Hydro One's 214 MW Peak Demand target and 96 GWh or 8.5% in 2011 (with a cumulative effect of 31.2%) of its 1,130 GWh Energy Savings target. In 2011, Hydro One achieved 35.1 MW and 86.0 GWh, that is, 7 MW and 10 GWh below the 2011 savings forecast. These results were achieved by delivering all Province-Wide Programs made available by the OPA, taking full advantage of new available marketing and delivery channels, and creating workarounds to offset barriers to customer participation. Considering the extensive program set up activities, Hydro One has made significant progress towards its targets.

Hydro One has worked cooperatively with other LDCs, developing joint delivery strategies where possible. In addition, Hydro One was active in procurement and in business development involving large commercial accounts with multiple branch offices which assisted several LDCs in achieving significant savings through implementation of the ERII Head Office Model. The Head Office Model is described in detail in section 3.2.5.3.

Hydro One presents several options to continue to work towards meeting its 2011-2014 peak demand and energy savings targets which are outlined in section 3.2. These include the option to deliver new OPA programs and the opportunity to introduce Board Approved Programs. These options will further increase customer participation, deepen program results, as well as improve customer satisfaction.

Table 7: Net Peak Demand Savings at the End User Level (MW)

Implementation Period	Annual (MW)			
	2011	2012	2013	2014
2011 – Verified	35.05	19.45	19.44	17.42
2012				
2013				
2014				
Verified Net Annual Peak Demand Savings in 2014:				**17.42**
Hydro One 2014 Annual CDM Capacity Target:				**213.66**
Verified Portion of Peak Demand Savings Target Achieved-2011 (%):				**16.4%**
[42 MW] - LDC Strategy Milestone submitted for 2011:				**19.6%**
Variance				**-3.2%**

As compared to its 2011 Strategy forecast of 42 MW, Hydro One delivered 35.1 MW of peak demand savings, or 7 MW below forecast. This represents a negative variance of 3.2% (16.4% - 19.6%) which is expected to be recovered in the years 2012 – 2014 using the range of measures as discussed in Section 3.2.

Hydro One recognizes that the peak demand savings results reported in 2011 for 2012-2014 are conservative. Hydro One anticipates that these results would be respectively higher than reported above to reflect the expected persistence beyond the assumed one-year for DR3 and for peaksaver. Hydro One is confident that the majority of DR3 participants are under contract until the end of 2014. As well, peaksaver thermostats have a twelve year life and demand response capability is expected to predominantly persist throughout the 2012-2014 period.

Table 8: Net Energy Savings at the End-User Level (GWh)

Implementation Period	Annual (GWh)				Cumulative
	2011	2012	2013	2014	2011-2014
2011 – Verified	85.96	85.12	85.10	79.67	335.85
2012					
2013					
2014					
Verified Net Cumulative Energy Savings 2011-2014:					**335.85**
Hydro One 2011-2014 Cumulative CDM Energy Target:					**1,130.21**
Verified Portion of Cumulative Energy Target Achieved (%):					**29.7%**
[96 GWh] - LDC Strategy Milestone submitted for 2011*:					**31.2%**
Variance					**-1.5%**

* The 96 GWh has a cumulative energy savings impact of 353 GWh (when considering that some behavioral programs had an assumed one-year persistency). Therefore, the forecasted energy savings was 31.2% (353 / 1130).

As compared to its 2011 Strategy forecast of 96 GWh, Hydro One delivered 85.96 GWh of energy savings, or 10 GWh below forecast. This represents a negative variance of - 1.5% (29.7-31.2%) by 2014. It is expected that this variance would be recovered in the years 2012 – 2014 using the range of measures as discussed in Section 3.2.

3.2 CDM Strategy Modifications

Detail any changes or planned modifications to the distributor's CDM Strategy. This section is to be populated by the LDC using data provided by OPA-LDC would be able to address the difference of the actual results for the variance in 2011 from the LDC's Strategy milestone submitted for the year 2011, and include a statement regarding how and whether the variance could be offset.

By the end of the year, Hydro One had been successful at launching the 2011-2014 OPA-Contracted Province Wide programs made available by the OPA. The results for 2011 amounted to 35.1 MW in demand savings and 86 GWh in energy savings. This was 7 MW and 10 GWh below the forecast for 2011 as submitted in the Strategy Plan.

Hydro One will continue reviewing the current suite of programs available to its customers, to identify potential energy efficiency opportunities, and to increase customer participation and results. The following are some additional strategic options that may be explored:

- Introduce new and enhanced OPA-Contracted Province-Wide Program Initiatives or measures for immediate implementation by LDCs
- Introduce potential new Board Approved Programs
- Assist OPA to assess and allocate TOU results to LDCs in general, and Hydro One in particular, as they may account for a significant portion of the targets
- Leverage other activities, including:
    - Broaden the provincial air coverage at initiative level, or allocate marketing funds to LDCs to manage
    - Continuous feedback and cooperation on the Change Management recommendations for OPA Contracted Programs
    - Consider enhancing the Head Office model whereby the Lead LDC is rewarded for helping other satellite LDCs reach their targets (please refer to section 3.2.5.3 for more information)
    - Assist the OPA in the launch of their First Nations Program and the attribution of peak demand savings and energy savings back to the LDCs (please refer to section 3.2.5.4 for more information)
- Extending the time frame beyond 2014 to meet customers' needs and business cycles for larger projects.

Hydro One will continue to assess options and work towards meeting the mandated CDM targets using the current OPA initiatives and/or other strategies. The following section provides a discussion of Hydro One's above mentioned possible approaches to meet its target.

3.2.1 Enhance Results from Existing and new OPA Program Initiatives

Hydro One's original plan to meet its target set out by its November 1, 2010 Strategy Plan was based on the availability of ***all*** OPA-contracted programs ***as of January 1, 2011***.

By the end of the year, several of the OPA-Contracted Initiatives which were intended to be in-market for the 2011-2014 period were not launched. Others were introduced in the second half of 2011, or had limited or no customer uptake. This limited the benefit to customers as well as the expected savings from these programs, especially cumulative energy savings which extend beyond 2011 through to 2014.

Hydro One and other LDCs would benefit from the launch of Initiatives not yet brought to market or by other programs introduced in their place. For example, customers would benefit from the **Direct Service Space Cooling** offering which is designed to leverage the Direct Installed Lighting Initiative, and therefore improve cost effectiveness. As such, the Cooling Initiative should be brought to market as soon as possible.

Hydro One will continue to assist the OPA in introducing changes to initiatives to improve customer uptake and to improve current processes.

Additional Suggestions to meet customer's needs and facilitate customer uptake:

- Hydro One will work with the OPA to facilitate customer participation and improve the reporting of results at the LDC level. As an example for the Conservation Instant Coupon Booklet Initiative, Hydro One will provide any assistance to evaluate the option to adopt the Conservation Card which would better track customer use of Conservation Instant Coupon Booklet.

- Hydro One is working with OPA to complete the assessment and adoption of Change Management recommendations proposed in late 2011 to streamline the application processes. Various initiatives' uptake will benefit from these reviews, including the New Construction Initiative (where changes to the current program design will enable tract builders to participate in this program).

- Hydro One's customers would benefit from the expeditious implementation of new OPA programs. In particular, the Small Commercial Energy Management and Load Control Program would benefit thousands of general service customers.

- Hydro One will work with the OPA to address large industrial customer needs under PSUI. The potential of PSUI can be maximized by enabling load displacement generation projects as soon as possible to accommodate these projects' long lead times. This would deliver significant savings and enhance customers' business competitiveness.

3.2.2 Customer Segmentation and Marketing

Current marketing strategies of provincial Initiatives largely adopt a mass market approach. Hydro One has the largest customer base of all electric utilities in Ontario. With over 900,000 residential customers, there is a diverse customer mix and varying customer needs. Its customers range from rural to urban and are spread over a vast geographic area.

Such a diverse customer base requires targeted marketing strategies that send relevant messages that resonate with its customers. In 2012, Hydro One initiated customer research and analytics to achieve increased customer participation. Hydro One will tailor its marketing channels and messages to increase customer awareness, customer participation and saving results of Program Initiatives which would ultimately better meet customer needs.

3.2.3 Board-Approved Programs

Hydro One continues to be of the view that, under the current framework, a suite of OPA and Board-Approved Programs would help ensure that Hydro One meets its CDM targets in a cost-effective manner that provides value to ratepayers. Hydro One's Strategy application to the Board indicated that Board-Approved Programs were expected to provide Hydro One with 49 MW of peak demand savings and 179 GWh of energy savings over the 2011 to 2014 period, including 12 MW and 19 GWh for 2011.

The six programs submitted for Board approval in Hydro One's Strategy Plan (and forecasted to contribute to 20% of the target) were:

- Neighborhood Benchmarking
- Community Education
- Monitoring and Targeting
- Small Commercial Energy Management and Load Control
- Municipal and Hospital Energy Efficiency Performance
- Double Return Plus

OPA stated its intention to adopt four of the above programs on a province-wide basis to the benefit of all Ontario customers. The four programs are Neighbourhood Benchmarking Program, Community Education, Monitoring and Targeting, and Small Commercial Energy Management and Load Control Program. By adopting these programs, OPA would be leveraging Hydro One's expertise in developing CDM programs in Ontario as well as Hydro One's extensive involvement in the design of programs with the OPA, Electricity Distributors Association, and its consultations with the Coalition of Large Distributors, Enbridge Gas Distribution and Union Gas Limited. When the OPA adopts these programs, they will however be two years later than previously planned.

Hydro One will continue to work with the OPA and assess the possibility to launch some (or all) of the four programs in the coming year as part of the Province-Wide suite of programs. If feasible, Hydro One may also come forward to the OEB with Board-Approved Programs. For example, Hydro One may reapply for the Double Return Plus Program or develop the Residential Voltage Reduction Program referenced in Hydro One's Strategy Plan.

3.2.4 Time-of-Use Allocation

According to OPA's preliminary estimates, as of April 2010, TOU savings were estimated to be 308 MW province-wide. These estimated savings were allocated to LDCs peak demand targets based on the LDCs share of provincial peak demand. As discussed in section 1.2.2, Hydro One's amount of TOU estimated savings included in our 2014 peak demand target was 49 MW (i.e. 308 x (214 MW /1330 MW)).

The CDM Guideline indicates that LDCs would be able to attribute savings achieved through the implementation of TOU prices towards their conservation targets. Hydro One expects that this will be a key component towards achieving its conservation targets.

3.2.5 Leverage other initiatives

3.2.5.1 Air Coverage

The OPA is responsible for province wide advertising (referred to as air coverage) for most Residential Initiatives (i.e. advertising in national newspapers, radio/television ads, etc.). However, this marketing strategy resulted in providing large urban centres with a larger share of advertising frequency as compared to rural communities which represent most of Hydro One's service area. This negatively impacted Hydro One's customer uptake of respective initiatives in 2011. Energy savings losses as a result of this would have a cumulative effect to 2014.

Hydro One will take an expanded role in multi-channel marketing in its service territory whereby it will undertake more extensive advertising in local community newspapers, and more community–outreach to offset less than expected OPA air coverage in its service territory.

3.2.5.2 Streamline Change Management

The change management process as set out by the Master Agreement allows for modifications to the Master Service Agreement and Initiative Schedules as needed. This is intended to give LDCs additional tools and greater flexibility to deliver programs in a way that meets the needs of customers and further drives participation in the initiatives. However, as a result of the slow implementation process, the initiatives which have been directed to Change Management in 2011, as identified in the lessons' learned throughout section 2, would likely not see changes implemented until late 2012.

Challenges with the Change Management process have been recognized by the OPA and an Expedited Change Management process has been proposed - for simple corrections and updates. The timely implementation and enforcement of the new process is critical for the effectiveness of the Change Management process as we go forward.

3.2.5.3 Head Office Model

Customers of chain account facilities want to efficiently manage their portfolio of assets and have found it difficult to deal with several LDCs, especially small LDCs. For ERIP / ERII, customers have approached Hydro One requesting to only deal with one or two LDCs, and that Hydro One lead their application for many facilities across multiple LDC service territories. In response to this customer need, a Head Office Model was developed where a large LDC manages the customer relationship and project application,(ie. the Lead LDC), and the small LDC (ie. satellite LDC) only needs to inspect the customer facility in their territory upon completion of the project. The demand and energy savings are attributed to the LDC service territory where the participating facility was located regardless of the work, effort, and activity invested by the Lead LDC.

Hydro One supported numerous Ontario LDCs to better serve their large customers through application of the Head Office Model. Specifically, Hydro One took the lead role on behalf of other LDCs for implementing the ERII Initiative. This included business development and procurement as well as acting as the main contact for the LDCs' large customers' chain accounts. Hydro One also oversaw project activities of verified documentation, and completed and submitted applications to the OPA. Once the applications were approved, Hydro One monitored project development with the customer, ensured proper incentive payments were awarded, and issued payment to the customer. LDCs benefiting from this model would need to inspect a 10% sample of the final work.

This approach significantly increased customer uptake of ERII initiatives by enabling participants to coordinate several projects through one LDC. Hydro One currently does not receive any credit toward our targets for work done on projects outside of Hydro One's territory. Based on the time and effort expended by Hydro One, CDM results stemming from the Head Office Model should be shared with Hydro One.

Head Office Model results for 2011	**10.4 GWh**	**2.7 MW**
Hydro One Results	0.7 GWh	0.2 MW (7%)
Other LDCs Results	9.7 GWh	2.5 MW (93%)

As can been seen, Hydro One only receives about 7% of the benefit, yet it contributes significantly more than 50% of the work. Hydro One proposes that a portion of the results related to its head office support to other LDCs be attributed to Hydro One in a manner proportional to its support. Results assigned to Hydro One should be determined upfront based on an agreed upon level of Hydro One involvement.

3.2.5.4 First Nations Program

Hydro One currently has over 20,000 First Nations and Métis customers, who are on grid, in its service territory, and they consume about 1.5% of the total electricity delivered by our distribution system. While all residential CDM programs are available to this group of customers (e.g.: Appliance pick-up, coupons, etc.) the more substantial savings opportunity for this group of customers would be the Home Assistance/ Low Income Program. The OPA has accountability for the design and delivery of Programs targeted towards Aboriginal and First Nations groups in the province including those in Hydro One's service territory. These programs are intended to help First Nation customers realize both conservation savings and renewable energy use in First Nations communities.

OPA's Aboriginal Communities Program (Low Income Program) was not in market in 2011 and as such had zero results to be counted for in this reporting year. Hydro One and the OPA agree that the peak and energy savings from OPA's delivery of the Aboriginal Communities Program will be attributed towards our conservation targets in subsequent years to contribute toward 2014 targets. A similar treatment would be afforded to other LDCs.

Hydro One requires that the OPA delivers conservation Program Initiatives that would attribute approximately 3 MW and 16 GWh to Hydro One's peak demand target (equivalent to the 1.5% share of First Nations of Hydro One's total electricity delivered) by 2014.

3.3 CDM Beyond 2011-2014

It is not clear what the next round of CDM targets would be beyond 2014. Customers need to know if there will be continuity in the programs. Large customers in particular need continuity if they are to proceed with large projects or deeper measures. Continuity is needed because these customers pay for the retrofits, since the incentives may be typically 30% to 50% of the projects costs, and customers need to include their share of costs into their budget and business planning cycles. Clarity beyond 2014 is needed now for continued uptake of several Initiatives - currently in the market - with long engineering and construction phases and/or lengthy application processes, such as High Performance New Construction (HPNC) and PSUI. We foresee fewer new large projects undertaken in 2013 if customers cannot have incentives available beyond 2014.

Lack of clarity with respect to the future of these Initiatives beyond 2014 creates a disincentive for customer uptake. Certainty about the future of these Initiatives would help prevent a "stop and go" environment in the future. This would translate to higher customer satisfaction and higher participation levels in the 2011-2014 CDM timeframe which would lead to increased direct and indirect economic activity in Ontario.

Appendix A – Reporting Glossary (Provided by OPA)

Annual: the peak demand or energy savings that occur in a given year (includes resource savings from new program activity in a given year and resource savings persisting from previous years).

Cumulative Energy Savings: represents the sum of the annual energy savings that accrue over a defined period (in the context of this report the defined period is 2011 - 2014). This concept does not apply to peak demand savings.

End-User Level: resource savings in this report are measured at the customer level as opposed to the generator level (the difference being line losses).

Free-ridership: the percentage of participants who would have implemented the program measure or practice in the absence of the program.

Incremental: the new resource savings attributable to activity procured in a particular reporting period based on when the savings are considered to 'start'.

Initiative: a Conservation & Demand Management offering focusing on a particular opportunity or customer end-use (i.e. Retrofit, Fridge & Freezer Pickup).

Net-to-Gross Ratio: The ratio of net savings to gross savings, which takes into account factors such as free-ridership and spillover.

Net Energy Savings (MWh): energy savings attributable to conservation and demand management activities net of free-riders, etc.

Net Peak Demand Savings (MW): peak demand savings attributable to conservation and demand management activities net of free-riders, etc.

Program: a group of initiatives that target a particular market sector (i.e. Consumer, Industrial).

Realization Rate: A comparison of observed or measured (evaluated) information to original reported savings which is used to adjust the gross savings estimates.

Settlement Account: the grouping of demand response facilities (contributors) into one contractual agreement

Spillover: Reductions in energy consumption and/or demand caused by the presence of the energy efficiency program, beyond the program-related gross savings of the participants. There can be participant and/or non-participant spillover.

Unit: for a specific initiative the relevant type of activity acquired in the market place (i.e.

appliances picked up, projects completed, coupons redeemed).

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Kitchener-Wilmot Hydro Inc.

Conservation and Demand Management

2011 Annual Report

Submitted to:

Ontario Energy Board

Submitted on September 30, 2012

Executive Summary

This annual report is submitted by Kitchener-Wilmot Hydro Inc. in accordance with the filing requirements set out in the CDM Code. 2011 represents Kitchener-Wilmot Hydro's first year of delivering cost effective Conservation Demand Management (CDM) programs to its customer base under the new CDM Code. Kitchener-Wilmot Hydro is pleased to report that the 2011 CDM portfolio generated 12.88 GWh of energy savings and 4.63 MW of peak demand savings in year one and will look to build on this traction in 2012.

Kitchener-Wilmot Hydro did not apply for any Board-Approved CDM Programs during 2011; however, as noted in the CDM guidelines, released April 26, 2012, the Ontario Energy Board (OEB) has deemed Time-of-Use (TOU) pricing a Province-wide Board-Approved CDM Program. The Ontario Power Authority (OPA) is to provide measurement and verification on TOU; thus, for the 2011 timeframe, Kitchener-Wilmot Hydro does not have demand or energy savings to present in this regard.

2011 Program activities were centered on building a foundation for full program execution over the next three years of the program term, including staffing, procurement, and program delivery. Participation in the Consumer and C&I Programs was successful; however, the Industrial Programs saw fewer uptake than originally forecasted largely due to large capital costs and longer sales cycles. As a result, spend level was below the original estimate in the October 2010 Strategy. The dollar shortfall will be carried forward to 2012-2014 for program execution and incentive payments.

Kitchener-Wilmot Hydro believes it is critical to see results and participation from all customers groups to ensure a widespread culture in conservation throughout the Kitchener-Wilmot service territory. Kitchener-Wilmot Hydro will continue to focus on all customer segments going forward to ensure that savings opportunities are available to everyone.

The first year of the 2011-2014 CDM code had its challenges as a new CDM industry was established. One key aspect to Kitchener-Wilmot Hydro's CDM strategy was collaboration with LDCs within the energy sector, both within the electricity and gas industries and was critical to maximizing efficiencies. Kitchener-Wilmot Hydro was able to get out to market quickly largely due to the partnership with Cambridge and North

Dumfries and Waterloo North Hydro also known as the CKW Group. The CKW Group represents the three electric distribution companies serving the Region of Waterloo and has worked together for several years implementing CDM strategy, marketing and delivery tactics. In addition, Kitchener-Wilmot Hydro also has benefited greatly from working closely with its gas partners Kitchener Utilities and Union Gas to promote programs and messaging. Kitchener-Wilmot Hydro will continue to build on these partnerships and continuously look for ways to find commonalities and synergies to maximize budgets and outreach opportunities.

In 2011 Kitchener-Wilmot Hydro made progress towards its energy and peak demand savings CDM targets. Momentum was established across all sectors giving Kitchener-Wilmot Hydro an excellent foundation to build on in the future.

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Background

On March 31, 2010, the Minister of Energy and Infrastructure of Ontario, under the guidance of sections 27.1 and 27.2 of the *Ontario Energy Board Act, 1998*, directed the Ontario Energy Board (OEB) to establish Conservation and Demand Management (CDM) targets to be met by electricity distributors. Accordingly, on November 12, 2010, the OEB amended the distribution license of Kitchener-Wilmot Hydro Inc. (KWH) to require KWH, as a condition of its license, to achieve 90,290 MWh of energy savings and 21.56 MW of summer peak demand savings, over the period beginning January 1, 2011 through December 31, 2014.

In accordance with the same Minister's directive, the OEB issued the Conservation and Demand Management Code for Electricity Distributors (the Code) on September 16, 2010. The code sets out the obligations and requirements with which electricity distributors must comply in relation to the CDM targets set out in their licenses. To comply with the Code requirements, KWH submitted a joint CDM Strategy with Cambridge and North Dumfries Hydro and Waterloo North Hydro on November 1, 2010 which provided a high level of description of how KWH intended to achieve its CDM targets.

The Code also requires a distributor to file annual report with the Board. This Annual Report is therefore prepared accordingly and covers the period from January 1, 2011 to December 31, 2011.

1 Board-Approved CDM Programs

1.1 Introduction

In its Decision and Order dated November 12 2010 (**EB-2010-0215 & EB-2010-0216**), the OEB ordered that, (to meet its mandatory CDM targets), "Each licensed electricity distributor must, as a condition of its license, deliver Board-Approved CDM Programs, OPA-Contracted Province-Wide CDM Programs, or a combination of the two".

At this time, the implementation of Time-of-Use ("TOU") Pricing is the only Board-Approved Conservation and Demand Management ("CDM") program that is being offered in Kitchener-Wilmot Hydro's service area.

1.2 TOU Pricing

1.2.1 Background

In its April 26, 2012 CDM Guidelines, the OEB recognizes that a portion of the aggregate electricity demand target was intended to be attributable to savings achieved through the implementation of TOU Pricing. The OEB establishes TOU prices and has made the implementation of this pricing mechanism mandatory for distributors. On this basis, the OEB has determined that distributors will not have to file a Board-Approved CDM program application regarding TOU pricing. The OEB has deemed the implementation of TOU pricing to be a Board-Approved CDM program for the purposes of achieving the CDM targets. The costs associated with the implementation of TOU pricing are recoverable through distribution rates, and not through the Global Adjustment Mechanism ("GAM").

In accordance with a Directive dated March 31, 2010 by the Minister of Energy and Infrastructure, the OEB is of the view that any evaluations of savings from TOU pricing should be conducted by the Ontario Power Authority (OPA) for the province, and then allocated to distributors. KWH will report these results upon receipt from the OPA. As of September 30, 2012, the OPA has not released its preliminary results of TOU savings to distributors. Therefore KWH is not able to provide any verified savings related to KWH's TOU program at this time.

1.2.2 TOU PROGRAM DESCRIPTION

Target Customer Type(s): Residential and small business customers (up to 250,000 kWh per year).

Initiative Frequency: Year round

Objectives: TOU pricing is designed to incent the shifting of energy usage. Therefore peak demand reductions are expected, and energy conservation benefits may also be realized.

Description: In August of 2010, the OEB issued a final determination to mandate TOU pricing for Regulated Price Plan ("RPP") customers by June 2011, in order to support the Government's expectation for 3.6 million RPP consumers to be on TOU pricing by June 2011, and to ensure that smart meters funded at ratepayer expense are being used for their intended purpose.
The RPP TOU price is adjusted twice annually by the OEB. A summary of the RPP TOU pricing is provided below:

RPP TOU **Rates (cents/kWh)**

Effective Date	On Peak	Mid Peak	Off Peak
01-Nov-10	9.9	8.1	5.1
01-May-11	10.7	8.9	5.9
01-Nov-11	10.8	9.2	6.2
01-May-12	11.7	10	6.5

Delivery: The OEB sets the rates; LDCs install and maintain the smart meters; LDCs convert customers to TOU billing.

Initiative Activities/Progress:
KWH began transitioning its RPP customers to TOU billing on June 2, 2011. At December 31st, 2011, 85,455 customers were on TOU billing.

1.3 Kitchener-Wilmot's Application with the OEB

In 2011, Kitchener-Wilmot Hydro did not file an application for any Board Approved CDM programs. Kitchener-Wilmot Hydro continued to collaborate with other LDCs to weigh in on potential Board approved programs however nothing materialized in 2011.

2 OPA-Contracted Province-Wide CDM Programs

2.1 Introduction

Effective 02/17/2011, Kitchener-Wilmot Hydro Inc. entered into an agreement with the OPA to deliver CDM programs extending from January 1, 2011 to December 31, 2014. In addition, results will be reported from projects started pre-2011 which completed in 2011:

Table 1: CDM Program Listing

Initiative	Schedule	Date schedule posted	Customer Class
Residential Program			
Appliance Retirement	Schedule B-1, Exhibit D	Jan 26 2011	All residential rate classes
Appliance Exchange	Schedule B-1, Exhibit E	Jan 26 2011	All residential rate classes
HVAC Incentives	Schedule B-1, Exhibit B	Jan 26 2011	All residential rate classes
Conservation Instant Coupon Booklet	Schedule B-1, Exhibit A	Jan 26 2011	All residential rate classes
Bi-Annual Retailer Event	Schedule B-1, Exhibit C	Jan 26 2011	All residential rate classes
Residential Demand Response	Schedule B-3	Aug 22 2011	All general service classes
New Construction Program	Schedule B-2	Jan 26 2011	All residential rate classes
Commercial & Institutional Program			
Efficiency: Equipment Replacement	Schedule C-2	Jan 26 2011	All general service classes
Direct Install Lighting	Schedule C-3	Jan 26 2011	General Service < 50 kW
Existing Building Commissioning Incentive	Schedule C-6	Feb2011	All general service classes
New Construction and Major Renovation Initiative	Schedule C-4	Feb 2011	All general service classes
Energy Audit	Schedule C-1	Jan 26, 2011	All general service classes
Commercial Demand Response (part of the Residential program schedule)	Schedule B-3	Jan 26, 2011	All general service classes
Demand Response 3 (part of the Industrial program schedule)	Schedule D-6	May 31, 2011	General Service 50 kW & above
Industrial Program			
Process & System Upgrades	Schedule D-1	May 31, 2011	General Service 50 kW & above
Monitoring & Targeting	Schedule D-2	May 31, 2011	General Service 50 kW & above
Energy Manager	Schedule D-3	May 31, 2011	General Service 50 kW & above
Key Account Manager (KAM)	Schedule D-4	May 31, 2011	General Service 50 kW & above
Efficiency: Equipment Replacement	Schedule C-2	May 31, 2011	General Service 50 kW &

Incentive (part of the C&I program schedule)			above
Demand Response 3	Schedule D-6	May 31, 2011	General Service 50 kW & above
Home Assistance Program			
Home Assistance Program	Schedule E-1	May 9, 2011	All residential rate classes
Pre-2011 Programs completed in 2011			
Electricity Retrofit Incentive Program	n/a	n/a	All general service classes
High Performance New Construction	n/a	n/a	All general service classes

Several Initiatives that were included in the schedules were not in market in 2011.The OPA has communicated that the Initiatives listed in the table below were not in market in 2011 and that they represent a very small percentage of the forecasted energy and demand savings. During the 2011 program year, the OPA placed emphasis on supporting the implementation of Initiatives believed to offer the greatest ratepayer value and greatest amount of persisting savings.

Table 2: Initiatives Not in Market in 2011

Initiative Not in Market in 2011	Objective	Status
Residential Program		
Midstream Electronics	The objective of this initative is to encourage retailers to promote, and sell, high efficency televisions, and for distributors to distribute high efficiency set top boxes.	Not launched to market
Midstream Pool Equipment	The objective of this Initiative is to encourage pool installers to sell and install efficient pool pump equipment in residential in-ground pools.	Not launched to market
First Nations Program	First Nations programs are delivered by the OPA and results are attributed to LDCs for reporting.	Not launched to market
Home Energy Audit Tool	This is a provincial online audit tool to engage customers in conservation and help drive customer participation to CDM programs.	Not launched to market
Commercial & Institutional Program		
Direct Service Space Cooling	The objective of this Initiative is to offer free servicing of air conditioning systems and refrigeration units for the purpose of achieving energy savings and demand reduction.	Not launched to market in 2011. As per the OPA, there are no plans to launch this Initiative 2012.

Industrial Program		
Demand Response 1 (DR1)	This Initiative allows distribution customers to voluntarily reduce electricity demand during certain periods of the year pursuant to the DR 1 contract. The Initiative provides DR payment for the actual electricity reduction provided during a demand response event.	No customer uptake for this Initiative

The Master CDM Program Agreement includes a program change management provisions in Article 3. Collaboration between the OPA and the Local Distribution Companies (LDCs) commenced in 2011 as the change management process was implemented to enhance the saveONenergy program suite. The change management process allows for modifications to the Master Service Agreement and Initiative Schedules. The program enhancements give LDCs additional tools and greater flexibility to deliver programs in a way that meets the needs of customers and further drives participation in the Initiatives.

2.2 Program Descriptions

2.2.1 RESIDENTIAL PROGRAM

In 2011, residential programs accounted for 17% of Kitchener-Wilmot Hydro's energy savings and 19% of peak demand savings. All of the in-market residential programs contributed to the total but the HVAC program was the main driver contributing over 50% of the energy savings and over 70% of the demand savings within the Consumer Portfolio.

Kitchener-Wilmot Hydro initiated two consumer market strategies to support the launch of CDM in 2011. Mass marketing and stakeholder relationships with industry partners were both utilized to take advantage of early program uptake.

Through mass marketing campaigns KWH created strategic partnerships with industry partners and channel partners to target specific programs within specific consumer sectors. Industry partners commenced with the CKW Group partnership which moved early on to create and implement a joint residential marketing and communication plan. Kitchener Utilities another partner supported in specific marketing outreach as well as channel development in the HVAC program. A few channel partner relationships focused at the HVAC level as well as some retailer involvement for both fridge and freezer and coupons.

APPLIANCE EXCHANGE INITIATIVE

Target Customer Type(s): Residential Customers

Initiative Frequency: Spring and Fall

Objective: The objective of this Initiative is to remove and permanently decommission older, inefficient window air conditioners and portable dehumidifiers that are in Ontario.

Description: This Initiative involves appliance exchange events. Exchange events are held at local retail locations and customers are encouraged to bring in their old room air

conditioners (AC) and dehumidifiers in exchange for coupons/discounts towards the purchase of new energy efficient equipment.

Targeted End Uses: Window air conditioners and portable dehumidifiers.

Delivery: OPA contracts with participating retailers for collection of eligible units. Additional detail is available:

- Schedule B-1, Exhibit C http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Marketing Activities/Progress:

CDM staff member from Kitchener-Wilmot Hydro attended the spring weekend event at a local retailer to help promote the program as well as cross promote with other initiatives to customers. Kitchener-Wilmot Hydro also collaborated with Sears in an effort to complement their retail advertising efforts.

In Market Date: May 14-15 2011

Lessons Learned:

- The spring event had the participation of 3 retailers with 300 – 400 locations across the province. However, the Fall 2011 event had no retailer participation, therefore savings projected by the LDCs did not materialize.
- Challenges with working with retailers as the market was still learning the program details
- Evaluation, Measurement, and Verification (EMV) results indicated that the value of savings for retired room AC has dropped.
- The initiative may be achieving market saturation.
- The type of unit turned in is very dependent upon what is promoted by the retailers.

APPLIANCE RETIREMENT INITIATIVE

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objectives: Achieve energy and demand savings by permanently decommissioning certain older, inefficient refrigeration appliances located in Ontario.

Description: This is an energy efficiency Initiative that offers individuals and businesses free pick-up and decommissioning of old large refrigerators and freezers. Window air conditioners and portable dehumidifiers will also be picked up if a refrigerator or a freezer is being collected.

Targeted End Uses: Old inefficient large refrigerators, large freezers, window air conditioners and portable dehumidifiers.

Delivery: OPA contracts for province-wide marketing, call center, appliance pick-up and decommissioning processes. LDC provides local marketing and relationship building with retailers as well as coordination with municipal pick-up where available. Additional detail is available:

- Schedule B-1, Exhibit D http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer/Programs/Appliance-Retirement.aspx

Marketing Activities/Progress:

Below is a comprehensive list of marketing initiatives and activities undertaken by Kitchener-Wilmot Hydro to promote the Appliance Retirement Initiative. It is important to note that collaboration with Waterloo North Hydro and Cambridge and North Dumfries Hydro was a vital component when creating and executing on a regional strategy. Every effort was made to cooperate and share resources, ad space and creative costs with these partnering LDCs. This collaboration allowed us to increase our reach, frequency and ultimately our success within the program. In 2011 KWH retired

631 refrigerators and freezers which was an increase over 2010's 607 units. Although Kitchener-Wilmot Hydro was able to match 2010 efforts it is becoming increasingly challenging to find older refrigerators and freezers within the marketplace. In 2011 a mass marketing initiative was conducted in conjunction with forming strategic partnerships with local retailers and the Region of Waterloo.

- Print/ newspaper ads ran in the Kitchener Citizen from August 2011 to December 2011 reaching over 35,000 customers.
- Program was advertised in a joint partnership publication called Natural Comforts that is distributed to over 26,000 homes in KWH service territory.
- Newspaper ads in Parent and Child Guide in Sept 2011 with distribution of over 50,000.
- Program banners jointly branded with Waterloo North Hydro and Cambridge and North Dumfries to promote the program in our lobby and at special events.
- Call center "on hold" messaging and sign display on front of building promoting the program to all customers and employees.
- Sponsorship with the Kitchener Rangers hockey team on the scoreboard with a commercial supporting the saveONenergy FOR HOME programs through the mysaveONenergy Pledge reaching over 6,000 customers per game.
- saveONenergy branded ice scrapers provided as a promotional item giveaway in our lobby and at community events.
- Program brochure jointly branded with Waterloo North Hydro and Cambridge North Dumfries to promote the programs in our lobby and at special events.
- Promotion of programs at retailer locations in conjunction with Appliance Exchange and Coupon events (Home Depot and Canadian Tire).
- Newspaper advertisement in the Waterloo Region Record jointly branded with Waterloo North Hydro and Cambridge North Dumfries Hydro to promote energy savings tips and saveONenergy FOR HOME programs during Earth Hour.
- Advertisement promoting our free pick-up service on the Region of Waterloo website.
- Posters and site visits to local retailers who sell new Refrigerators and Freezers (TA Appliances).
- Collaboration with local conservation groups including REEP and CREW to help promote to their customers.

In Market Date: February 17, 2011

Lessons Learned:

- The Appliance Retirement Initiative (previously The Great Refrigerator Round-Up) has been offered by LDCs since 2007. KWH peaked at over 800 Fridges and Freezers in 2008 and has seen a steady decline in participation. With older refrigerators and freezers becoming less common and as we continue to push market uptake we feel that this program is reaching market saturation.
- While the OPA and the LDCs have reviewed this initiative to assess whether to include other products, appliances have a natural life cycle and the initiative cannot be expected to continually deliver the high level of results in perpetuity. These lower expectations have been taken into account when developing conservation outreach strategy and we expect our messaging to become more targeted.
- This initiative has and continues to face competition from independent retailers and regional municipalities. Locally, the Region of Waterloo offers a strong curb-side pick up at no cost to customers and it often the preferred route for many customers. We continue to try and work with the Region to promote our service.
- Results are very responsive to province wide advertising.

HVAC INCENTIVES INITIATIVE

Target Customer Type(s): Residential Customers and Commercial Customers (Businesses with residential systems)

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage the replacement of existing heating systems with high efficiency furnaces equipped with Electronically Commutated Motors (ECM), and to replace existing central air conditioners with ENERGY STAR qualified systems and products**.**

Description: This is an energy efficiency Initiative that provides rebates for the replacement of old heating or cooling systems with high efficiency furnaces (equipped

with ECM) and Energy Star qualified central air conditioners by approved Heating, Refrigeration, and Air Conditioning Institute (HRAI) qualified contractors.

Targeted End Uses: Central air conditioners and furnaces

Delivery: OPA contracts centrally for delivery of the program and LDCs are encouraged to promote to customers and local contractors to participate in the Initiative. Additional detail is available:

- Schedule B-1, Exhibit B http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Marketing Activities/Progress:

Below is a comprehensive list of marketing and activities undertaken by Kitchener-Wilmot Hydro to promote the HVAC program. Kitchener-Wilmot Hydro worked in collaboration with Waterloo North Hydro and Cambridge and North Dumfries to share resources, strategy, creative costs and ad space. Further to this collaboration Kitchener-Wilmot Hydro strengthened its partnership with the local gas utility, Kitchener Utilities. Kitchener Utilities strong HVAC contractor database allowed us to ensure all contractors joined the program early on and provided support for contractors in the program to help them sell more energy efficient units. The HVAC program accounted for 9% of the total energy savings for Kitchener-Wilmot Hydro and will continue to be a key performer within the CDM portfolio.

- Newspaper ads ran in the Kitchener Citizen from August 2011 to December 2011.
- Sell sheets were delivered to HVAC contractors to hand out to customers during site visits.
- Advertising in Natural Comforts that is distributed to over 26,000 homes.
- Banners and posters highlighting program incentives were made available to HVAC contractor in store locations.
- Messaging “on hold” and front display promoting savings of Energy Star AC.
- Program banners jointly branded with Waterloo North Hydro and Cambridge North Dumfries to promote the program in our lobby and at special events.

- Sponsorship with the Kitchener Rangers on the scoreboard with a commercial supporting the saveONenergy FOR HOME programs through the mysaveONenergy Pledge.
- Presentations and summary sheets provided to all Kitchener-Wilmot Hydro customer service representatives to answer customer questions and offer energy savings tips.
- saveONenergy branded ice scrapers provided as a promotional item giveaway in our lobby and at community events.
- Program brochure jointly branded with Waterloo North Hydro and Cambridge North Dumfries to promote the programs in our lobby and at special events.
- Promotion of programs at retailer locations in conjunction with Appliance Exchange and Coupon events.
- Bill insert in collaboration with Kitchener Utilities highlighting benefits of energy efficient furnace and AC.
- Newspaper advertisement in the Waterloo Region Record jointly branded with Waterloo North Hydro and Cambridge North Dumfries to promote energy savings tips and saveONenergy FOR HOME programs during Earth Hour.

In Market Date: February 17, 2011

Lessons Learned:

- Channel engagement is a highly effective method of connecting with customers. Working with the local Gas Utility, Kitchener Utilities allowed us to sign up more contractors for the program while supporting them with their marketing and sales efforts. The cancelation of the Federal Eco Energy incentives make the OPA incentives even more compelling in helping to influence buying behavior towards more energy efficient models.
- There appears to be spillover from non-HRAI contractors who are ineligible for this initiative. There are cases where smaller independent contractors are offering their own incentives (by discounting their installations to match value of the OPA incentive) to make the sale. As this occurs outside of the initiative, these installations not being attributed to any LDC.

CONSERVATION INSTANT COUPON BOOKLET INITIATIVE

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage households to purchase energy efficient products by offering discounts in the form of coupons.

Description: This Initiative provides customers with year round coupons. The coupons offer instant rebates towards the purchase of a variety of low cost, easy to install energy efficient measures and can be redeemed at participating retailers. Booklets were directly mailed to customers and were also available at point-of-purchase. Downloadable coupons were also available at www.saveoneenergy.ca.

Targeted End Uses: ENERGY STAR® qualified Standard Compact Flourescent Lights (CFLs),ENERGY STAR® qualified Light Fixtures lighting control products, weatherstripping, hot water pipe wrap, electric water heater blanket, heavy duty plug-in Timers, Advanced power bars, clothesline, baseboard programmable thermostats.

Delivery: OPA contracts centrally for the distribution of the coupon booklets across Ontario. LDC distributes coupons at local events. The OPA enters into agreements with retailers to honour the coupons.
Additional detail is available:

- Schedule B-1, Exhibit A http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Marketing Activities/Progress:
Below is a comprehensive list of marketing and activities undertaken by Kitchener-Wilmot Hydro to promote the Residential Program offerings. Initiatives and activities were commonly undertaken to promote saveONenergy FOR HOME at a holistic program level rather than Initiative for better market penetration and to achieve cost-efficiencies. In addition to cobranding marketing between Initiatives, every effort was

made to collaborate and share material, ad space and creative costs with Waterloo North Hydro Inc. and Cambridge North Dumfries Hydro in our endeavor to jointly deliver the program.

- Sponsored the Rotary Dream Home which saw over 25,000 visitors. Handed out coupons and included signage throughout the home promoting energy saving tips.
- Newspaper ads ran in the Kitchener Citizen from August, 2011 to December 2011.
- Program banners jointly branded with Waterloo North Hydro and Cambridge North Dumfries Hydro to promote the program in our lobby and at special events.
- Sponsorship with the Kitchener Rangers on the scoreboard with a commercial supporting the saveONenergy FOR HOME programs through the mysaveONenergy Pledge reaching over 6,000 customers per game.
- Promotion of the programs through mysaveONenergy Pledge stickers on information boards in our company lobby.
- saveONenergy branded ice scrapers provided as a promotional item giveaway in our lobby and at community events.
- Program brochure jointly branded Waterloo North Hydro and Cambridge North Dumfries Hydro to promote the programs in our lobby and at special event.
- Promotion of programs at retailer locations in conjunction with Appliance Exchange and Coupon events.
- Newspaper advertisement in the Waterloo Region Record jointly branded with Waterloo North Hydro and Cambridge North Dumfries Hydro to promote energy savings tips and saveONenergy FOR HOME programs during Earth Hour.

In Market Date: April 2011

Lessons Learned:

- The downloadable coupons proved to be more successful than the mailed out booklets.
- This Initiative may benefit from an enabler such as a Conservation Card / Loyalty Card to increase customer participation.
- The timeframe for retailer submission of redeemed coupons vary from retailer to retailer. This delays the results reporting, which in turn limits the OPA and LDC abilities to react and respond to initiative performance or changes in consumer behavior.

BI-ANNUAL RETAILER EVENT INITIATIVE

Target Customer Type(s): Residential Customers

Initiative Frequency: Bi-annual events

Objective: The objective of this Initiative is to provide instant point of purchase discounts to individuals at participating retailers for a variety of energy efficient products.

Description: Twice a year (Spring and Fall), participating retailers host month-long rebate events. During the months of April and October, customers are encouraged to visit participating retailers where they can find coupons redeemable for instant rebates towards a variety of low cost, easy to install energy efficient measures.

Targeted End Uses: Same as the conservation instant coupon booklet initiative

Delivery: The OPA enters into arrangements with participating retailers to promote the discounted products, and to post and honour related coupons. LDCs also refer retailers to the OPA.
Additional detail is available:

- Schedule B-1, Exhibit C http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Marketing Activities/Progress:
Kitchener-Wilmot Hydro participated by setting up a display at the retailer to promote and talk to customers about ways to save energy.

In Market Date: April 2011

Lessons Learned:

- The Product list has changed very little over the past four years.

- Program evolution, including new products (for example, LED lighting) and review of incentive pricing for the coupon initiatives, must be a regular activity to ensure continued consumer interest.
- A review conducted by the Residential Working Group in Q4 2011 identified three areas of need for initiative evolution: 1) introduction of product focused marketing; 2) enhanced product selection and 3) improved training for retailers.

NEW HOME CONSTRUCTION PROGRAM

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this initiative is to provide incentives to participants for the purpose of promoting the construction of energy efficient residential homes in the Province of Ontario.

Description: This is an energy efficiency Initiative that provides incentives to homebuilders for constructing new homes that are efficient, smart, and integrated (applicable to new single family dwellings). Incentives are provided in two key categories as follows:

- Incentives for homebuilders who install electricity efficiency measures as determined by a prescriptive list or via a custom option.
- Incentives for homebuilders who meet or exceed aggressive efficiency standards using the EnerGuide performance rating system.

Targeted End Uses: all off switch, ECM motors, ENERGY STAR qualified central a/c, lighting control products, lighting fixtures, EnerGuide 83 whole home, EnerGuide 85 whole homes

Delivery: Local engagement of builders will be the responsibility of the LDC and will be supported by OPA air coverage driving builders to their LDC for additional information. Additional detail is available:

- Schedule B-1, Exhibit C
  http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeh

olders/current_electricity_contracts/pdfs/Schedule%20B-2%20New%20Construction%20Program.pdf and

- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Marketing Activities/Progress:

Below is a comprehensive list of marketing and activities undertaken by Kitchener-Wilmot Hydro to promote the New Home Construction Initiative.

- Sponsored the Rotary Dream Home and worked with the builder to install energy efficient measures to advertise and promote within the home. Over 25,000 people walked through the home where displays were set up highlighting energy star fans, CFL lights and energy efficient furnace and AC.
- Two bill inserts sent out promoting the Dream Home and highlighting the energy efficient measures and energy efficient homes and directing them to saveonenergy.ca. Bill inserts were sent to approximately 80,000 accounts

In Market Date: February 17, 2011

Lessons Learned:

- The application process was too cumbersome for builders to take notice. Provincially there were limited (5) participants in the program. Because the online application system is a one to one relationship, this program was only practical for custom builders who were building one home at a time. Tract builders who might build 250 homes in a single phase would have to submit 250 applications to qualify for incentives. This administrative challenge has deterred all tract builders from participating in the program to date.
- Administrative requirements must align with perceived stakeholder payback. Changes are being processed through change management for 2012.

RESIDENTIAL DEMAND RESPONSE PROGRAM

Target Customer Type(s): Residential and Small Commercial Customers

Initiative Frequency: Year round

Objective: The objectives of this Initiative are to enhance the reliability of the IESO-controlled grid by accessing and aggregating specified residential and small commercial end uses for the purpose of load reduction, increasing consumer awareness of the importance of reducing summer demand and providing consumers their current electricity consumption and associated costs.

Description*: In* ***peaksaver***PLUS ™ participants are eligible to receive a free programmable thermostat or switch, including installation. Participants also receive access to price and real-time consumption information on an In Home Display (IHD).LDCs were given the choice to continue to offer the standard load control program (programmable thermostat or switch with a $25 bill credit) for the first 8 months of 2011 (referred to as ***peaksaver®***Extension).After August 2011, the Extension ended and the program (including marketing) ceased until new IHD product were available.
Targeted End Uses: central air conditioning, water heaters and pool pumps

Delivery: LDC's recruit customers and procure technology
Additional detail is available:

- Schedule B-1, Exhibit C http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/SCHED_2011_ResDR_B_3_110727%28MJB%29v15_redacted.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

In Market Date: Due to delays in technology availability and interoperability, this program was not in market in 2011. Kitchener-Wilmot Hydro in collaboration with CNDH and WNH met with service providers and researched possible technology options. Pilots of in-home displays were conducted and an initial strategy was created for market launch.

Lessons Learned:

- The schedule for Peaksaver Plus was posted in August 2011, but this did not provide adequate time for product procurement for 2011, and part of 2012. The product procurement process uncovered that the In Home Display units that communicate with installed smart meter technology were still in development and not ready for market deployment. Consequently, LDCs could not be in market with the Peaksaver Plus program until 2012.

- Introduction of new technology requires incentives for the development of such technology. Appropriate lead times for LDC analysis and assessment, product procurement, and testing and integration into the Smart Meter environment are also required. Making seemingly minor changes to provincial technical specifications can create significant issues when all LDCs attempt to implement the solution in their individual environments.
- Where a provincial solution is not available to all participants, attention to addressing specific LDC concerns is needed.

LOW INCOME INITIATIVE (HOME ASSISTANCE PROGRAM)

Target Customer Type(s): Income Qualified Residential Customers

Initiative Frequency: Year Round

Objective: The objective of this Initiative is to offer free installation of energy efficiency measures to income qualified households for the purpose of achieving electricity and peak demand savings.

Description: This is a turnkey Initiative for income qualified customers. It offers residents the opportunity to take advantage of free installation of energy efficient measures that improve the comfort of their home, increase efficiency, and help them save money. All eligible customers receive a Basic and Extended Measures Audit, while customers with electric heat also receive a Weatherisation Audit. The Initiative is designed to coordinate efforts with gas utilities.

Targeted End Uses: End uses based on results of audit

Delivery: LDC delivered.
Additional detail is available:

- Schedule E
  http://www.powerauthority.on.ca/sites/default/files/page/Low%20Income%20Schedule%20-%20redacted%20version.pdf

Initiative Activities/Progress:

Kitchener-Wilmot Hydro in partnership with Cambridge and North Dumfries and Waterloo North Hydro in a large Request for Proposals spearheaded by Brantford Power Inc. A third party delivery service provider was contracted in December 2011. Marketing plans and launch strategy were planned and created in late 2011.

In Market Date: Due to the process required to bring a service provider on-board, this program was not market-ready in 2011.

Lessons Learned:

- Difficulty identifying eligible customers.
- This Initiative Schedule was finalized later (May 2011) than the rest of the OPA Initiatives and in 2011 only 2 LDCs were in market.
- Centralized payment processes were not developed in 2011, but were in place mid-2012. This resulted in some LDCs delaying their launch to market, or for some pulling out of the market until the payment processes were completed.
- The financial scope, complexity, and customer privacy requirements of this Initiative resulted in a lengthy procurement process. Some LDCs must adhere to very transparent procurement processes which meant that delivery of the program did not start in 2011.

2.2.2 COMMERCIAL AND INSTITUTIONAL PROGRAM

Kitchener-Wilmot Hydro has 7600 small businesses and 955 large commercial accounts and knows that this group will generate a significant portion of the energy savings and peak demand savings over the four year CDM program. KWH has seen excellent program uptake in prior years within both the small business and larger customer sectors providing strong awareness and consistent participation. Furthermore, market saturation is noticeable in some programs and technologies increasing the requirement for segmentation and targeted marketing.
In 2011, Kitchener-Wilmot Hydro in partnership with Cambridge and North Dumfries Hydro and Waterloo North Hydro designed and began implementation of a push pull strategy that drove education and awareness to customers and channel partners.

Multiple communication channels were incorporated including print, online, radio, presentations, face to face meetings and hands on training.

EFFICIENCY: EQUIPMENT REPLACEMENT INCENTIVE (ERII)

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives to non-residential distribution customers to achieve reductions in electricity demand and consumption by upgrading to more energy efficient equipment for lighting, space cooling, ventilation and other measures.

Description: The Equipment Replacement Incentive Initiative (ERII) offers financial incentives to customers for the upgrade of existing equipment to energy efficient equipment. Upgrade projects can be classified into either: 1) prescriptive projects where prescribed measures replace associated required base case equipment; 2) engineered projects where energy and demand savings and incentives are calculated for associated measures; or 3) custom projects for other energy efficiency upgrades.
Targeted End Uses: Lighting, air compressors, process equipment improvements, space cooling, ventilation and other measures

Delivery: LDC delivered.
Additional detail is available:

- Schedule C-2 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-2%20ERII%20Initiative.pdf and
- SaveONenergy website https://saveONenergy.ca/Business/Program-Overviews/Retrofit-for-Commercial.aspx

Marketing Activities/Progress:

Kitchener-Wilmot Hydro was active in the market under the ERIP program and therefore had some traction in the market for the launch of ERII in 2011. However, the process by which to participate had changed greatly and a significant effort was required to educate past participants as well as spreading the awareness to new potential customers. The Retrofit program in 2011 accounted for 24% of the total energy savings and will continue to be the main driver in this portfolio over the next few years. To ensure market participation remained high in 2011, Kitchener-Wilmot Hydro continued to focus its strategy on three areas. Communication to customers; Channel partner engagement; and Customer Data/ Segmentation. By focusing on these three objectives Kitchener-Wilmot Hydro believes it will increase its efficiency and effectiveness with communication and delivery to its customers.

- Kitchener-Wilmot Hydro in collaboration with Cambridge and North Dumfries and Waterloo North Hydro sent out a Request for Proposal for the evaluation of retrofit applications in the first quarter of 2011.
- Kitchener-Wilmot Hydro in collaboration with Cambridge and North Dumfries and Waterloo North Hydro launched a breakfast series for all commercial customers within the Waterloo Region. The objective was to communicate the availability of incentives and how to participate. Throughout 2011 breakfast presentations including air compressors, building the business case for energy efficiency as well as energy audits. Uptake in the breakfast sessions continued to grow and the CKW group was able to tie projects and savings to these events.
- Kitchener-Wilmot Hydro in partnership with Cambridge and North Dumfries and Waterloo North Hydro advertised in the Exchange Magazine focusing on news and success stories of businesses within the Kitchener, Waterloo Cambridge region.
- Kitchener-Wilmot Hydro in partnership with Waterloo North Hydro became a sponsor of the Kitchener Waterloo Chamber of Commerce and advertised in their online newsletter and helped to run and organize the Energy & Environment Tradeshow. Additional advertising in the Advocate helped Kitchener-Wilmot Hydro reach smaller businesses within the community.
- Kitchener-Wilmot Hydro and Cambridge and North Dumfries and Waterloo North Hydro continued to execute on a channel partner engagement strategy in 2011. One on one meetings and presentations were conducted throughout 2011 thereby strengthening relationships and educating channel partners on the

incentives and how it can help them sell more. This helped us reach a greater audience and help us reach greater participation in the program.

- The CKW Group ran six hands-on training modules to channel partners to help them become knowledgeable with the application process and understanding on how to spot more energy savings. Computer sessions allowed channel partners to walk through the application process step by step while receiving coaching from LDC experts.
- Recognizing the need for online application support the CKW Group created an application support document to help customers and channel partners navigate step by step through the on-line application process.
- The CKW Group ran two breakfast seminars to all Channel Partners in the Region to provide program updates and attempt to increase participation in our CDM programs. At this time we provided updates on statistics and tips for making the process simpler.
- The CKW Group also ran the 2nd Annual Technology Symposium. Rebranded to saveONenergy Technology Symposium the show was an enormous success. Having no other show like it in southern Ontario this show brought together over 60 exhibitors selling energy efficient technology and over 300 customers from the region all to learn and discuss best practices on how to save energy. It was a very successful event that drove excellent awareness and energy efficient projects.
- Kitchener-Wilmot Hydro continued to add to its commercial customer contact database and began applying NAICS codes to all customer accounts in an effort to move towards greater segmentation marketing.
- Kitchener-Wilmot Hydro regularly would perform on site visits to customer' facilities to understand where opportunities existed and help the customer to attain the necessary information to perform a business case analysis.

In Market Date: April 2011

Lessons Learned:

- ERII (previously Equipment Replacement Incentive Program – ERIP) has been offered by LDCs for many years. It is a high performing, cost-effective program, and there were many pre-2011 projects completing in 2011 (via ERIP).
- The ERIP program ended as of December 31, 2010 and the new ERII program was not made available until March 2011. Without a streamlined transition into a

new program at the end of the old many customers become frustrated and refuse to participate. KWH struggled to repair customer and channel partner relationships and gain momentum in the marketplace once again.

- In March 2011, the revised iCON system was launched by the OPA. This is the major online application system implemented to aid the 2011-2014 ERII application process. With system applications of this size and functionality, it was expected that there would be various issues identified at the time of the release, and on-going, to prove that the system was "ready for market." Unfortunately, the resolution of these issues, with the corresponding time lags and workarounds, was seen to be a barrier to significant customer participation in the 2011 program year. In addition, there were also on-going issues and limitations with the back-end CRM system that affected LDCs ability to effectively review and approve applications. Given these difficulties, some LDCs (and their third party service providers) have needed to develop parallel systems to monitor their applications.
- A major challenge for the ERII program in 2011 was payment delays. The centralized electronic processes were not ready as required by the Master Agreement. The lack of having these automated processes, exasperated by a greater than expected volume of pre-2011 projects completing in 2011, caused considerable payment delays. Based on the lessons learned in the 2011 process, the centralized process review used for 2012 project payment has been streamlined by the OPA.

DIRECT INSTALL INITIATIVE (DIL)

Target Customer Type(s): Small Commercial, Institutional, Agricultural facilities and multi-family buildings

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer a free installation of eligible lighting and water heating measures of up to $1,000 to eligible owners and tenants of commercial, institutional and agricultural facilities and multi-family buildings, for the purpose of achieving electricity and peak demand savings.

Description: The Direct Installed Lighting Initiative targets customers in the General Service <50kW account category. This Initiative offers turnkey lighting and electric hot water heater measures with a value up to $1,000 at no cost to qualifying small businesses. In addition, standard prescriptive incentives are available for eligible equipment beyond the initial $1,000 limit.

Target End Uses: Lighting and electric water heating measures

Delivery: Participants can enrol directly with the LDC, or would be contacted by the LDC/LDC-designated representative.
Additional detail is available:

- Schedule C-3 http://www.powerauthority.on.ca/sites/default/files/page/Schedule%20C-3%20Direct%20Install%20Initiative%20-%20redacted.pdf and
- Saveonenergy website https://saveonenergy.ca/Business/Program-Overviews/Small-Business-Lighting-and-AC.aspx

Initiative Activities/Progress:

- Kitchener-Wilmot Hydro in partnership with their delivery partner has been very successful with the previous Power Savings Blitz program completing over 1,800 retrofits since program inception back in 2008. As a result of this success the number of eligible customers was significantly diminished therefore program participation is decreasing, while the amount of effort to gain program participants is increasing as the remaining customers are more difficult to reach.
- Kitchener-Wilmot Hydro issued an extension to the existing program delivery contract with 2010 program delivery service provider to continue program delivery and momentum. Meanwhile developing a Request for Proposals for a program delivery partner. Under the extension all pending projects were reviewed and reassessed under the new program rules and incentives in order to offer customers the new standard prescriptive incentives should their assessment exceed the $1,000 limit.
- Kitchener-Wilmot Hydro in partnership with Cambridge and North Dumfries Hydro and Waterloo North Hydro issued a Request for Proposals for a program delivery services, reviewed the proposals and awarded a contract for program delivery service from September 1, 2011 to December 31, 2012.

- Under the new program delivery contract all remaining eligible program participants were contacted by an outbound call center explaining the program and setting up site assessments. In addition in-field assessors would cold call eligible program participants and perform assessments to further increase participation.
- Kitchener-Wilmot Hydro provided local marketing and customer support for the initiative by way of distribution of initiative promotional material at events and local Chamber of Commerce's and assisting customers in accessing the program and responding to initiative inquiries.
- Kitchener-Wilmot Hydro presented at breakfast series and promoted through their relationship with the Kitchener Waterloo Chamber of Commerce including radio, newsletter and sponsored events

In Market Date: May 2011

Lessons Learned:

- The Direct Install Lighting Initiative is a continuation of the Power Saving Blitz Initiative offered by LDCs from 2008-2010. Successful execution of the previous rendition of this Initiative has resulted in diminished potential for the 2011-2014 Initiative in some LDC territories.
- The inclusion of a standard incentive for additional measures increased project size and drove higher energy and demand savings results in some situations.
- The ability to return to prior participants and offer a standard incentive on the remaining measures has the potential to provide additional energy and demand savings. Currently LDCs are unable to offer standard incentives to prior participants.
- As with the equipment replacement program, the direct install Initiative lost momentum in some LDC service territories due to the "hard stop" of the program in 2010 and subsequent program delay in 2011.
- The cost of materials has experienced price volatility, reducing the margins of the electrical contractors and has led to a reduction in vendor channel participation in some regions.
- Due to backlogs in the payment system, participant incentive payment from the OPA to the LDC, and therefore to the customer, was commonly delayed.
- To address these issues, the LDCs have been working with the OPA through Change Management to address:

- extending the target initiative population to include small agricultural customers;
- increasing the incentive envelope of $1,000 to $1,500 to ensure ongoing marketability of the program; and
- reviewing the eligible measure price list to support contractor participation.

EXISTING BUILDING COMMISSIONING INCENTIVE INITIATIVE

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives for optimizing (but not replacing) existing chilled water systems for space cooling in non-residential facilities for the purpose of achieving implementation phase energy savings, implementation phase demand savings, or both.

Description: This Initiative offers Participants incentives for the following:

- scoping study phase
- investigation phase
- implementation phase
- hand off/completion phase

Targeted End Uses: Chilled water systems for space cooling

Delivery: LDC delivered.
Additional detail is available:

- Schedule C-6 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-6%20Commissioning%20Initiative.pdfand
- Saveonenergy website https://saveonenergy.ca/Business/Program-Overviews/Existing-Building-Commissioning.aspx

Initiative Activities/Progress:

- To date there has been no uptake with this initiative in Kitchener-Wilmot Hydro's distribution service territory.

- As the nature of this program only lends itself to a small number of Kitchener-Wilmot Hydro customers; individual, on-site discussions and engagement was utilized for initiative promotion and customer support for the most apart although the initiative was promoted at all key account breakfasts and annual Technology Symposium.

In Market Date: March 2011

Lessons Learned:

- There was no customer uptake for this Initiative. It is suspected that the scope of the Initiative being limited to space cooling contributed to the lack of participation. Accordingly chilled water systems used for other purposes should be made eligible and considered through Change Management.
- The customer expectation is that the program be expanded to include broader building improvements for a more holistic approach to building recommissioning.

NEW CONSTRUCTION AND MAJOR RENOVATION INITIATIVE (HPNC)

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage builders of commercial, institutional, and industrial buildings (including multi-family buildings and agricultural facilities) to reduce electricity demand and/or consumption by designing and building new buildings with more energy-efficient equipment and systems for lighting, space cooling, ventilation and other Measures.

Description: The New Construction Initiative provides incentives for new buildings to exceed existing codes and standards for energy efficiency. The Initiative uses both a prescriptive and custom approach.

Targeted End Uses: New building construction, building modeling, lighting, space cooling, ventilation and other Measures

Delivery: LDC delivers to customers and design decision makers.
Additional detail is available:

- Schedule C-4 http://www.powerauthority.on.ca/sites/default/files/page/ScheduleC-4NewContructionInitiativeV2.pdf and
- SaveONenergy website https://saveONenergy.ca/Business/Program-Overviews/New-Construction.aspx

Initiative Activities/Progress:

- Kitchener-Wilmot Hydro in collaboration with Cambridge and North Dumfries and Waterloo North Hydro issued an RFP for the delivery and evaluation of the program. The RFP was not issued until 4th quarter as full review of service providers was required and many were still getting up to speed on program details. Another hold up was due to the fact that Enbridge, a leading contender, could not finalize their contract with Union Gas as a subcontractor to our area. Once this was finalized we awarded the contract to Enbridge with Union Gas delivering the program at the local level.
- Union Gas was familiar with HPNC generation 1 and therefore was able to hit the ground running by communicating with established design build engineering.
- Kitchener-Wilmot Hydro, Cambridge North Dumfries and Waterloo North Hydro offered Enbridge a presentation opening at the annual Technology Symposium in an effort to getting the word out on the program incentives and process for participation.
- Kitchener-Wilmot Hydro worked in partnership with Union Gas to identify potential leads in the program
- Kitchener-Wilmot Hydro in collaboration with Cambridge North Dumfries and Waterloo North Hydro presented to channel partners at breakfast session on the incentives available to customers.
- Marketing banners and sell sheets were created for promotional events and customer site visits.

In Market Date: November 2011

Lessons Learned:

- This is a continuation of the High Performance New Construction program previously delivered by Enbridge Gas under contract with the OPA (and subcontracted to Union Gas), which ran until December 2010.
- For 2011, new industry participation was limited due to certain aspects of the Initiative, and the delays in redesign, such as:
  - 2011 prescriptive incentives needed to be aligned with ERII incentives.
  - In the cases of delivering large projects (i.e. custom applications), 2011 participation was limited due to 1) building code changes and 2) level of documentation required.
  - The effort required to participate in the program exceeded the value of the incentives.
- There is typically a long sales cycle for these projects, and then a long project development cycle. As the program did not launch until mid-2011 and had limited participation, results did not appear in 2011. Minimum results are expected to appear in 2012. The majority of the results are expected in 2013-2014, with a reduced benefit to cumulative energy savings targets.
- Currently facilities much be substantially completed by the programs "hard stop" date of December 31, 2014. As these buildings have long lead times, there is a limited window of opportunity for interested participants to access the program.
- With no transition contingencies in place, facilities with a completion date near the end of 2014 currently have no security that they will be compensated for choosing efficient measures. As such, many customers choose not to take the financial risk and construct to standard building code. This Initiative should be assessed for a streamlined program transition or extension beyond 2014.

ENERGY AUDIT INITIATIVE

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives to owners and lessees of commercial, institutional, multi-family buildings and agricultural facilities for the purpose of undertaking assessments to identify all possible opportunities to reduce electricity demand and consumption within their buildings or premises.

Description: This Initiative provides participants incentives for the completion of energy audits of electricity consuming equipment located in the facility. Energy audits include development of energy baselines, use assessments and performance monitoring and reporting.

Targeted End Uses: Various

Delivery: LDC delivered.
Additional detail is available:

- Schedule C-1http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-1%20Energy%20Audit%20Initiative.pdf and
- Saveonenergy website https://saveonenergy.ca/Business/Program-Overviews/Audit-Funding.aspx

Marketing Activities/Progress:

- Kitchener-Wilmot Hydro in partnership with Cambridge and North Dumfries Hydro and Waterloo North Hydro held a key account session focused specifically on the initiative in June of 2011. At the session, two local energy audit firms educated customers on the value of energy audits, merits of the program and the projects that audits helped to drive.
- Kitchener-Wilmot Hydro in partnership with Cambridge and North Dumfries Hydro and Waterloo North Hydro held their annual Technology Symposium where one of 8 focus sessions was devoted to educating customers on the value of energy audits, merits of the program and the projects that audits helped to drive. In addition several energy audit firms exhibited at the all-day event.
- Kitchener-Wilmot Hydro provided ongoing local marketing and customer support for the initiative in various forms including promotion of the initiative at all key account events in short presentations and take away print material, directly to

customers over the phone, by mail, by email as well as at face-to-face customer meetings.

- Kitchener-Wilmot Hydro in partnership with Cambridge and North Dumfries Hydro and Waterloo North Hydro actively engaged local energy audit firms in order to educate them on the initiative and the application process, provide marketing support in the form of program focused print material as well as offered to join audit firms on customer calls to further encourage customer participation.

In Market Date: March 2011

Lessons Learned:

- Customer uptake in 2011 was slow, and as a result, little if any savings were realized in 2011, but projects are expected for 2012.
- Customers expect a greater connection with other saveONenergy Initiatives as a result of completing the Energy Audit. The Initiative should be reviewed under Change Management for the means to readily incent Participants with Audits in hand to implement other electricity savings Initiative

2.2.3 INDUSTRIAL PROGRAM

PROCESS& SYSTEMS UPGRADES INITIATIVE (PSUI)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objectives: The objectives of this Initiative are to:

- Offer distribution customers capital incentives and enabling initiatives to assist with the implementation of large projects and project portfolios;
- Implement system optimization project in systems which are intrinsically complex and capital intensive; and
- Increase the capability of distribution customers to implement energy management and system optimization projects.

Description: PSUI is an energy management Initiative that includes three Initiatives: (preliminary engineering study, detailed engineering study, and project incentive Initiative). The incentives are available to large distribution connected customers with projects or portfolio projects that are expected to generate at least 350 MWh of annualized electricity savings or, in the case of Micro-Projects, 100 MWh of annualized electricity savings.The capital incentive for this Initiative is the lowest of:

a) $200/MWh of annualized electricity savings
b) 70% of projects costs
c) A one year pay back

Targeted End Uses: Process and systems

Delivery: LDC delivered
Additional detail is available:

- Schedule D-1 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-1%20Process%20and%20Systems%20Upgrades%20Initiative.pdf and
- saveONenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:
Discussions took place at an individual customer level to introduce this program. The nature of this program only lends itself to a handful of Kitchener-Wilmot Hydro customers; therefore individual, on-site engagement was utilized for promotion.

In Market Date: November 2011

Lessons Learned:

- The PSUI program targets large customers that are undertaking large capital projects. There is typically a long sales cycle to sell these projects, and then a long project development cycle. As such, results from PSUI did not appear in 2011. Limited results are expected to appear in 2012. The majority of the results are expected in 2013-2014, with a much reduced benefit to cumulative energy savings targets.

- Steps are being taken in the 2012 change management process to simplify and streamline the micro-project application process and to allow smaller projects to be directed to the ERII stream.
- Given the size of the projects involved, the contract required for PSUI is a lengthy and complicated document. Attempts are being made through change management in 2012 to simplify the document while still protecting the ratepayer.
- With the considerable customer interest in on-site Load Displacement projects, the Initiative should be reviewed to ensure that these projects may be accepted as part of the PSUI Initiative.

MONITORING & TARGETING INITIATIVE

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This Initiative offers access to funding for the installation of Monitoring and Targeting systems in order to deliver a minimum savings target at the end of 24 months and sustain for the term of the M&T Agreement.

Description: This Initiative offers customers funding for the installation of a Monitoring and Targeting system to help them understand how their energy consumption might be reduced. A facility energy manager, who regularly oversees energy usage, will now be able to use historical energy consumption performance to analyze and set targets.

Targeted End Uses: Opportunities to monitor electricity consumption and demand for better real-time management.

Delivery: LDC delivered
Additional detail is available:

- Schedule D-2 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-2%20Monitoring%20and%20Targeting%20Initiative.pdf and

- saveONenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:
Discussions took place at an individual customer level to introduce this program. The nature of this program only lends itself to a handful of Kitchener-Wilmot Hydro customers; therefore individual, on-site engagement was utilized for promotion.

In Market Date: November 2011

Lessons Learned:

- The M&T initiative was originally targeted at larger customers with the capacity to review the M&T data. This review requires the customer facility to employ an Energy Manager, or a person with equivalent qualifications, which has been a barrier for some customers. Through the change management process in 2012, changes are being made to both the M&T schedule and ERII to allow smaller facilities to employ M&T systems.

ENERGY MANAGER INITIATIVE

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: The objective of this initiative is to provide customers and LDCs the opportunity to access funding for the engagement of energy managers in order to deliver a minimum annual savings target.

Description: This Initiative provides customers the opportunity to access funding to engage an on-site, full time embedded energy manager, or an off-site roving energy manager who is engaged by the LDC. The role of the energy manager is to take control of the facility's energy use by monitoring performance, leading awareness programs, and identifying opportunities for energy consumption improvement, and spearheading projects. Participants are funded 80% of the embedded energy manager's salary up to $100,000 plus 80% of the energy manager's actual reasonable expenses incurred up to

$8,000 per year. Each embedded energy manager has a target of 300 kW/year of energy savings from one or more facilities. LDCs receive funding of up to $120,000 for a Roving Energy Manager plus $8,000 for expenses.

Targeted End Uses: Individual or a grouping of customers who require additional technical resources to achieve end-use energy saving reductions.

Delivery: LDC delivered
Additional detail is available:

- Schedule D-3 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-3%20Energy%20Manager%20Initiative%202011-2014.pdf and
- saveONenergy website https://saveonenergy.ca/Business.aspx

Marketing Activities/Progress:
Discussions took place at an individual customer level to introduce this program. Kitchener-Wilmot Hydro in partnership with Cambridge and North Dumfries and Waterloo North Hydro began to sign up customers to complete their application.

In Market Date: November 2011

Lessons Learned:

- At the beginning, it took longer than expected to set up the energy manager application process.
- Finding qualified resources to fill these positions has proved to be a challenge in the marketplace.
- The 30% demand savings target for no incented results is virtually unattainable

KEY ACCOUNT MANAGER (KAM)

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Description: Provide funding to employ a resource to assist in managing relationships with key accounts.

Objective: This initiative offers LDCs the opportunity to access funding for the employment of a KAM in order to support them in fulfilling their obligations related to the PSUI. The KAM is considered to be a key element in assisting the consumer in overcoming traditional barriers related to energy management and help them achieve savings since the KAM can build relationships and become a significant resource of knowledge to the customer.

Targeted End Uses: LDC(s) who require additionally funded resources to perform sales functions.

Delivery: LDC delivered
Additional detail is available:

- ScheduleD-4 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/projects_programs/pdfs/PSUI%20Initiative%20Schedule%20D-4.Key%20Account%20Manager.20110322.pdf

Marketing Activities/Progress:
Cambridge and North Dumfries Hydro Inc., Kitchener Wilmot Hydro Inc. and Waterloo North Hydro Inc. (the CKW Group) applied together for KAM funding from the OPA, achieving 70% based on eligible customers.

In Market Date: The CKW Group was approved in June, 2011 and went through the interview process in December, 2011. Actual contracted services were provided by the KAM starting in March 2012.

Lessons Learned:

- Customers appreciate dealing with a single contact to interface with an LDC, a resource that has both the technical and business background who can communicate easily with the customer and the LDC. Finding this type of skill set has been difficult resulting in longer lead times to acquire the right resource.

DEMAND RESPONSE 3

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This Initiative provides for Demand Response (DR) payment for service to DR3 participants to compensate them for making available electricity demand response during a demand response event**.**

Description: Demand Response 3 (DR3) is a demand response Initiative for commercial and industrial customers, of 50 kW or greater to reduce the amount of power being used during certain periods of the year. The DR3 Initiative is a contractual resource that is an economic alternative to procurement of new generation capacity.DR3 comes with specific contractual obligations requiring participants to reduce their use of electricity relative to a baseline when called upon. This Initiative makes payments for participants to be on standby and energy payments for the actual energy reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year depending on the contract.

Targeted End Uses: Qualified customers with the ability to do load shedding/shifting.

Delivery: DR3 is delivered by Demand Response Providers, under contract to the OPA. The OPA administers contracts with all DRPs and Direct Participants that provide in excess of 5 MW of demand response capacity. OPA provides administration including settlement, measurement and verification, and dispatch. LDCs are responsible for outreach and marketing efforts.
Additional detail is available:

- Schedule D-6 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-6%20Demand%20Response%203%202011-2014.pdf and
- saveONenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:
Kitchener-Wilmot Hydro in partnership with Cambridge and North Dumfries and Waterloo North Hydro completed a full review of all the active provincial aggregators to learn about the program and to understand customer eligibility criteria. Establishing relationships with the aggregators' sales staff was a first step into the program. Kitchener-Wilmot Hydro continued to increase its market knowledge in 2011 and has a lot of success stories/ case studies to build on in the region.

In Market Date: February 2011

Lessons Learned:

- Customer data is not provided by the OPA on an individual customer basis due to contractual requirements with the aggregators. This limits LDCs' ability to effectively market to prospective participants. LDCs are now approaching the Aggregators individually and working to develop agreements in order to identify potential customers of this initiative.

2.2.4 PRE-2011 PROGRAMS COMPLETED IN 2011

ELECTRICITY RETROFIT INCENTIVE PROGRAM

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year Round

Objective: This captures savings attributed to projects applied for prior to 2011 but completed in 2011.

Description: Refer to section 2.2.2.1

Delivery: LDC delivered.

Initiative Activities/Progress:

Kitchener-Wilmot Hydro was responsible for reviewing the post-project submissions and approving final payment. No new applications were received in 2011 for this program.

HIGH PERFORMANCE NEW CONSTRUCTION

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year round

Objective: This captures savings attributed to projects applied for prior to 2011 but completed in 2011.

Description: Refer to section 2.2.2.5

Delivery: Delivered through OPA contracts with Enbridge and Union Gas.

Initiative Activities/Progress:
Kitchener-Wilmot Hydro was not responsible for the post-project submissions associated with this program. Any new applications were sent through the 2011 initiative.

2.3 Participation

Table 3: Participation/ Uptake by Initiative

Initiative	Activity Unit	Uptake/ Participation Units
Consumer Program		
Appliance Retirement	Appliances	631
Appliance Exchange	Appliances	69
HVAC Incentives	Equipment	2,261
Conservation Instant Coupon Booklet	Coupons	8,184
Bi-Annual Retailer Event	Coupons	14,195
Retailer Co-op	Items	0
Residential Demand Response	Devices	271
New Construction Program	Houses	0
Business Program		
Efficiency: Equipment Replacement	Projects	50
Direct Installed Lighting	Projects	239
Existing Building Commissioning Incentive	Buildings	0
New Construction and Major Renovation Incentive	Buildings	0
Energy Audit	Audits	0
Commercial Demand Response (part of the Residential program schedule)	Devices	9
Demand Response 3 (part of the Industrial program schedule)	Facilities	7
Industrial Program		
Process & System Upgrades*	Projects	0
a) preliminary engineering study		0
b) detailed engineering study		0
c) project incentive		0
Monitoring & Targeting	Projects	0
Energy Manager	Managers	0
Key Account Manager (KAM)	Managers	0
Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	Projects	10
Demand Response 3	Facilities	4
Home Assistance Program		
Home Assistance Program	Units	0
Pre 2011 Programs Completed in 2011		
Electricity Retrofit Incentive Program	Projects	68
High Performance New Construction	Projects	0

2.4 Spending

Table 4: Program Spending by Initiative

Initiative	Program Administration Budget (PAB)	Participant Based Funding (PBF)	Participant Incentives (PI)	Capability Building Funding (CBF)	Total
Consumer Program					
Appliance Retirement	$36,234.82	$0	$0	$0	$36,235
Appliance Exchange	$18,005.50	$0	$0	$0	$18,006
HVAC Incentives	$45,481.79	$0	$0	$0	$45,482
Conservation Instant Coupon Booklet	$54,577.85	$0	$0	$0	$54,578
Bi-Annual Retailer Event	$0	$0	$0	$0	$0
Retailer Co-op	$0	$0	$0	$0	$0
Residential Demand Response	$16,762.02	$0	$0	$0	$16,762
New Construction Program	$22,950.43	$0	$0	$0	$22,950
Business Program					
Efficiency: Equipment Replacement	$120,485.94	$0	$435,294.31	$0	$555,780.25
Direct Installed Lighting	$9,430.94	$50,814.00	221,118.50	$0	$281,363.44
Existing Building Commissioning Incentive	$2,828.87	$0	$0	$0	$2,828.87
New Construction and Major Renovation Initiative	$3,884.43	$0	$0	$0	$3,884.43
Energy Audit	$23,859.80	$0	$0	$0	$23,859.80
Commercial Demand Response (part of the Residential program schedule)	$0	$0	$0	$0	$0.00
Demand Response 3 (part of the Industrial program schedule)	$1,956.91	$0	$0	$0	$1,956.91
Industrial Program					
Process & System Upgrades	$8,392.84	$0	$0	$0	$8,392.84
a) preliminary engineering study	*$2,877.47*	*$0*	*$0*	*$0*	-
b) detailed engineering study	*$2,352.47*	*$0*	*$0*	*$0*	-
c) program incentive	*$3,162.90*	*$0*	*$0*	*$0*	-
Monitoring & Targeting	$1,380.12	$0	$0	$0	$1,380.12
Energy Manager	$1,380.12	$0	$0	$0	$1,380.12
Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	$0	$0	$0	$0	$0.00
Demand Response 3	$1,949.81	$0	$0	$0	$1,949.81
Home Assistance Program					
Home Assistance Program	$10,573.24	$0	$0	$0	$10,573.24

Pre 2011 Programs Completed in 2011					
Electricity Retrofit Incentive Program	$0	$0	$794,452.90	$0	$794,452.90
High Performance New Construction	$0	$0	$0	$0	$0.00
TOTAL Province-wide CDM PROGRAMS	**$380,135.43**	**$50,814.00**	**$1,450,865.71**	**$0.00**	**$1,881,815.14**

Table 5: Peaksaver Extension

Residential DR Program - 2011					
Funding Received	Q1	Q2	Q3	Q4	Total
Fixed	$0.00	$0.00	-$92,917.30	$0.00	-$92,917.30
Variable	$0.00	-$73,500.00	-$40,810.00	$0.00	-$114,310.00
Total	$0.00	-$73,500.00	-$133,727.30	$0.00	-$207,227.30
Expense Reporting					
Fixed	Q1	Q2	Q3	Q4	Total
Marketing	$0.00	$9,587.34	-$227.40	$0.00	$9,359.94
Administration	$176.15	$20,036.72	$0.00	$0.00	$20,212.87
IT	$0.00	$0.00	$0.00	$0.00	$0.00
Total	$176.15	$29,624.06	-$227.40	$0.00	$29,572.81
Variable	Q1	Q2	Q3	Q4	Total
Installation Only	$18,762.00	$61,188.00	$8,680.00	$0.00	$88,630.00
Thermostat & Install	$0.00	$0.00	$0.00	$0.00	$0.00
Relay Switch	$0.00	$0.00	$0.00	$0.00	$0.00
Total	$18,762.00	$61,188.00	$8,680.00	$0.00	$88,630.00
Maintenance	Q1	Q2	Q3	Q4	Total
	$560.00	$840.00	$420.00	$0.00	$1,820.00
Financial Incentives	Q1	Q2	Q3	Q4	Total
	$3,300.00	$2,450.00	$950.00	$0.00	$6,700.00

2.5 Evaluation

The table below represents key findings from the OPA's province-wide evaluation of the provincial results.

2.5.1 EVALUATION FINDINGS

Table 6: Key Evaluation Findings from the OPA

Initiative	Evaluation Findings
Consumer Program	
Appliance Retirement	* Overall participation continues to decline year over year * Participation declined 17% from 2010 (from over 67,000 units in 2010 to over 56,000 units in 2011) * 97% of net resource savings achieved through the home pick-up stream * Measure Breakdown: 66% refrigerators, 30% freezers, 4% Dehumidifiers and window air conditioners * 3% of net resource savings achieved through the Retailer pick-up stream * Measure Breakdown: 90% refrigerators, 10% freezers * Net-to-Gross ratio for the initiative was 50% * Measure-level free ridership ranges from 82% for the retailer pick-up stream to 49% for the home pick-up stream * Measure-level spillover ranges from 3.7% for the retailer pick-up stream to 1.7% for the home pick-up stream
Appliance Exchange	* Overall eligible units exchanged declined by 36% from 2010 (from over 5,700 units in 2010 to over 3,600 units in 2011) * Measure Breakdown: 75% window air conditioners, 25% dehumidifiers * Dehumidifiers and window air conditioners contributed almost equally to the net energy savings achieved * Dehumidifiers provide more than three times the energy savings per unit than window air conditioners * Window air conditioners contributed to 64% of the net peak demand savings achieved

	* Approximately 96% of consumers reported having replaced their exchanged units (as opposed to retiring the unit) * Net-to-Gross ratio for the initiative is consistent with previous evaluations (51.5%)	

HVAC Incentives	* Total air conditioner and furnace installations increased by 14% (from over 95,800 units in 2010 to over 111,500 units in 2011)
	  * Measure Breakdown: 64% furnaces, 10% tier 1 air conditioners (SEER 14.5) and 26% tier 2 air conditioners (SEER 15)
	  * Measure breakdown did not change from 2010 to 2011
	* The HVAC Incentives initiative continues to deliver the majority of both the energy (45%) and demand (83%) savings in the consumer program
	  * Furnaces accounted for over 91% of energy savings achieved for this initiative
	* Net-to-Gross ratio for the initiative was 17% higher than 2010 (from 43% in 2010 to 60% in 2011)
	  * Increase due in part to the removal of programmable thermostats from the program, and an increase in the net-to-gross ratio for both Furnaces and Tier 2 air conditioners (SEER 15)	

Conservation Instant Coupon Booklet	* Customers redeemed nearly 210,000 coupons, translating to nearly 560,000 products
	  * Majority of coupons redeemed were downloadable (~40%) or LDC-branded (~35%)
	  * Majority of coupons redeemed were for multi-packs of standard spiral CFLs (37%), followed by multi-packs of specialty CFLs (17%)
	* Per unit savings estimates and net-to-gross ratios for 2011 are based on a weighted average of 2009 and 2010 evaluation findings
	* Careful attention in the 2012 evaluation will be made for standard CFLs since it is believed that the market has largely been transformed	

Bi-Annual Retailer Event	* Customers redeemed nearly 370,000 coupons, translating to over 870,000 products * Majority of coupons redeemed were for multi-packs of standard spiral CFLs (49%), followed by multi-packs of specialty CFLs (16%) * Per unit savings estimates and net-to-gross ratios for 2011 are based on a weighted average of 2009 and 2010 evaluation findings	

	* Standard CFLs and heavy duty outdoor timers were reintroduced to the initiative in 2011 and contributed more than 64% of the initiative's 2011 net annual energy savings * While the volume of coupons redeemed for heavy duty outdoor timers was relatively small (less than 1%), the measure accounted for 10% of net annual savings due to high per unit savings * Careful attention in the 2012 evaluation will be made for standard CFLs since it is believed that the market has largely been transformed.	
Retailer Co-op	* Initiative was not evaluated in 2011 due to low uptake. Verified Bi-Annual Retailer Event per unit assumptions and free-ridership rates were used to calculate net resource savings	
Residential Demand Response	* Approximately 20,000 new devices were installed in 2011 * 99% of the new devices enrolled controlled residential central AC (CAC) * 2011 only saw 1 atypical event (in both weather and timing) that had limited participation across the province * The ex ante impact developed through the 2009/2010 evaluations was maintained for 2011; residential CAC: 0.56 kW/device, commercial CAC: 0.64 kW/device, and Electric Water Heaters: 0.30 kW/device	
New Construction Initiative	* Initiative was not evaluated in 2011 due to limited uptake * Business case assumptions were used to calculate savings	
Business Program		
Efficiency: Equipment Replacement	* Gross verified energy savings were boosted by lighting projects in the prescriptive and custom measure tracks * Lighting projects overall were determined to have a realization rate of 112%; 116% when including interactive energy changes * On average, the evaluation found high realization rates as a result of both longer operating hours and larger wattage reductions than initial assumptions * Low realization rates for engineered lighting projects due to overstated operating hour assumptions	

	* Custom non-lighting projects suffered from process issues such as: the absence of required M&V plans, the use of inappropriate assumptions , and the lack of adherence to the M&V plan
	* The final realization rate for summer peak demand was 94%
	  * 84% was a result of different methodologies used to calculate peak demand savings
	  * 10% due to the benefits from reduced air conditioning load in lighting retrofits
	* Overall net-to-gross ratios in the low 70's represent an improvement over the 2009 and 2010 ERIP program where net-to-gross ratios were in the low 60's and low 50's, respectively.
	Strict eligibility requirements and improvements in the pre-approval process contributed to the improvement in net-to-gross ratios	

Direct Installed Lighting	* Though overall performance is above expectations, participation continues to decline year over year as the initiative reaches maturity
	* 70% of province-wide resource savings persist to 2014
	  * Over 35% of the projects for 2011 included at least one CFL measure
	  * Resource savings from CFLs in the commercial sector only persist for the industry standard of 3 years
	* Since 2009 the overall realization rate for this program has improved
	  * 2011 evaluation recorded the highest energy realization rate to date at 89.5%
	  * The hours of use values were held constant from the 2010 evaluation and continue to be the main driver of energy realization rate
	  * Lights installed in "as needed" areas (e.g., bathrooms, storage areas) were determined to have very low realization rates due to the difference in actual energy saved vs. reported savings	

Existing Building Commissioning Incentive	* Initiative was not evaluated in 2011, no completed projects in 2011	
New Construction and Major Renovation Initiative	* Initiative was not evaluated in 2011 due to low uptake	

	* Assumptions used are consistent with preliminary reporting based on the 2010 Evaluation findings and consultation with the C&I Work Group (100% realization rate and 50% net-to-gross ratio)	
Energy Audit	* The evaluation is ongoing. The sample size for 2011 was too small to draw reliable conclusions.	
Commercial Demand Response (part of the Residential program schedule)	* See residential demand response (#7)	
Demand Response 3 (part of the Industrial program schedule)	* See Demand Response 3 (#20)	
Industrial Program		
Process & System Upgrades	* Initiative was not evaluated in 2011, no completed projects in 2011	
Monitoring & Targeting	* Initiative was not evaluated in 2011, no completed projects in 2011	
Energy Manager	* Initiative was not evaluated in 2011, no completed projects in 2011	
Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	* See Efficiency: Equipment Replacement (#9)	
Demand Response 3	* Program performance for Tier 1 customers increased with DR-3 participants	

	providing 75% of contracted MW for both sectors * Industrial customers outperform commercial customers by provide 84% and 76% of contracted MW, respectively * Program continues to diversify but still remains heavily concentrated with less than 5% of the contributors accounting for the majority (~60%) of the load reductions. * By increasing the number of contributors in each settlement account and implementation of the new baseline methodology the performance of the program is expected to increase	
Home Assistance Program		
Home Assistance Program	* Initiative was not evaluated in 2011 due to low uptake * Business Case assumptions were used to calculate savings	
Pre-2011 Programs completed in 2011		
Electricity Retrofit Incentive Program	* Initiative was not evaluated * Net-to-Gross ratios used are consistent with the 2010 evaluation findings (multifamily buildings 99% realization rate and 62% net-to-gross ratio and C&I buildings 77% realization rate and 52% net-to-gross ratio)	
High Performance New Construction	* Initiative was not evaluated * Net-to-Gross ratios used are consistent with the 2010 evaluation findings (realization rate of 100% and net-to-gross ratio of 50%)	
Toronto Comprehensive	* Initiative was not evaluated * Net-to-Gross ratios used are consistent with the 2010 evaluation findings	
Multifamily Energy Efficiency Rebates	* Initiative was not evaluated * Net-to-Gross ratios used are consistent with the 2010 evaluation findings	
Data Centre Incentive Program	* Initiative was not evaluated	
EnWin Green Suites	* Initiative was not evaluated	

2.5.2 EVALUATION RESULTS

Table 7: Evaluated Results by Initiative

Initiative			Gross Savings		Net Savings		Contribution to Targets	
	NTG (KW)	NTG (KWh)	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Program-to-Date: Net Annual Peak Demand Savings (kW) in 2014	Program-to-Date: 2011-2014 Net Cumulative Energy Savings (kWh)
Consumer Program								
Appliance Retirement	51%	52%	72	520,136	36	262,506	35	1,049,114
Appliance Exchange	52%	52%	14	16,611	7	8,561	3	30,319
HVAC Incentives	61%	60%	1,063	1,967,839	642	1,178,372	642	4,713,489
Conservation Instant Coupon Booklet	114%	111%	17	277,453	19	305,679	19	1,222,717
Bi-Annual Retailer Event	113%	110%	25	438,730	27	479,313	27	1,917,251
Retailer Co-op	-	-	0	0	0	0	0	0
Residential Demand Response	-	-	152	0	152	0	0	0
New Construction Program	-	-	0	0	0	0	0	0
Business Program								
Efficiency: Equipment Replacement	74%	76%	759	4,004,164	564	3,057,370	551	12,179,524
Direct Installed Lighting	93%	93%	244	679,924	261	631,336	211	2,373,597
Existing Building Commissioning Incentive	-	-	0	0	0	0	0	0
New Construction and Major Renovation Incentive	-	-	0	0	0	0	0	0
Energy Audit	-	-	0	0	0	0	0	0
Commercial Demand Response (part of the Residential program schedule)	-	-	6	0	6	0	0	0

Demand Response 3 (part of the Industrial program schedule)	n/a	n/a	600	17,768	454	17,768	0	17,768
Industrial Program								
Process & System Upgrades	-	-	0	0	0	0	0	0
Monitoring & Targeting	-	-	0	0	0	0	0	0
Energy Manager	-	-	0	0	0	0	0	0
Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	74%	75%	54	359,559	40	271,185	40	1,084,740
Demand Response 3	n/a	n/a	1,724	85,285	1453	85,285	0	85,285
Home Assistance Program								
Home Assistance Program	-	-	0	0	0	0	0	0
Pre-2011 Programs completed in 2011								
Electricity Retrofit Incentive Program	58%	59%	1,663	11,190,915	964	6,580,023	964	26,320,0922
High Performance New Construction	50%	50%	2	10,461	1	5,230	1	20,922
Toronto Comprehensive	-	-	0	0	0	0	0	0
Multifamily Energy Efficiency Rebates	-	-	0	0	0	0	0	0
Data Centre Incentive Program	-	-	0	0	0	0	0	0
EnWin Green Suites	-	-	0	0	0	0	0	0

Table 8: Summarized Program Results

Program	Gross Savings		Net Savings		Contribution to Targets	
	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Program-to-Date: Net Annual Peak Demand Savings (kW) in 2014	Program-to-Date: 2011-2014 Net Cumulative Energy Savings (kWh)
Residential Program Total	1,341	3,220,769	883	2,234,431	726	8,932,891
Commercial & Institutional Program Total	1,609	4,701,856	1,284	3,706,474	762	14,570,889
Industrial Program Total	1,778	444,843	1,493	356,470	40	1,170,025
Home Assistance Program Total	0	0	0	0	0	0
Pre-2011 Programs completed in 2011 Total	1,665	11,201,376	965	6,585,253	965	26,341,014
Total OPA Contracted Province-Wide CDM Programs	**6,393**	**19,568,845**	**4,625**	**12,882,629**	**2,493**	**51,014,819**

2.6 Additional Comments

Challenges in 2011:

When Kitchener-Wilmot Hydro signed the Master Agreement in early 2011, a number of Initiative Schedules were not available (three C&I initiatives, Industrial Program and Low Income Program). Although the Residential and three C&I Program Initiatives were released at that time, they were not readily available for Kitchener-Wilmot Hydro customers due to a number of challenges:

1. Application and payment processes were not established
2. Application forms and worksheets were not available
3. The iCon system (both customer and LDC sites) was not launched until March 2011 and there are still various issues identified to date that delayed program uptake
4. There were kinks in some program design that were recognized after the release of the Schedules which affected the actual roll out in the market (i.e. Residential New Construction)

Initiatives were in the "start-up" mode as Kitchener-Wilmot Hydro and the OPA finalized Schedules, developed internal processes, and procured services and resources prior to marketing the initiatives to our customers. While the majority of initial elements, both internal and external of the programs were delivered during the course of 2011, results suffered accordingly.

Even with these challenges, Kitchener-Wilmot Hydro delivery of the 2011-2014 CDM Portfolio over the first 12 months of the contract term has been successful. The 2011 performance results were sufficient to build on for the next three years of the program term. Kitchener-Wilmot Hydro believes that the results could have been better if there were fewer challenges and if all program initiatives were in market in 2011.

Recommendations:

Many of the obstacles encountered in delivering Province Wide Programs in 2011 were out of Kitchener-Wilmot's control. However, Kitchener-Wilmot acknowledges that working closely with all the parties involved (the OPA, the OEB, channel partners, and the customers) to identify solutions to these problems will contribute to the success of the programs moving forward. A few recommendations are:

- Allow LDCs to have more flexibility implementing OPA-Contracted Province-wide Programs – LDCs know their customers and their needs more than any other entity. LDCs should be allowed to customize the delivery of the programs to their customers. An example is to establish a simplified/customized application process for most C&I and Industrial initiatives.

- Make it simple/straightforward for LDCs to apply for Board-Approved CDM Programs – Board-Approved CDM Programs may be necessary to ensure that many LDCs achieve their targets. In addition, it is ideal to have the approval process relatively quick, if possible, given the short amount of time left to design and launch a new program that would have a measureable impact on LDC's targets. The duplicate issue with existing programs should also be carefully reviewed.

- OPA-Contracted Province-Wide Program rules and eligibility requirements should be revised to influence more participation – Overly complex, lengthy, and onerous application processes are one of the main barriers to the success of some program initiatives.

- There should be a faster process to implement program changes and modifications

- In order for LDCs to adjust tactics in the marketplace in a timely manner, reporting performance results and evaluation results to LDCs should be timely, more frequent, and transparent

3 Combined CDM Reporting Elements

3.1 Progress Towards CDM Targets

Kitchener-Wilmot Hydro has achieved 21.5% and 56.8% of its demand and energy savings respectively. Kitchener-Wilmot feels that it is positioned to build on these initial results throughout year over year.

Table 9: 2011 Verified Results vs Milestones

	2011 Milestones as per 2010 Strategy		2011 Verified Annual Results		Variance to 2011 Milestones
	MW/MWh	(% to Target)	MW/MWh	(% to Target)	MW/MWh
Demand Savings	6.1	28%	4.6	21%	-1.5
Energy Savings	21,190	23%	12,882	14%	-8,308

Kitchener-Wilmot Hydro continued to see strong numbers in the commercial and institutional markets in 2011. Pre-2011 and 2011 programs contributed to the success and Kitchener-Wilmot Hydro is encouraged by the traction in each of the sectors. Strong market awareness of the incentive programs from pre-2011 ERIP in conjunction with creating and implementing a thorough marketing and communication plan in 2011 helped to influence customers with their efficiency standards. Kitchener-Wilmot Hydro will continue to build on its initial strategy by moving into segmentation, based on industry type, processes and overall outlook on energy management as a corporate objective. Kitchener-Wilmot Hydro also sees great potential with mid to smaller size commercial customers who are not aware of the incentive programs. New communication channels that target the right individuals within the organization will allow us to improve our ability to support customers through the application process thereby providing a positive experience. This will improve our participation rates through word of mouth and ultimately promote continuous energy management improvement.

Kitchener-Wilmot Hydro does see a few risks that will need to be monitored. The application process continues to be a struggle for many customers and channel partners. Due to the perceived process many smaller customers and channel partners who do not have additional resources react by not participating in the programs. Continued channel partner and customer training is planned to try and overcome some of the perceived feelings and hopefully generate greater participation rates.

Kitchener-Wilmot Hydro realizes that it must work hard to spread awareness and locate other low hanging fruit projects as well as targeting more technical custom projects that

deliver significant energy savings. By building this capability internally Kitchener-Wilmot Hydro will be able to spread out where the savings are generated and provide us with the ability to spot deeper energy savings with all commercial customers.

Kitchener-Wilmot Hydro saw positive results from the consumer market and recognizes the potential that exists in the short and long term. The Consumer initiative made up 19% and 17% of the total peak demand savings and total energy savings respectively. Although this was lower than the original CDM strategy Kitchener-Wilmot Hydro sees areas for improvement and initiatives to build on. The HVAC program was a leader within the portfolio making up 73% of the consumer peak demand savings and 53% of the consumer energy savings. Kitchener-Wilmot Hydro does see some risks with consumer programs which include the saturation of the appliance retirement program, peaksaver plus in home display technology and deployment. Kitchener-Wilmot Hydro will continue to support all of the consumer programs, including, coupons, appliance retirement, peaksaver plus, HVAC and new home construction in an effort to provide value to all of its residential customers. It is projected that an increased push in marketing and promotions will build awareness and drive up the contribution from the consumer market as this will be critical piece in Kitchener-Wilmot Hydro reaching its four year target. Kitchener-Wilmot Hydro continues to look for new ideas and best practices that can offer added value to the existing portfolio. The need for education programs within the schools would be one area to expand to ensure that the culture of conservation is taught at the grade school level.

Kitchener-Wilmot Hydro saw a mix in the Industrial market. Making up over 30% of the peak demand savings highlights the successes in demand response over the past few years. However, due to price options demand response only saw one new participant in the 2nd half of 2011. This is a major risk as Demand Response is a key driver for demand savings and will be critical in achieving our peak demand target. Once the price per KW is restored Kitchener-Wilmot Hydro feels that it has some great case examples to build on within its customer base. Larger industrial retrofits were not prevalent in 2011 and only a few projects were eligible for the preliminary engineering study or the detailed engineering study. However, due to timing and contract commitment customers opted for the retrofit application track. Due to the size of the majority of commercial customers in our territory and the longer sales cycles only a few opportunities will arise. Furthermore the hard stop in 2014 will deter some customers from participating.

Kitchener-Wilmot Hydro will continue to strategically target pre-qualified customers to promote the industrial programs but acknowledges that few opportunities exist.

Kitchener-Wilmot Hydro has a lot of lessons and successes to build on from 2011. Delivering a comprehensive portfolio of conservation programs in the consumer, commercial and industrial sectors offers great value and opportunity for all customers within our service territory. In 2011 program processes and plans were created to support CDM over the long term and we were rewarded with many success stories and evidence of traction in all programs in market. In 2012 and 2013 Kitchener-Wilmot Hydro will move its CDM strategy into full gear, through continuous promotion and communication to all customers in our region. Collaboration is a cornerstone objective that has proven to drive both internal and external advancement in marketing and delivering conservation. Focusing on synergies and partnerships where efficiencies can be achieved will ensure that Kitchener-Wilmot not only reach its targets but provide the best value to its customers.

Table 9: Net Peak Demand Savings at the End User Level (MW)

Implementation Period	Annual (MW)			
	2011	**2012**	**2013**	**2014**
2011 - Verified	4.63	2.56	2.56	2.49
2012				
2013				
2014				
Verified Net Annual Peak Demand Savings in 2014:				**2.49**
Kitchener-Wilmot Hydro Inc. 2014 Annual CDM Capacity Target:				**21.56**
Verified Portion of Peak Demand Savings Target Achieved (%):				**11.56%**
Kitchener-Wilmot Hydro Inc. Strategy, Milestone submitted for 2011				**28.29%**
Variance	**6.1**			**(16.73)**

Variances in the 2011 Net Peak Demand Savings as reported by the OPA can be attributed to a few key items;

- Initiatives such as DR3 and Residential Demand Response weigh heavily in the success of meeting our peak demand target. These programs proved to be a challenge to deliver in 2011, as discussed earlier in the report.
- The assumed one year persistence of DR3, the results above do not reflect approximately 1.9MW currently under contract. Should these contracts persist until 2014 the variance would be reduced to 10%.
- Large projects that will have the most significant impact on peak demand savings will not be seen in the results until 2012 and following years.
- The price per KW for DR participants is not as lucrative as it once was and had impacted new participant rates.

Table 10: Net Energy Savings at the End-User Level (GWh)

Implementation Period	Annual (GWh)				Cumulative (GWh)
	2011	2012	2013	2014	2011-2014
2011 - Verified	12.88	12.78	12.77	12.59	51.01
2012					
2013					
2014					
Verified Net Cumulative Energy Savings 2011-2014:					**51.01**
Kitchener-Wilmot Hydro 2011-2014 Cumulative CDM Energy Target:					**90.29**
Verified Portion of Cumulative Energy Target Achieved (%):					**56.50%**
Kitchener-Wilmot Hydro Inc. Strategy, Milestone submitted for 2011					**23.5%**
Variance	21.19 *cumulative*				33%

Variances in the 2011 Net Energy Savings as reported by the OPA can be attributed to a few key items:

- Energy Savings attributed from pre-2011 initiatives contributed to 51% of the total achieved in 2011.
- The HVAC Incentive initiative represents the greatest portion of savings in the residential programs. This initiative had not previously been delivered by Kitchener-Wilmot Hydro and the participation rates and associated savings were best estimates at the time KWH filed its strategy.
- The cumulative effect of Net Energy Savings is greater than anticipated when the strategy was written. Savings have demonstrated a significantly higher rate of persistence, resulting in a higher cumulative contribution towards the 2014 target.

3.2 CDM Strategy Modifications

Kitchener-Wilmot Hydro does not have any modifications to make to its strategy at this time. Comments regarding enhancements to delivery can be found in section 2.6 Additional Comments. Given the outcome in 2011 Kitchener-Wilmot Hydro is currently reviewing its 2012-2014 forecasted numbers and re-evaluating its initial CDM strategy to reflect the unforeseen changes to programs and delivery in 2011. For example Board Approved programs will not play a significant role in reaching our targets as we original had thought. Once a thorough review and analysis is completed Kitchener-Wilmot Hydro will consider resubmitting an updated strategy.

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Waterloo North Hydro Inc.

Electricity Distributor License ED-2002-0575

Conservation and Demand Management

2011 Annual Report

Submitted to:

Ontario Energy Board

File Number EB-2010-0215

Submitted on October 1, 2012

TABLE OF CONTENTS

Executive Summary

Waterloo North Hydro Inc. (WNH) in accordance with the filing requirements in the CDM Code is required to file an annual report showing its progress with respect to its CDM targets. Accordingly, this report outlines WNH's CDM activities for the period of January 1, 2011 to December 31, 2011 and net peak demand and net energy savings achieved in 2011.

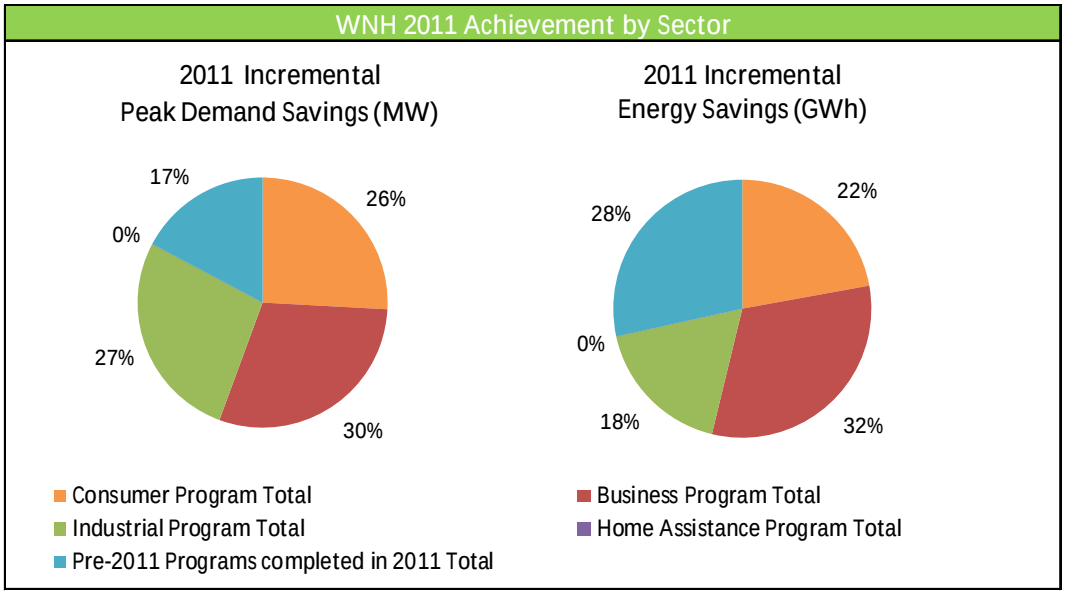
In 2011, WNH contracted with the Ontario Power Authority (OPA) to deliver a portfolio of OPA-Contracted Province-Wide CDM Programs to all customer segments including residential, commercial, institutional, industrial and low income. WNH did not apply for any Board-Approved CDM Programs in 2011 and therefore the results presented are as a result of the delivery of the OPA-Contracted Province-Wide CDM Programs.

WNH achieved 2.10 MW of net incremental peak demand savings and 6.49 GWH's of net incremental energy savings in 2011. A summary of the achievements towards the CDM targets is shown in Table 1.

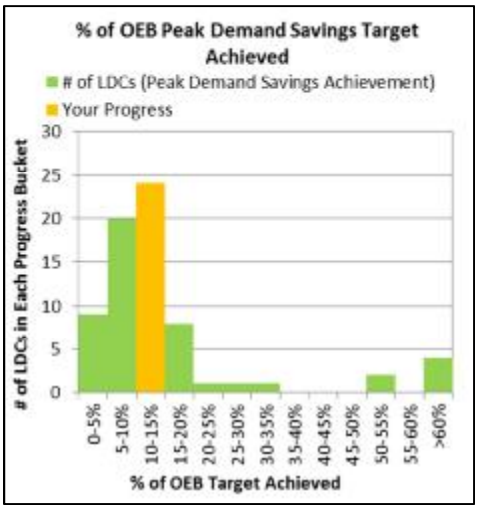
Table 1: 2011 Contribution to CDM targets

CDM Measure	Target	Incremental 2011 Net Savings	Cumulative to 2014			
			No DR Persistence	DR Persistence	% of Target 1 Year DR Persistence	% of Target 2014 DR Persistence
Net Peak Demand Savings (MW)	15.79	2.10	1.45	2.10	9.18%	13.32%
Net Energy Savings (GWh)	66.49	6.49	25.69	25.73	38.64%	38.70%

WNH achievements towards the CDM targets are well balanced across the sectors services as illustrated by the graph below.



Furthermore, WNH's 2011 achievements when compared to the greater LDC community illustrate that WNH is in good company with regards to peak demand achievements and positioned ahead of many LDC's in achievement of energy savings towards the CDM targets.



Much of the success achieved by WNH in 2011 is a direct result of focusing on partnerships, education and engagement. In 2011, WNH partnered with neighbouring local distribution companies Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro (collectively known as the CKW Group) in an effort to leverage our geographic proximity, resources and budgets to gain efficiencies in program delivery. This partnership enabled the CKW Group to educate and engage several hundred regional channel partners resulting in expanding the sales and marketing network from a mere few to several hundred. Furthermore, the partnership enabled the CKW Group to collectively educate and engage customers and stakeholders efficiently thereby increasing program uptake and achievements.

As 2011 was a year of laying the foundation and building the framework for the delivery of the OPA-Contracted Province-Wide CDM Programs, the results achieved by WNH provide significant contributions towards WNH's CDM targets. As a result WNH has the confidence that they will achieve the cumulative CDM targets by continuing to deliver the existing OPA-Contracted Province-Wide CDM Programs as well as implementing a number of options that may include, but are not limited to:

- Enhanced or new OPA-Contracted Province-Wide CDM initiatives
- New Board-Approved programs,
- Leveraging other initiatives (such as TOU rates, province wide marketing and promotion initiatives such as the PLEDGE)

Background

On March 31, 2010, the Minister of Energy and Infrastructure of Ontario, under the guidance of sections 27.1 and 27.2 of the *Ontario Energy Board Act, 1998*, directed the Ontario Energy Board (OEB) to establish Conservation and Demand Management (CDM) targets to be met by electricity distributors. Accordingly, on November 12, 2010, the OEB amended the distribution licence of WNH to require WNH, as a condition of its licence, to achieve 66.49 GWh of energy savings and 15.79 MW of summer peak demand savings, over the period beginning January 1, 2011 through December 31, 2014.

In accordance with the same Minister's directive, the OEB issued the Conservation and Demand Management Code for Electricity Distributors (the Code) on September 16, 2010. The code sets out the obligations and requirements with which electricity distributors must comply in relation to the CDM targets set out in their licences. To comply with the Code requirements, WNH submitted its CDM Strategy on November 1, 2010 which provided a high level of description of how WNH intended to achieve its CDM targets.

The Code also requires a distributor to file an annual report with the Board by September 30 of each year. This Annual Report is therefore prepared in accordance with the filing requirements as set out in the CDM Code, Board File No. EB-2010-0215 and covers the period from January 1, 2011 to December 31, 2011.

1 Board-Approved CDM Programs

1.1 Introduction

In its Decision and Order dated November 12, 2010 (**EB-2010-0215 & EB-2010-0216**), the OEB ordered that, (to meet its mandatory CDM targets), "Each licensed electricity distributor must, as a condition of its licence, deliver Board-Approved CDM Programs, OPA-Contracted Province-Wide CDM Programs, or a combination of the two".

At this time, the implementation of Time-of-Use ("TOU") Pricing is the only Board-Approved Conservation and Demand Management ("CDM") program that is being offered in WNH's service area.

In its April 26, 2012 CDM Guidelines, the OEB recognizes that a portion of the aggregate electricity demand target was intended to be attributable to savings achieved through the implementation of TOU Pricing. The OEB establishes TOU prices and has made the implementation of this pricing mechanism mandatory for distributors. On this basis, the OEB has determined that distributors will not have to file a Board-Approved CDM program application regarding TOU pricing. The OEB has deemed the implementation of TOU pricing to be a Board-Approved CDM program for the purposes of achieving the CDM targets. The costs associated with the implementation of TOU pricing are recoverable through distribution rates, and not through the Global Adjustment Mechanism ("GAM").

In accordance with a Directive dated March 31, 2010 by the Minister of Energy and Infrastructure, the OEB is of the view that any evaluations of savings from TOU pricing should be conducted by the OPA for the province, and then allocated to distributors. WNH will report these results upon receipt from the OPA. As of September 30, 2012, the OPA has not released its preliminary results of TOU savings to distributors. Therefore WNH is not able to provide any verified savings related to WNH's TOU program at this time.

1.2 Program Description

Target Customer Type(s): Residential and small business customers (up to 250,000 kWh per year)

Initiative Frequency: Year-Round

Objectives: TOU pricing is designed to incent the shifting of energy usage. Therefore peak demand reductions are expected, and energy conservation benefits may also be realized.

Description: In August of 2010, the OEB issued a final determination to mandate TOU pricing for Regulated Price Plan ("RPP") customers by June 2011, in order to support the Government's expectation for 3.6 million RPP consumers to be on TOU pricing by June

2011, and to ensure that smart meters funded at ratepayer expense are being used for their intended purpose.

The RPP TOU price is adjusted twice annually by the OEB. A summary of the RPP TOU pricing has been provided in Table 2.

Table 2: RPP TOU Pricing

RPP TOU	Rates (cents/kWh)		
Effective Date	On Peak	Mid Peak	Off Peak
November 1, 2010	9.9	8.1	5.1
May 1, 2011	10.7	8.9	5.9
November 1, 2011	10.8	9.2	6.2
May 1, 2012	11.7	10	6.5

Delivery: OEB set rates; LDC installation and maintenance of the meter; LDC converts customers to TOU billing.

Initiative Activities/Progress:

WNH began transitioning its RPP customers to TOU billing May of 2011 and as of December 31st, 2011, 49,086 RPP customers were on TOU billing representing 94.22 % of WNH's mandated customer base.

1.3 Participation

As of December 31, 2011, there were 49,086 WNH RPP customers enrolled in TOU billing representing 94.22 % of WNH's mandated customer base. Of those, 46,618 are residential customers and 2,468 are non-residential customers.

1.4 Spending

WNH does not have any spend to report for the period of January 1, 2011 to December 31, 2011 in relation to TOU billing as a Board-Approved CDM Program. Costs associated with the implementation of TOU pricing are recoverable through distribution rates, and not through the Global Adjustment Mechanism (GAM).

1.5 Evaluation

In accordance with CDM Guidelines dated April 26, 2012 (Board File No. EB-2012-0003), the OEB requires that any evaluations of savings from TOU pricing should be conducted by the OPA for the province then allocated to distributors. WNH will report these results upon receipt from the OPA. As of September 30, 2012, the OPA has not released its preliminary results of TOU savings to distributors; therefore, WNH is not able to provide any verified savings related to TOU program at this time.

1.6 CDM Variance Account

WNH did not offer any Board-Approved CDM Programs from January 1, 2011 to December 31, 2011 and therefore did not create a CDM Variance Account to address TOU costs.

1.7 Additional Comments

WNH anticipates savings resulting from TOU to count towards its CDM targets. Estimated TOU savings will be determined when the OPA releases its TOU evaluation plan and allocation methodology to LDCs.

2 OPA-Contracted Province-Wide CDM Programs

2.1 Introduction

Effective February 25, 2011, WNH entered into an agreement with the OPA to deliver OPA-Contracted Province-Wide CDM programs extending from January 1, 2011 to December 31, 2014, which are summarized in Table 3. It also includes references to this document where their descriptions, objectives, and activities are detailed. In addition to the OPA-Contracted Province–Wide CDM Programs, pre-2011 Programs, 2010 Programs extended into 2011, were added to the list.

Table 3: OPA-Contracted Province-Wide CDM Programs in Market in 2011

Initiative	Schedule	Date Schedule Posted	Customer Class
Residential Program			
Appliance Retirement	Schedule B-1, Exhibit D	Jan 26 2011	All residential rate classes
Appliance Exchange	Schedule B-1, Exhibit E	Jan 26 2011	All residential rate classes
HVAC Incentives	Schedule B-1, Exhibit B	Jan 26 2011	All residential rate classes
Conservation Instant Coupon Booklet	Schedule B-1, Exhibit A	Jan 26 2011	All residential rate classes
Bi-Annual Retailer Event	Schedule B-1, Exhibit C	Jan 26 2011	All residential rate classes
Retailer Co-op		Jan 26 2011	All residential rate classes
Residential Demand Response	Schedule B-3	Aug 22 2011	All general service classes
New Construction Program	Schedule B-2	Jan 26 2011	All residential rate classes
Commercial & Institutional Program			
Efficiency: Equipment Replacement	Schedule C-2	Jan 26 2011	All general service classes
Direct Install Lighting	Schedule C-3	Jan 26 2011	General Service < 50 kW
Existing Building Commissioning Incentive	Schedule C-6	Feb-11	All general service classes
New Construction and Major Renovation	Schedule C-4	Feb-11	All general service classes
Energy Audit	Schedule C-1	26-Jan-11	All general service classes
Commercial Demand Response	Schedule B-3	26-Jan-11	All general service classes
Demand Response 3	Schedule D-6	31-May-11	General Service 50 kW & above
Industrial Program			
Process & System Upgrades	Schedule D-1	31-May-11	General Service 50 kW & above
Monitoring & Targeting	Schedule D-2	31-May-11	General Service 50 kW & above
Energy Manager	Schedule D-3	31-May-11	General Service 50 kW & above
Equipment Replacement Incentive Initiative	Schedule C-2	31-May-11	General Service 50 kW & above
Demand Response 3	Schedule D-6	31-May-11	General Service 50 kW & above
Home Assistance Program			
Home Assistance Program	Schedule E-1	9-May-11	All residential rate classes
Pre-2011 Programs completed in 2011			
Electricity Retrofit Incentive Program	n/a	n/a	All general service classes
High Performance New Construction	n/a	n/a	All general service classes

Several initiatives that were included in the schedules were not in market in 2011, as shown in Table 4. The OPA has communicated that the initiatives listed in the table below were not in market in 2011 and that they represent a very small percentage of the forecasted energy and demand savings. During the 2011 program year, the OPA placed emphasis on supporting the implementation of initiatives that would offer the greatest ratepayer value and greatest amount of persisting savings.

Table 4: OPA-Contracted Province-Wide CDM Initiatives Not in Market in 2011

Initiative Not in Market in 2011	Objective	Status
Residential Program		
Midstream Electronics	The objective of this initiative is to encourage retailers to promote and sell high efficiency televisions, and for distributors to distribute high efficiency set top boxes.	Not launched to market
Midstream Pool Equipment	The objective of this initiative is to encourage pool installers to sell and install efficient pool pump equipment in residential in-ground pools.	Not launched to market
First Nations Program	First Nations programs are delivered by OPA and results are attributed to LDCs for reporting.	Not launched to market
Home Energy Audit Tool	This is a provincial online audit tool to engage customers in conservation and help drive customer participation to CDM programs.	Not launched to market
Commercial & Institutional Program		
Direct Service Space Cooling	The objective of this initiative is to offer free servicing of air conditioning systems and refrigeration units for the purpose of achieving energy savings and demand reduction.	Not launched to market in 2011. The OPA has no plans to launch this initiative 2012
Demand Response 1	This initiative allows distribution customers to voluntarily reduce electricity demand during certain periods of the year pursuant to the DR 1 contract. The initiative provides DR payment for service for the actual electricity reduction provided during a demand response event.	No customer uptake for this initiative
Industrial Program		
Demand Response 1	As above	No customer uptake for this initiative

The Master CDM Program Agreement includes program change management provisions in Article 3. Collaboration between the OPA and the Local Distribution Companies (LDCs) commenced in 2011 as the change management process was implemented to enhance the saveONenergy program suite. The change management process allows for modifications to the Master Service Agreement and initiative Schedules. The program enhancements give LDCs additional tools and greater flexibility to deliver programs in a way that meets the needs of customers and further drives participation in the initiatives.

2.2 Introduction

2.2.1 RESIDENTIAL PROGRAM

2.2.1.1 *APPLIANCE RETIREMENT INITIATIVE (Exhibit D)*

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objectives: Achieve energy and demand savings by permanently decommissioning certain older, inefficient refrigeration appliances located in Ontario.

Description: This is an energy efficiency Initiative that offers individuals and businesses free pick-up and decommissioning of old large refrigerators and freezers. Window air conditioners and portable dehumidifiers will also be picked up if a refrigerator or a freezer is being collected.

Targeted End Uses: Large refrigerators, large freezers, window air conditioners and portable dehumidifiers.

Delivery: OPA centrally contracts for province-wide marketing, call centre, appliance pick-up and decommissioning process. LDC provides local marketing and coordination with municipal pick-up where available.

Additional detail is available:

- Schedule B-1, Exhibit Dhttp://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdfand
- saveONenergy websitehttps://saveonenergy.ca/Consumer/Programs/Appliance-Retirement.aspx

Initiative Activities/Progress: Below is a comprehensive list of initiatives and activities undertaken by WNH to promote the Residential Program offerings. Initiatives and activities were commonly undertaken to promote saveONenergy FOR HOME at a holistic program level rather than Initiative for better market penetration and to achieve cost-efficiencies. In addition to cobranding marketing between Initiatives, every effort was made to collaborate and share material, ad space and creative costs with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro Inc. in our endeavour to jointly deliver the program and drive efficiencies.

- Newspaper ads ran in the Waterloo Chronicle, Elmira Independent and Woolwich Observer weekly from September, 2011 to December 2011 jointly branded with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro to promote energy savings tips, the saveONenergy FOR HOME and mysaveONnergy PLEDGE initiatives.

- Full page advertisement in the Elmira Sugar Kings Junior B Hockey Club 2011 – 2012 program.

- Full page advertisement in the Woolwich Observer “Environment and Conservation” special insert.

- Newspaper advertisement in the Waterloo Region Record jointly branded with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro and to promote energy savings tips and saveONenergy FOR HOME programs during Earth Hour.

- Newspaper advertisement in the Waterloo Region Record “Going Green” special insert jointly branded with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro and to promote the fall mysaveONenergy PLEDGE initiative

- Buck slip sized, double sided bill insert distributed to all WNH customers in spring / summer period promoting saveONenergy FOR HOME initiatives.

- Business card size ad in the Greater KW Chamber of Commerce 2011 directory promoting the saveONenergy programs and initiatives.

- Program banners jointly branded with Cambridge and North Dumfries and Kitchener-Wilmot Hydro to promote the program in our lobby, shareholder offices and at special events.

- Sponsorship with the Kitchener Rangers Ontario Hockey League Club on the scoreboard with a commercial supporting the saveONenergy FOR HOME initiatives through the mysaveONenergy Pledge.

- Program brochure jointly branded with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro to promote the programs in our lobby and at special event.

- Distribution of WNH specific coupons, initiative brochures to community outreach partners for distribution at community events and partner offices.

- **s**aveONenergy FOR HOME initiatives promoted via WNH website and LDC co-branded micro-site.

- Delivered lunch and learn sessions promoting the saveONenergy FOR HOME initiatives to a number of customer groups.

In Market Date: February 25, 2011

Lessons Learned:

- The Appliance Retirement Initiative (previously The Great Refrigerator Round-Up) has been offered by LDCs since 2007. This initiative is approaching market saturation.

- While the OPA and the LDCs have reviewed this initiative to assess whether to include other products, appliances have a natural life cycle and the initiative cannot be expected to continually deliver the high level of results in perpetuity. These lower expectations have been taken into account when developing conservation portfolios.

- This initiative now faces some competition from independent retailers and municipalities. Locally, the Region of Waterloo offers a strong curb-side pick-up program that does not require a pickup to be scheduled and at no cost to customers

- Results are very responsive to province wide advertising.

2.2.1.2 *APPLIANCE EXCHANGE INITIATIVE (Exhibit E)*

Target Customer Type(s): Residential Customers

Initiative Frequency: Spring and Fall

Objective: The objective of this Initiative is to remove and permanently decommission older, inefficient window air conditioners and portable dehumidifiers that are in Ontario.

Description: This Initiative involves appliance exchange events. Exchange events are held at local retail locations and customers are encouraged to bring in their old room air conditioners (AC) and dehumidifiers in exchange for coupons/discounts towards the purchase of new energy efficient equipment.

Targeted End Uses: Window air conditioners and portable dehumidifiers

Delivery: The OPA contracts with participating retailers for collection of eligible units.

Additional detail is available:

- Schedule B-1, Exhibit Chttp://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress: WNH provided local marketing support by way of their website and co-branded micro site, but due to limited resources WNH did not attend any of the events.

In Market Date: February 25, 2011

Lessons Learned:

- The spring event had the participation of 3 retailers with 300 – 400 locations across the province. However, the Fall 2011 event had no retailer participation, therefore savings budgeted by the LDCs did not materialize.
- Evaluation, Measurement, and Verification (EMV) results indicated that the value of savings for retired room AC has dropped.
- The initiative may be achieving market saturation.
- The type of unit turned in is very dependent upon what is promoted by the retailers.
- Limited engagement of local franchised retailers can restrict the savings potential for this Initiative.

2.2.1.3 *HVAC INCENTIVES INITIATIVE (Exhibit B)*

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage the replacement of existing heating systems with high efficiency furnaces equipped with Electronically Commutated Motors (ECM), and to replace existing central air conditioners with ENERGY STAR qualified systems and products**.**

Description: This is an energy efficiency Initiative that provides rebates for the replacement of old heating or cooling systems with high efficiency furnaces (equipped with ECM) and Energy Star qualified central air conditioners by approved Heating, Refrigeration, and Air Conditioning Institute (HRAI) qualified contractors.

Targeted End Uses: Central air conditioners and furnaces

Delivery: OPA contracts centrally for delivery of the program and LDCs are encouraged to convince local contractors to participate in the Initiative.

Additional detail is available:

- Schedule B-1, Exhibit B http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress: Below is a comprehensive list of initiatives and activities undertaken by WNH to promote the Residential Program offerings. Initiatives and activities were commonly undertaken to promote saveONenergy FOR HOME at a

holistic program level rather than Initiative for better market penetration and to achieve cost-efficiencies. In addition to cobranding marketing between Initiatives, every effort was made to collaborate and share material, ad space and creative costs with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro Inc. in our endeavour to jointly deliver the program and drive efficiencies.

- Newspaper ads ran in the Waterloo Chronicle, Elmira Independent and Woolwich Observer weekly from September, 2011 to December 2011 jointly branded with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro to promote energy savings tips, the saveONenergy FOR HOME and mysaveONnergy PLEDGE initiatives.

- Full page advertisement in the Elmira Sugar Kings Junior B Hockey Club 2011 – 2012 program.

- Full page advertisement in the Woolwich Observer “Environment and Conservation” special insert.

- Newspaper advertisement in the Waterloo Region Record jointly branded with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro and to promote energy savings tips and saveONenergy FOR HOME programs during Earth Hour.

- Newspaper advertisement in the Waterloo Region Record “Going Green” special insert jointly branded with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro and to promote the fall mysaveONenergy PLEDGE initiative

- Buck slip sized, double sided bill insert distributed to all WNH customers in spring / summer period promoting saveONenergy FOR HOME initiatives.

- Business card size ad in the Greater KW Chamber of Commerce 2011 directory promoting the saveONenergy programs and initiatives.

- Program banners jointly branded with Cambridge and North Dumfries and Kitchener-Wilmot Hydro to promote the program in our lobby, shareholder offices and at special events.

- Sponsorship with the Kitchener Rangers Ontario Hockey League Club on the scoreboard with a commercial supporting the saveONenergy FOR HOME initiatives through the mysaveONenergy Pledge.

- Program brochure jointly branded with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro to promote the programs in our lobby and at special event.

- Distribution of WNH specific coupons, initiative brochures to community outreach partners for distribution at community events and partner offices.
- saveONenergy FOR HOME initiatives promoted via WNH website and LDC co-branded micro-site.
- Delivered lunch and learn sessions promoting the saveONenergy FOR HOME initiatives to a number of customer groups.

In Market Date: February 25, 2011

Lessons Learned:

- Channel engagement is a highly effective method of connecting with customers; however channel partners require timeliness of the Rebate process to maintain a positive relationship between consumers, contractors, the OPA, and the participating LDC.
- There appears to be spillover from non-HRAI contractors who are ineligible for this initiative. There are cases where smaller independent contractors are offering their own incentives (by discounting their installations to match value of the OPA incentive) to make the sale. As this occurs outside of the initiative, these installations not being attributed to any LDC.

2.2.1.4 *CONSERVATION INSTANT COUPON BOOKLET INITIATIVE (Exhibit A)*

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage households to purchase energy efficient products by offering discounts.

Description: This Initiative provides customers with year round coupons. The coupons offer instant rebates towards the purchase of a variety of low cost, easy to install energy efficient measures and can be redeemed at participating retailers. Booklets were directly mailed to customers and were also available at point-of-purchase. Downloadable coupons were also available at www.saveoneenergy.ca.

Targeted End Uses: ENERGY STAR® qualified standard compact fluorescent Lights (CFLs), ENERGY STAR® qualified light fixtures lighting control products, weather stripping, hot water pipe wrap, electric water heater blanket, heavy duty plug-in timers, advanced power bars, clotheslines, and baseboard programmable thermostats

Delivery: The OPA contracts centrally for the distribution of the coupon booklets across Ontario. The LDCs distribute coupons at local events and various print channels i.e. newspapers and bill inserts. The OPA enters into agreements with retailers to honour the coupons.

Additional detail is available:

- Schedule B-1, Exhibit A http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress: Below is a comprehensive list of initiatives and activities undertaken by WNH to promote the Residential Program offerings. Initiatives and activities were commonly undertaken to promote saveONenergy FOR HOME at a holistic program level rather than Initiative for better market penetration and to achieve cost-efficiencies. In addition to cobranding marketing between Initiatives, every effort was made to collaborate and share material, ad space and creative costs with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro Inc. in our endeavour to jointly deliver the program and drive efficiencies.

- Newspaper ads ran in the Waterloo Chronicle, Elmira Independent and Woolwich Observer weekly from September, 2011 to December 2011 jointly branded with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro to promote energy savings tips, the saveONenergy FOR HOME and mysaveONnergy PLEDGE initiatives.

- Full page advertisement in the Elmira Sugar Kings Junior B Hockey Club 2011 – 2012 program.

- Full page advertisement in the Woolwich Observer “Environment and Conservation” special insert.

- Newspaper advertisement in the Waterloo Region Record jointly branded with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro and to promote energy savings tips and saveONenergy FOR HOME programs during Earth Hour.

- Newspaper advertisement in the Waterloo Region Record “Going Green” special insert jointly branded with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro and to promote the fall mysaveONenergy PLEDGE initiative.

- Buck slip sized, double sided bill insert distributed to all WNH customers in spring / summer period promoting saveONenergy FOR HOME initiatives.

- Business card size ad in the Greater KW Chamber of Commerce 2011 directory promoting the saveONenergy programs and initiatives.

- Program banners jointly branded with Cambridge and North Dumfries and Kitchener-Wilmot Hydro to promote the program in our lobby, shareholder offices and at special events.

- Sponsorship with the Kitchener Rangers Ontario Hockey League Club on the scoreboard with a commercial supporting the saveONenergy FOR HOME initiatives through the mysaveONenergy Pledge.

- Program brochure jointly branded with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro to promote the programs in our lobby and at special event.

- Distribution of WNH specific coupons, initiative brochures to community outreach partners for distribution at community events and partner offices.

- saveONenergy FOR HOME initiatives promoted via WNH website and LDC co-branded micro-site.

- Delivered lunch and learn sessions promoting the saveONenergy FOR HOME initiatives to a number of customer groups.

In Market Date: February 25, 2011

Lessons Learned:

- The downloadable coupons proved to be more successful than the mailed out booklets.

- This Initiative may benefit from an enabler such as a Conservation Card / Loyalty Card to increase customer participation.

- The timeframe for retailer submission of redeemed coupons vary from retailer to retailer. This delays the results reporting, which in turn limits the OPA and LDC abilities to react and respond to initiative performance or changes in consumer behaviour.

- The Product list should be distinctive from the Bi-Annual Retailer Event Initiative in order to gain more consumer interest and uptake.

- Program evolution, including new products (for example, LED lighting) and review of incentive pricing for the coupon Initiatives, should be a regular activity to ensure continued consumer interest. To date this has not occurred.

2.2.1.5 *BI-ANNUAL RETAILER EVENT INITIATIVE (Exhibit C)*

Target Customer Type(s): Residential Customers

Initiative Frequency: Bi-annual events

Objective: The objective of this Initiative is to provide instant point of purchase discounts to individuals at participating retailers for a variety of energy efficient products.

Description: Twice a year (Spring and Fall), participating retailers host month-long rebate events. During the months of April and October, customers are encouraged to visit participating retailers where they can find coupons redeemable for instant rebates towards a variety of low cost, easy to install energy efficient measures.

Targeted End Uses: As per the Conservation Instant Coupon Booklet Initiative

Delivery: The OPA enters into arrangements with participating retailers to promote the discounted products, and to post and honour related coupons. LDCs also refer retailers to the OPA as well as market the initiative in their distribution service territory.

Additional detail is available:

- Schedule B-1, Exhibit Chttp://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-1%20Residential%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress: No marketing activities were undertaken at the local level for this Initiative. Results relied on spillover from the year-round coupon campaign and the marketing undertaken at a provincial and retailer level

In Market Date: March, 2011

Lessons Learned:

- The Product list has changed very little over the past four years.
- Program evolution, including new products (for example, LED lighting) and review of incentive pricing for the coupon initiatives, must be a regular activity to ensure continued consumer interest.
- A review conducted by the Residential Working Group in Q4 2011 identified three areas of need for initiative evolution: 1) introduction of product focused marketing; 2) enhanced product selection and 3) improved training for retailers.
- The Product list should be distinctive from the Conservation Instant Coupon Booklet Initiative in order to gain more consumer interest and uptake.

2.2.1.6 *RETAILER CO-OP*

Target Customer Type(s): Residential Customers

Initiative Frequency: Year Round

Objective: Hold promotional events to encourage customers to purchase energy efficiency measures (and go above-and-beyond the traditional Bi-Annual Coupon Events).

Description: The Retailer Co-op Initiative provides LDCs with the opportunity to work with retailers in their service area by holding special events at retail locations. These events are typically special promotions that encourage customers to purchase energy efficiency measures (and go above-and-beyond the traditional Bi-Annual Coupon Events).

Targeted End Uses: As per the Conservation Instant Coupon Booklet Initiative

Delivery: Retailers apply to the OPA for co-op funding to run special promotions that promote energy efficiency to customers in their stores. LDCs can refer retailers to the OPA. The OPA provides each LDC with a list of retailers who have qualified for Co-Op Funding as well as details of the proposed special events.

Initiative Activities/Progress: WNH did not participate in the Retailer Co-Op program in 2011 due to limited resources and local market options.

In Market Date: Not Applicable

Lessons Learned:

- The availability of retailer and/or LDC staff with product knowledge and the ability to conduct demonstration in store during the events would be an asset. This could be a valuable role for LDCs, however many LDCs are limited by available resources and unable to participate.
- Limited engagement of local franchised retailers can restrict the savings potential for this Initiative.

2.2.1.7 *NEW CONSTRUCTION PROGRAM (Schedule B-2)*

Target Customer Type(s): Residential Customers

Initiative Frequency: Year round

Objective: The objective of this initiative is to provide incentives to participants for the purpose of promoting the construction of energy efficient residential homes in the Province of Ontario.

Description: This is an energy efficiency Initiative that provides incentives to homebuilders for constructing new homes that are efficient, smart, and integrated (applicable to new single family dwellings). Incentives are provided in two key categories as follows:

- Incentives for homebuilders who install electricity efficiency measures as determined by a prescriptive list or via a custom option.

- Incentives for homebuilders who meet or exceed aggressive efficiency standards using the EnerGuide performance rating system.

Targeted End Uses: all off switch, ECM motors, ENERGY STAR qualified central a/c, lighting control products, lighting fixtures, EnerGuide 83 whole home, and EnerGuide 85 whole homes

Delivery: Local engagement of builders will be the responsibility of the LDC and will be supported by OPA air coverage driving builders to their LDC for additional information.

Additional detail is available:

- Schedule B-1, Exhibit Chttp://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20B-2%20New%20Construction%20Program.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress: WNH provided local marketing and customer support of the initiative and promoted the initiative to both residential customers and local builders by way of printed brochures. Resistance from local home builders due to a cumbersome application process and relatively small incentives (as compared to the cost of the home and amount of time to complete and submit an application) has stalled uptake in WNH's service territory. Proposed changes to the application process should improve participation rates in 2012 and beyond.

In Market Date: February 25, 2012

Lessons Learned:

- There were limited (5) participants in the program. Because the online application system is a one to one relationship, this program was only practical for custom builders who were building one home at a time. Tract builders who might build 250 homes in a single phase would have to submit 250 applications to qualify for incentives. This administrative challenge has deterred all tract builders from participating in the program to date.

- Administrative requirements must align with perceived stakeholder payback. Changes are being processed through change management for 2012. However, the lengthy change management process has resulted in continued non-participation from builders.

2.2.1.8 *RESIDENTIAL DEMAND RESPONSE PROGRAM (Schedule B-3)*

Target Customer Type(s): Residential and Small Commercial Customers

Initiative Frequency: Year round

Objective: The objectives of this Initiative are to enhance the reliability of the IESO-controlled grid by accessing and aggregating specified residential and small commercial end uses for the purpose of load reduction, increasing consumer awareness of the importance of reducing summer demand and providing consumers their current electricity consumption and associated costs.

Description*:* In ***peaksaver***PLUS ™ participants are eligible to receive a free programmable thermostat or switch, including installation. Participants also receive access to price and real-time consumption information on an In Home Display (IHD).LDCs were given the choice to continue to offer the standard load control program (programmable thermostat or switch with a $25 bill credit) for the first 8 months of 2011 (referred to as ***peaksaver***®Extension).After August 2011, the Extension ended and the program (including marketing) ceased until new IHD product were available.

Targeted End Uses: Central air conditioning, electric water heaters and pool pumps.

Delivery: LDC's recruit customers, procure technology and have the technology installed on participating customer's equipment.

Additional detail is available:

- Schedule B-1, Exhibit Chttp://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/SCHED_2011_ResDR_B_3_110727%28MJB%29v15_redacted.pdf and
- saveONenergy website https://saveonenergy.ca/Consumer.aspx

Initiative Activities/Progress: Under the *peaksaver*® extension the 2010 *peaksaver*® program was offered to residential and small business customers. WNH is reviewing technologies and solutions for the peaksaverPLUS ™ initiative to maximize existing infrastructure, limit stranded assets and provide a quality product to customers.

In Market Date: Due to delays in technology availability and interoperability, this program is not yet in market, However WNH offered customers the *peaksaver* ® under and extension of the 2010 program from April 2011 to August 2011.

Lessons Learned:

- The schedule for Peaksaver Plus was posted in August 2011, but this did not provide adequate time for product procurement for 2011, and part of 2012. The product procurement process uncovered that the In Home Display units that communicate with installed smart meter technology were still in development and not ready for market deployment. Consequently, LDCs could not be in market with the Peaksaver Plus program until 2012.

- Introduction of new technology requires incentives for the development of such technology. Appropriate lead times for LDC analysis and assessment, product procurement, and testing and integration into the Smart Meter environment are also required. Making seemingly minor changes to provincial technical specifications can create significant issues when all LDCs attempt to implement the solution in their individual environments.

- Where a provincial solution is not available to all participants, attention to addressing specific LDC concerns is needed.

2.2.2 COMMERCIAL AND INSTITUTIONAL PROGRAM

2.2.2.1 *EFFICIENCY: EQUIPMENT REPLACEMENT INCENTIVE (ERII) (Schedule C-2)*

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives to non-residential distribution customers to achieve reductions in electricity demand and consumption by upgrading to more energy efficient equipment for lighting, space cooling, ventilation and other measures.

Description: The Equipment Replacement Incentive Initiative (ERII) offers financial incentives to customers for the upgrade of existing equipment to energy efficient equipment. Upgrade projects can be classified into either: 1) prescriptive projects where prescribed measures replace associated required base case equipment; 2) engineered projects where energy and demand savings and incentives are calculated for associated measures; or 3) custom projects for other energy efficiency upgrades.

Targeted End Uses: Lighting, space cooling, ventilation, and other measures.

Delivery: LDC delivered.

Additional detail is available:

- Schedule C-2 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-2%20ERII%20Initiative.pdf and
- saveONenergy website https://saveonenergy.ca/Business/Program-Overviews/Retrofit-for-Commercial.aspx

Initiative Activities/Progress: Below is a comprehensive list of delivery, marketing, promotion, outreach and educational, activities undertaken by WNH to promote the commercial and institutional initiatives. Marketing, promotional and outreach activities were commonly undertaken to promote saveONenergy FOR BUSINESS at a holistic program level rather than Initiative for better market penetration and to achieve cost-efficiencies, but much initiative level activates were implemented as a result of customer and initiative segmentation and program uptake. In addition to cobranding marketing between initiatives, every effort was made to collaborate and share material, ad space and creative costs with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro Inc. in our endeavour to jointly deliver the program and drive efficiencies.

Progress

- WNH saw significant program uptake and success as a result of the educational, promotional and outreach activities undertaken and as a result nearly 25% WNH's 2011 results were achieved as a result of the initiative.

- In collaboration with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro worked closely with Regional channel partners, thereby strengthening relationships and educating them on the benefits of higher efficiency technologies and saveONenergy FOR BUSINESS initiatives. As a result a greater audience was reached and additional projects were implemented as compared to solely working with and targeting the end user.

Delivery

- In collaboration with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro issued a Request for Proposal for the evaluation of retrofit applications; reviewed, scored and selected a delivery partner for application review.

Education, Marketing, Outreach and Promotion

- A series of key account breakfasts all commercial customers within the Waterloo Region were held in collaboration with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro. The objective of the sessions was to communicate the availability of incentives, how to participate and where energy efficiency opportunities may exist. In total three breakfast sessions were held in 2011 with topics focused introducing the new structure, initiatives and key program rules;, building the energy management team and the energy efficiency business case; the AUDIT FUNDING initiative; and compressed air systems.

- In partnership with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro held the 2nd annual Technology Symposium, where over 60 energy conservation exhibitors showcased various technologies and solutions including lighting, compressed air, energy audits, demand response as well as other technologies. In addition to the exhibition, 10 sessions were held to help

educate, inform, encourage and empower customers with energy conservation initiatives. Sessions topics included the following:

- saveONenergy FOR BUSINESS initiatives – ERII, Energy Audit, Existing Building and Commissioning, Demand Response and Energy Managers,
- Energy Audits and the Ten Most Common Problems with them,
- Compressed Air System Opportunities,
- Understanding the Future of Light,
- Sub-Metering and Energy Management Systems,
- High Velocity, Low Speed Fans,
- ISO 50001 Certification,
- High Performance New Construction initiative,
- Chiller Efficiency and Optimization, and
- Sustainable Waterloo's Region la Carbon Initiative

The event drew in over 300 business customers from across the Region of Waterloo and representatives from 7 LDC's outside of the region.

- Half-page advertisements in the Exchange Magazine promoting the saveONenergy FOR BUSINESS initiatives in collaboration with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro.

- In partnership with Kitchener-Wilmot Hydro sponsored the Greater KW Chamber of Commerce and promoted the saveONenergy FOR BUSINESS initiatives in their online newsletter as well as their bimonthly magazine. and participated in their annual Energy and Environment forum

- Regularly met with customers to educate them on the various initiatives, the process for completing applications and to perform site walkthroughs to identify areas of opportunity for energy conservation projects. In addition assistance with various steps of the project were provided including identifying opportunities, connecting the customers to the appropriate vendors and service providers, building the business case and application support.

- Initiative banners and sell sheets and folders jointly branded with Cambridge and North Dumfries and Kitchener-Wilmot Hydro to promote the initiatives were developed for education and engagement events.

- Sponsorship of Sustainable Waterloo (now Sustainable Waterloo Region) breakfast sessions that supporting the saveONenergy FOR BUSINES initiatives.

- Delivered six hands-on training ERII modules to channel partners to help them become knowledgeable with the application process, program rules and further understand how and where to spot additional energy savings.

- WNH in partnership with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro ran two breakfast seminars for Channel Partners in the Region to engage and educate them on the saveONenergy FOR BUSINESS initiatives, the application process, provide them with tips and communicate initiative and application requirements. In addition we would communicate our challenges and successes, acknowledge and celebrate channel partner successes and leverage these events to promote networking between channel partner segments.

In Market Date: April 2011

Lessons Learned:

- ERII (previously Equipment Replacement Incentive Program – ERIP) has been offered by LDCs for many years. It is a high performing, cost-effective program, and there were many pre-2011 projects completing in 2011 (via ERIP).

- An identified deficiency in the various renditions of the equipment replacement programs is the “hard stop” of the program as of a specific date. The ERIP program ended as of December 31, 2010 and the new ERII program was not made available until March 2011. Without a streamlined transition into a new program at the end of the old many customers become frustrated and refuse to participate. LDCs struggle to repair customer and channel partner relationships and gain momentum in the marketplace once again.

- A major challenge for the ERII program in 2011 was payment delays. The centralized electronic processes were not ready as required by the Master Agreement. The lack of having these automated processes, exasperated by a greater than expected volume of pre-2011 projects completing in 2011, caused considerable payment delays. As a result, LDCs either utilized their working capital to pay customer incentives in order to preserve customer relations, or delayed payment to their customers. Based on the lessons learned in the 2011 process, the centralized process review used for 2012 project payment has been streamlined by the OPA.

- In March 2011, the revised iCON system was launched by the OPA. This is the major online application system implemented to aid the 2011-2014 ERII application process. With system applications of this size and functionality, it was expected that there would be various issues identified at the time of the release, and on-going, to prove that the system was “ready for market.” Unfortunately, the resolution of these issues, with the corresponding time lags and workarounds, was seen to be a barrier to some customer participation in the 2011 program year. In addition, there were also on-going issues and limitations with the back-end CRM system that affected LDCs ability to effectively review and approve applications. Some LDCs (and their third party service providers) have developed parallel systems to monitor their applications.

2.2.2.2 *DIRECT INSTALL INITIATIVE (DIL) (Schedule C-3)*

Target Customer Type(s): Small Commercial, Institutional, Agricultural facilities and multi-family buildings

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer a free installation of eligible lighting and water heating measures of up to $1,000 to eligible owners and tenants of commercial, institutional and agricultural facilities and multi-family buildings, for the purpose of achieving electricity and peak demand savings.

Description: The Direct Installed Lighting Initiative targets customers in the General Service <50kW account category. This Initiative offers turnkey lighting and electric hot water heater measures with a value up to $1,000 at no cost to qualifying small businesses. In addition, standard prescriptive incentives are available for eligible equipment beyond the initial $1,000 limit.

Target End Uses: Lighting and electric water heating measures.

Delivery: Participants can enrol directly with the LDC, or would be contacted by the LDC/LDC-designated representative.

Additional detail is available:

- Schedule C-3 http://www.powerauthority.on.ca/sites/default/files/page/Schedule%20C-3%20Direct%20Install%20Initiative%20-%20redacted.pdf and
- saveONenergy website https://saveonenergy.ca/Business/Program-Overviews/Small-Business-Lighting-and-AC.aspx

Initiative Activities/Progress:

Progress

- Waterloo North Hydro in partnership with their delivery partner has been very successful with the previous Power Savings Blitz program completing nearly 1,400 retrofits since program inception back in 2008. As a result of this success the number of eligible customers has significantly diminished therefore program participation continued to decrease, while the amount of effort to gain program participants is increasing as the remaining customers are more difficult to reach.

Delivery

- Waterloo North Hydro issued an extension to the existing program delivery contract with 2010 program delivery service provider to continue program delivery and momentum keep program momentum while developing a Request for Proposals for a program delivery partner. Under the extension all pending projects were reviewed and reassessed under the new program rules and

incentives in order to offer customers the new standard prescriptive incentives should their assessment exceed the $1,000 limit.

- Waterloo North Hydro in partnership with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro issued a Request for Proposals for a program delivery services, reviewed the proposals and awarded a contract for program delivery service from September 1, 2011 to December 31, 2012.

Education, Outreach, Marketing and Promotion

- Under the new program delivery contract all remaining eligible program participants were contacted by an outbound call center explaining the program and setting up site assessments. In addition in field assessors were cold call eligible program participants and performing assessments to further increase participation.

- Outreach to eligible customers continued throughout the year by our delivery partner who cold called by phone and in person all remaining eligible customers to educate them on the program benefits and encourage uptake.

- WNH provided local marketing and customer support for the initiative by way of distribution of initiative promotional material at events and local Chamber of Commerce's and assisting customers in accessing the program and responding to initiative inquiries.

In Market Date: May 2011

Lessons Learned:

- The Direct Install Lighting Initiative is a continuation of the Power Saving Blitz Initiative offered by LDCs from 2008-2010. Successful execution of the previous rendition of this Initiative has resulted in diminished potential for the 2011-2014 Initiative in some LDC territories.

- The inclusion of a standard incentive for additional measures increased project size and drove higher energy and demand savings results in some situations.

- Ambiguity surrounding the definition of what is considered an eligible participant and eligible facility in the program has rendered previously eligible account ineligible. This has limited the opportunity to reach out to further business which may be owned by one landlord or be at one common service address, despite having separate unit numbers.

- The ability to return to prior participants and offer a standard incentive on the remaining measures has the potential to provide additional energy and demand

savings. Currently LDCs are unable to offer standard incentives to prior participants.

- As with the equipment replacement program, the direct install Initiative lost momentum in some LDC service territories due to the "hard stop" of the program in 2010 and subsequent program delay in 2011.

- The cost of materials has experienced price volatility, reducing the margins of the electrical contractors and has led to a reduction in vendor channel participation in some regions.

- Due to backlogs in the payment system, participant incentive payment from the OPA to the LDC, and therefore to the customer, was commonly delayed.

- To address these issues, the LDCs have been working with the OPA through Change Management to address:
  - extending the target initiative population to include small agricultural customers;
  - increasing the incentive envelope of $1,000 to $1,500 to ensure ongoing marketability of the program; and
  - reviewing the eligible measure price list to support contractor participation.

2.2.2.3 *EXISTING BUILDING COMMISSIONING INCENTIVE INITIATIVE (Schedule C-6)*

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives for optimizing (but not replacing) existing chilled water systems for space cooling in non-residential facilities for the purpose of achieving implementation phase energy savings, implementation phase demand savings, or both.

Description: This Initiative offers Participants incentives for the following:

- scoping study phase
- investigation phase
- implementation phase
- hand off/completion phase

Targeted End Uses: Chilled water systems for space cooling.

Delivery: LDC delivered.

Additional detail is available:

- Schedule C-6 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-6%20Commissioning%20Initiative.pdfand
- saveONenergy website https://saveonenergy.ca/Business/Program-Overviews/Existing-Building-Commissioning.aspx

Initiative Activities/Progress: Below is a comprehensive list of delivery, marketing, promotion, outreach and educational, activities undertaken by WNH to promote the commercial and institutional initiatives. Marketing, promotional and outreach activities were commonly undertaken to promote saveONenergy FOR BUSINESS at a holistic program level rather than Initiative for better market penetration and to achieve cost-efficiencies, but much initiative level activates were implemented as a result of customer and initiative segmentation and program uptake. In addition to cobranding marketing between initiatives, every effort was made to collaborate and share material, ad space and creative costs with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro Inc. in our endeavour to jointly deliver the program and drive efficiencies.

Progress

- To date there has been no uptake with this initiative in WNH's distribution service territory. Discussions took place at an individual customer level to introduce this program. The nature of this program only lends itself to a very small number of WNH customer; therefore individual, on-site engagement was extensively utilized for promotion.

Education, Marketing, Outreach and Promotion

- A series of key account breakfasts all commercial customers within the Waterloo Region were held in collaboration with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro. The objective of the sessions was to communicate the availability of incentives, how to participate and where energy efficiency opportunities may exist. In total three breakfast sessions were held in 2011 with topics focused introducing the new structure, initiatives and key program rules;, building the energy management team and the energy efficiency business case; the AUDIT FUNDING initiative; and compressed air systems.

- In partnership with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro held the 2nd annual Technology Symposium, where over 60 energy conservation exhibitors showcased various technologies and solutions including lighting, compressed air, energy audits, demand response as well as other technologies. In addition to the exhibition, 10 sessions were held to help educate, inform, encourage and empower customers with energy conservation initiatives. Sessions topics included the following:

- saveONenergy FOR BUSINESS initiatives – ERII, Energy Audit, Existing Building and Commissioning, Demand Response and Energy Managers,
- Energy Audits and the Ten Most Common Problems with them,
- Compressed Air System Opportunities,
- Understanding the Future of Light,
- Sub-Metering and Energy Management Systems,
- High Velocity, Low Speed Fans,
- ISO 50001 Certification,
- High Performance New Construction initiative,
- Chiller Efficiency and Optimization, and
- Sustainable Waterloo's Region la Carbon Initiative

The event drew in over 300 business customers from across the Region of Waterloo and representatives from 7 LDC's outside of the region.

- Half-page advertisements in the Exchange Magazine promoting the saveONenergy FOR BUSINESS initiatives in collaboration with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro.

- In partnership with Kitchener-Wilmot Hydro sponsored the Greater KW Chamber of Commerce and promoted the saveONenergy FOR BUSINESS initiatives in their online newsletter as well as their bimonthly magazine. and participated in their annual Energy and Environment forum

- Regularly met with customers to educate them on the various initiatives, the process for completing applications and to perform site walkthroughs to identify areas of opportunity for energy conservation projects. In addition assistance with various steps of the project were provided including identifying opportunities, connecting the customers to the appropriate vendors and service providers, building the business case and application support.

- Sponsorship of Sustainable Waterloo (now Sustainable Waterloo Region) breakfast sessions that supporting the saveONenergy FOR BUSINES initiatives.

In Market Date: March 2011

Lessons Learned:

- There was no customer uptake for this Initiative. It is suspected that the scope of the Initiative being limited to space cooling contributed to the lack of participation. Accordingly chilled water systems used for other purposes should be made eligible and considered through Change Management.

- The customer expectation is that the program be expanded to include broader building improvements for a more holistic approach to building recommissioning.

2.2.2.4 *NEW CONSTRUCTION AND MAJOR RENOVATION INITIATIVE (HPNC) (Schedule C-4)*

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to encourage builders of commercial, institutional, and industrial buildings (including multi-family buildings and agricultural facilities) to reduce electricity demand and/or consumption by designing and building new buildings with more energy-efficient equipment and systems for lighting, space cooling, ventilation and other Measures.

Description: The New Construction Initiative provides incentives for new buildings to exceed existing codes and standards for energy efficiency. The Initiative uses both a prescriptive and custom approach.

Targeted End Uses: New building construction, building modeling, lighting, space cooling, ventilation and other Measures

Delivery: LDC delivers to customers and design decision makers.

Additional detail is available:

- Schedule C-4 http://www.powerauthority.on.ca/sites/default/files/page/ScheduleC-4NewContructionInitiativeV2.pdf and
- saveONenergy website https://saveONenergy.ca/Business/Program-Overviews/New-Construction.aspx

Initiative Activities/Progress: Below is a comprehensive list of delivery, marketing, promotion, outreach and educational, activities undertaken by WNH to promote the commercial and institutional initiatives. Marketing, promotional and outreach activities were commonly undertaken to promote saveONenergy FOR BUSINESS at a holistic program level rather than Initiative for better market penetration and to achieve cost-efficiencies, but much initiative level activates were implemented as a result of customer and initiative segmentation and program uptake. In addition to cobranding marketing between initiatives, every effort was made to collaborate and share material, ad space and creative costs with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro Inc. in our endeavour to jointly deliver the program and drive efficiencies.

Progress

- WNH experienced limited uptake in the initiative due to the delay in imitative schedule and program delivery service provider.

Delivery

- In collaboration with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro issued an RFP for the delivery and evaluation of the program. This process took longer than expected as there were new players in the market and a thorough review was required. Enbridge, a leading contender, encountered difficulty in finalizing their contract with Union Gas as a subcontractor to our area which further delayed the program and once this was finalized the contract was awarded to Enbridge.

- Union Gas was familiar with HPNC generation 1 and therefore was able to leverage existing, well established relationships with design build firms, engineering and architectural firms in the area and continued discussions with customers in the region.

Education, Marketing, Outreach and Promotion

- A series of key account breakfasts all commercial customers within the Waterloo Region were held in collaboration with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro. The objective of the sessions was to communicate the availability of incentives, how to participate and where energy efficiency opportunities may exist. In total three breakfast sessions were held in 2011 with topics focused introducing the new structure, initiatives and key program rules;, building the energy management team and the energy efficiency business case; the AUDIT FUNDING initiative; and compressed air systems.

- In partnership with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro held the 2nd annual Technology Symposium, where over 60 energy conservation exhibitors showcased various technologies and solutions including lighting, compressed air, energy audits, demand response as well as other technologies. In addition to the exhibition, 10 sessions were held to help educate, inform, encourage and empower customers with energy conservation initiatives. Sessions topics included the following:

    - saveONenergy FOR BUSINESS initiatives – ERII, Energy Audit, Existing Building and Commissioning, Demand Response and Energy Managers,
    - Energy Audits and the Ten Most Common Problems with them,
    - Compressed Air System Opportunities,
    - Understanding the Future of Light,
    - Sub-Metering and Energy Management Systems,
    - High Velocity, Low Speed Fans,
    - ISO 50001 Certification,
    - High Performance New Construction initiative,
    - Chiller Efficiency and Optimization, and
    - Sustainable Waterloo's Region la Carbon Initiative

The event drew in over 300 business customers from across the Region of Waterloo and representatives from 7 LDC's outside of the region.

- Half-page advertisements in the Exchange Magazine promoting the saveONenergy FOR BUSINESS initiatives in collaboration with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro.

- In partnership with Kitchener-Wilmot Hydro sponsored of the Greater KW Chamber of Commerce and promoted the saveONenergy FOR BUSINESS initiatives in their online newsletter as well as their bimonthly magazine. and participated in their annual Energy and Environment forum

- Regularly met with customers to educate them on the various initiatives, the process for completing applications and to perform site walkthroughs to identify areas of opportunity for energy conservation projects. In addition assistance with various steps of the project were provided including identifying opportunities, connecting the customers to the appropriate vendors and service providers, building the business case and application support.

- Initiative banners and sell sheets and folders jointly branded with Cambridge and North Dumfries and Kitchener-Wilmot Hydro to promote the initiatives were developed for education and engagement events.

- Sponsorship of Sustainable Waterloo (now Sustainable Waterloo Region) breakfast sessions that supporting the saveONenergy FOR BUSINES initiatives.

In Market Date: November 2011

Lessons Learned:

- This is a continuation of the High Performance New Construction program previously delivered by Enbridge Gas under contract with the OPA (and subcontracted to Union Gas), which ran until December 2010.

- For 2011, new industry participation was limited due to certain aspects of the Initiative, and the delays in redesign, such as:

    - 2011 prescriptive incentives needed to be aligned with ERII incentives.

    - In the cases of delivering large projects (i.e. custom applications), 2011 participation was limited due to 1) building code changes and 2) level of documentation required.

    - The effort required to participate in the program exceeded the value of the incentives.

- There is typically a long sales cycle for these projects, and then a long project development cycle. As the program did not launch until mid-2011 and had limited participation, results did not appear in 2011. Minimum results are expected to appear in 2012. The majority of the results are expected in 2013-2014, with a reduced benefit to cumulative energy savings targets.

- Currently facilities much be substantially completed by the programs "hard stop" date of December 31, 2014. As these buildings have long lead times, there is a limited window of opportunity for interested participants to access the program.

- With no transition contingencies in place, facilities with a completion date near the end of 2014 currently have no security that they will be compensated for choosing efficient measures. As such, many customers choose not to take the financial risk and construct to standard building code. This Initiative should be assessed for a streamlined program transition or extension beyond 2014.

2.2.2.5 *ENERGY AUDIT INITIATIVE (Schedule C-1)*

Target Customer Type(s): Commercial, Institutional, Agricultural and Industrial Customers

Initiative Frequency: Year round

Objective: The objective of this Initiative is to offer incentives to owners and lessees of commercial, institutional, multi-family buildings and agricultural facilities for the purpose of undertaking assessments to identify all possible opportunities to reduce electricity demand and consumption within their buildings or premises.

Description: This Initiative provides participants incentives for the completion of energy audits of electricity consuming equipment located in the facility. Energy audits include development of energy baselines, use assessments and performance monitoring and reporting.

Targeted End Uses: Various

Delivery: LDC delivered.

Additional detail is available:

- Schedule C-1 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20C-1%20Energy%20Audit%20Initiative.pdf and
- saveONenergy website https://saveonenergy.ca/Business/Program-Overviews/Audit-Funding.aspx

Initiative Activities/Progress:

Progress

- Progress for the initiative has been less than expected with only 4 audits applications submitted in 2011. It is suspected that as a result of no guarantee of savings as a result of the audit that customers have been apprehensive in making capital expenditures towards audits.

Education, Marketing, Outreach and Promotion

- WNH in partnership with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro held a key account session focused specifically on the initiative in June of 2011. At the session, two local energy audit firms educated customers on the value of energy audits, merits of the program and the projects that audits helped to drive. In addition, the initiative was promoted at the remaining breakfasts.

- WNH in partnership with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro held their 2nd annual Technology Symposium where over 60 energy conservation exhibitors showcased various technologies and solutions including lighting, compressed air, energy audits, demand response as well as other technologies. In addition to the exhibition 10 sessions were held to help educate, inform, encourage and empower customers with energy conservation initiatives. Sessions topics included the following:

    - saveONenergy FOR BUSINESS initiatives – RETROFIT, AUDIT FUNDING, EXISTING BUILDING COMMISSIONING, DEMAND RESPONSE and ENERGY MANAGERS,
    - Energy Audits and the Ten Most Common Problems with them,
    - Compressed Air System Opportunities,
    - Understanding the Future of Light,
    - Sub-Metering and Energy Management Systems,
    - High Velocity, Low Speed Fans,
    - ISO 50001 Certification,
    - High Performance New Construction initiative,
    - Chiller Efficiency and Optimization, and
    - Sustainable Waterloo's Region la Carbon Initiative

    The event drew in over 300 business customers from across the Region of Waterloo and representatives from 7 LDC's outside of the region.

- Half-page advertisements in the Exchange Magazine promoting the saveONenergy FOR BUSINESS initiatives in collaboration with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro.

- In partnership with Kitchener-Wilmot Hydro sponsored of the Greater KW Chamber of Commerce and promoted the saveONenergy FOR BUSINESS

initiatives in their online newsletter as well as their bimonthly magazine. and participated in their annual Energy and Environment forum

- Regularly met with customers to educate them on the various initiatives, the process for completing applications and to perform site walkthroughs to identify areas of opportunity for energy conservation projects. In addition assistance with various steps of the project were provided including identifying opportunities, connecting the customers to the appropriate vendors and service providers, building the business case and application support.

- Initiative banners and sell sheets and folders jointly branded with Cambridge and North Dumfries and Kitchener-Wilmot Hydro to promote the initiatives were developed for education and engagement events.

- Sponsorship of Sustainable Waterloo (now Sustainable Waterloo Region) breakfast sessions that supporting the saveONenergy FOR BUSINES initiatives.

- WNH in partnership with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro actively engaged local energy audit firms in order to educate them on the initiative and the application process, provide marketing support in the form of program focused print material as well as offered to join audit firms on customer calls to further encourage customer participation.

In Market Date: April 2011

Lessons Learned:

- Customer uptake in 2011 was slow, and as a result, little if any savings were realized in 2011, but projects are expected for 2012.

- Customers expect a greater connection with other saveONenergy Initiatives as a result of completing the Energy Audit. The Initiative should be reviewed under Change Management for the means to readily incent Participants with Audits in hand to implement other electricity savings Initiatives.

2.2.3 INDUSTRIAL PROGRAM

2.2.3.1 *PROCESS& SYSTEMS UPGRADES INITIATIVE (PSUI) (Schedule D-1)*

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objectives: The objectives of this Initiative are to:

- Offer distribution customers capital incentives and enabling initiatives to assist with the implementation of large projects and project portfolios;

- Implement system optimization project in systems which are intrinsically complex and capital intensive; and

- Increase the capability of distribution customers to implement energy management and system optimization projects.

Description: PSUI is an energy management Initiative that includes three Initiatives: (preliminary engineering study, detailed engineering study, and project incentive Initiative). The incentives are available to large distribution connected customers with projects or portfolio projects that are expected to generate at least 350 MWh of annualized electricity savings or, in the case of Micro-Projects, 100 MWh of annualized electricity savings. The capital incentive for this Initiative is the lowest of:

a) $200/MWh of annualized electricity savings

b) 70% of projects costs

c) A one year pay back

Targeted End Uses: Process and systems

Delivery: LDC delivered

Additional detail is available:

- Schedule D-1 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-1%20Process%20and%20Systems%20Upgrades%20Initiative.pdf and
- saveONenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress: Discussions took place at an individual customer level to introduce this program. The nature of this program only lends itself to a very small number of WNH customers; therefore individual, on-site engagement was utilized for promotion.

In Market Date: November 2011

Lessons Learned:

- The PSUI program targets large customers that are undertaking large capital projects. There is typically a long sales cycle to sell these projects, followed by a long project development cycle. As such, results from PSUI did not appear in 2011. Limited results are expected to appear in 2012. The majority of the results

are expected in 2013-2014, with a much reduced benefit to cumulative energy savings targets.

- Steps are being taken in the 2012 change management process to simplify and streamline the micro-project application process and to allow smaller projects to be directed to the ERII stream.
- Given the size of the projects involved, the contract required for PSUI is a lengthy and complicated document. Attempts are being made through change management in 2012 to simplify the document while still protecting the ratepayer.
- With the considerable customer interest in on-site Load Displacement projects, the Initiative should be reviewed to ensure that these projects may be accepted as part of the PSUI Initiative.

2.2.3.2 *MONITORING & TARGETING INITIATIVE (Schedule D-2)*

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This Initiative offers access to funding for the installation of Monitoring and Targeting systems in order to deliver a minimum savings target at the end of 24 months, and sustained for the term of the M&T Agreement.

Description: This Initiative offers customers funding for the installation of a Monitoring and Targeting system to help them understand how their energy consumption might be reduced. A facility energy manager, who regularly oversees energy usage, will now be able to use historical energy consumption performance to analyze and set targets.

Targeted End Uses: Opportunities to monitor electricity consumption and demand for better real-time management within process and systems.

Delivery: LDC delivered

Additional detail is available:

- Schedule D-2 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-2%20Monitoring%20and%20Targeting%20Initiative.pdf and
- saveONenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress:

Discussions took place at an individual customer level to introduce this program. The nature of this program only lends itself to a very small number of CNDHI; therefore

individual, on-site engagement was utilized for promotion.

In Market Date: November 2011

Lessons Learned:

- The M&T initiative was originally targeted at larger customers with the capacity to review the M&T data. This review requires the customer facility to employ an Energy Manager, or a person with equivalent qualifications, which has been a barrier for some customers. Through the change management process in 2012, changes are being made to both the M&T schedule and ERII to allow smaller facilities to employ M&T systems.

2.2.3.3 *ENERGY MANAGER INITIATIVE (Schedule D-3)*

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: The objective of this initiative is to provide customers and LDCs the opportunity to access funding for the engagement of energy managers in order to deliver a minimum annual savings target.

Description: This Initiative provides customers the opportunity to access funding to engage an on-site, full time embedded energy manager, or an off-site roving energy manager who is engaged by the LDC. The role of the energy manager is to take control of the facility's energy use by monitoring performance, leading awareness programs, and identifying opportunities for energy consumption improvement, and spearheading projects. Participants are funded 80% of the embedded energy manager's salary up to $100,000 plus 80% of the energy manager's actual reasonable expenses incurred up to $8,000 per year. Each embedded energy manager has a target of 300 kW/year of energy savings from one or more facilities. LDCs receive funding of up to $120,000 for a Roving Energy Manager plus $8,000 for expenses.

Targeted End Uses: Individual or a grouping of customers who require additional technical resources to achieve end-use energy saving reductions.

Delivery: LDC delivered

Additional detail is available:

- Schedule D-3 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-3%20Energy%20Manager%20Initiative%202011-2014.pdf and
- saveONenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress: Discussions took place at an individual customer level to introduce this program. The nature of this program only lends itself to a very small number of WNH customers; therefore individual, on-site engagement was utilized for promotion.

Interest has been slow but customers are beginning to see the value and opportunity.

In Market Date: November 2011

Lessons Learned:

- The energy managers have proven to be a popular resource.
- At the beginning, it took longer than expected to set up the energy manager application process and as a result presented challenges to promoting the initiative
- Finding qualified resources to fill these positions has proved to be a challenge in the marketplace.

2.2.3.4 *KEY ACCOUNT MANAGER (KAM) (Schedule D-4)*

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Description: Provide funding to employ a resource to assist in managing relationships with key accounts.

Objective: This initiative offers LDCs the opportunity to access funding for the employment of a KAM in order to support them in fulfilling their obligations related to the PSUI. The KAM is considered to be a key element in assisting the consumer in overcoming traditional barriers related to energy management and help them achieve savings since the KAM can build relationships and become a significant resource of knowledge to the customer.

Targeted End Uses: LDC(s) who require additionally funded resources to perform sales functions.

Delivery: LDC delivered

Additional detail is available:

- ScheduleD-4 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/projects_programs/pdfs/PSUI%20Initiative%20Schedule%20D-4.Key%20Account%20Manager.20110322.pdf

Initiative Activities/Progress: Cambridge and North Dumfries Hydro Inc., Kitchener Wilmot Hydro Inc. and Waterloo North Hydro Inc. (the CKW Group) applied together for KAM funding from the OPA, achieving 70% based on eligible customers.

In Market Date: The CKW Group was approved in June, 2011 and went through the interview process in December, 2011. Actual contracted services were provided by the KAM starting in March 2012.

Lessons Learned:

- Customers appreciate dealing with a single contact to interface with an LDC, a resource that has both the technical and business background who can communicate easily with the customer and the LDC. Finding this type of skill set has been difficult resulting in longer lead times to acquire the right resource.

2.2.3.5 *DEMAND RESPONSE 3 (Schedule D-6)*

Target Customer Type(s): Industrial, Commercial, Institutional and Agricultural Customers

Initiative Frequency: Year round

Objective: This Initiative provides for Demand Response (DR) payment for service to DR3 participants to compensate them for making available electricity demand response during a demand response event**.**

Description: Demand Response 3 (DR3) is a demand response Initiative for commercial and industrial customers, of 50 kW or greater to reduce the amount of power being used during certain periods of the year. The DR3 Initiative is a contractual resource that is an economic alternative to procurement of new generation capacity.DR3 comes with specific contractual obligations requiring participants to reduce their use of electricity relative to a baseline when called upon. This Initiative makes payments for participants to be on standby and energy payments for the actual energy reduction provided during a demand response event. Participants are scheduled to be on standby approximately 1,600 hours per calendar year for possible dispatch of up to 100 hours or 200 hours within that year depending on the contract.

Targeted End Uses: Qualified customers with the ability to do load shedding/shifting.

Delivery: DR3 is delivered by Demand Response Providers, under contract to the OPA. The OPA administers contracts with all DRPs and Direct Participants that provide in excess of 5 MW of demand response capacity. OPA provides administration including settlement, measurement and verification, and dispatch. LDCs are responsible for local customer outreach and marketing efforts.

Additional detail is available:

- Schedule D-6 http://www.powerauthority.on.ca/sites/default/files/new_files/industry_stakeholders/current_electricity_contracts/pdfs/Schedule%20D-6%20Demand%20Response%203%202011-2014.pdf and
- saveONenergy website https://saveonenergy.ca/Business.aspx

Initiative Activities/Progress: The CKW Group met with the active provincial aggregators to assess the program, customer eligibility and offerings of each company.

Discussions took place at an individual customer level to introduce this program. The nature of this program only lends itself to a very small number of WNH; therefore individual, on-site engagement was utilized for promotion.

In Market Date: February 25, 2011

Lessons Learned:

- Customer data is not provided by the OPA on an individual customer basis due to contractual requirements with the aggregators. This limits LDCs' ability to effectively market to prospective participants and verify savings. LDCs are now approaching the Aggregators individually and working to develop agreements in order to identify potential customers of this initiative.

2.2.4 LOW INCOME INITIATIVE (HOME ASSISTANCE PROGRAM) (Schedule E)

Target Customer Type(s): Income Qualified Residential Customers

Initiative Frequency: Year Round

Objective: The objective of this Initiative is to offer free installation of energy efficiency measures to income qualified households for the purpose of achieving electricity and peak demand savings.

Description: This is a turnkey Initiative for income qualified customers. It offers residents the opportunity to take advantage of free installation of energy efficient measures that improve the comfort of their home, increase efficiency, and help them save money. All eligible customers receive a Basic and Extended Measures Audit, while customers with electric heat also receive a Weatherisation Audit. The Initiative is designed to coordinate efforts with gas utilities.

Targeted End Uses: End uses based on results of audit

Delivery: LDC delivered.

Additional detail is available:

- Schedule E
  http://www.powerauthority.on.ca/sites/default/files/page/Low%20Income%20Schedule%20-%20redacted%20version.pdf

Initiative Activities/Progress: The CKW Group participated in a large Request for Proposals lead by Brantford Power Inc. A third party delivery service provider was contracted in December, 2011.

In Market Date: Due to the process required to bring a service provider on-board, this program was not market-ready in 2011.

Lessons Learned:

- Difficulty identifying eligible customers.
- This Initiative Schedule was finalized later (May 2011) than the rest of the OPA Initiatives and in 2011 only 2 LDCs were in market.
- Centralized payment processes were not developed in 2011, but were in place mid-2012. This resulted in some LDCs delaying their launch to market, or for some pulling out of the market until the payment processes were completed.
- The financial scope, complexity, and customer privacy requirements of this Initiative resulted in a lengthy procurement process. Some LDCs must adhere to very transparent procurement processes which meant that delivery of the program did not start in 2011.

2.2.5 PRE-2011 PROGRAMS COMPLETED IN 2011

2.2.5.1 *ELECTRICITY RETROFIT INCENTIVE PROGRAM*

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year Round

Objective: This captures savings attributed to projects applied for prior to 2011 but completed in 2011.

Description: The Equipment Replacement Incentive Program (ERIP) offered financial incentives to customers for the upgrade of existing equipment to energy efficient equipment in a similar manner to ERII in section 2.2.2.1. This program was available in 2010 and allowed customers up to 11 months following Pre-Approval to complete their projects. As a result, a number of projects Pre-Approved in 2010 were not completed and in-service until 2011. The electricity savings associated with these projects are attributed to 2011.

Delivery: LDC delivered.

Initiative Activities/Progress: WNH was responsible for reviewing the post-project submissions and approving final payment. No new applications were received in 2011 for this program.

Lessons Learned:

- 11 month installation period following project submission significantly increased program uptake.

2.2.5.2 *HIGH PERFORMANCE NEW CONSTRUCTION*

Target Customer Type(s): Commercial, Institutional, and Agricultural Customers

Initiative Frequency: Year round

Objective: This captures savings attributed to projects applied for prior to 2011 but completed in 2011.

Description: Refer to section 2.2.2.5

Delivery: Delivered through OPA contracts with Enbridge and Union Gas.

Initiative Activities/Progress: WNH was not responsible for the post-project submissions associated with this program as the 2010 initiative delivery was contracted directly between the OPA and Enbridge Gas. All new applications were sent through the 2011 initiative, found in section 2.2.2.5.

Lessons Learned:

- Program completion periods need to allow significant time for projects to be completed given the magnitude of projects.

2.3 Participation

Participation in the OPA-Contracted Province-Wide CDM program offered by WNH has been segmented by initiative and summarized in Table 5.

TABLE 5: PARTICIPATION

#	Initiative	Unit	Uptake/ Participation Units
Consumer Program			
1	Appliance Retirement	Appliances	433
2	Appliance Exchange	Appliances	22
3	HVAC Incentives	Equipment	1,438
4	Conservation Instant Coupon Booklet	Products	4,987
5	Bi-Annual Retailer Event	Products	8,720
6	Retailer Co-op	Products	0
7	Residential Demand Response	Devices	129
8	Residential New Construction	Houses	0
Business Program			
9	Efficiency: Equipment Replacement	Projects	40
10	Direct Install Lighting	Projects	214
11	Existing Building Commissioning Incentive	Buildings	0
12	New Construction and Major Renovation Incentive	Buildings	0
13	Energy Audit	Audits	0
14	Commercial Demand Response (part of the Residential program schedule)	Devices	8
15	Demand Response 3 (part of the Industrial program schedule)	Facilities	3
Industrial Program			
16	Process & System Upgrades	Projects[2]	0
17	Monitoring & Targeting	Projects[3]	0
18	Energy Manager	Managers[2 3]	0
19	Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	Projects	11
20	Demand Response 3	Facilities	4
Home Assistance Program			
21	Home Assistance Program	Homes	0
Pre 2011 Programs Completed in 2011			
22	Electricity Retrofit Incentive Program	Projects	28
23	High Performance New Construction	Projects	5

2.4 Spending

Spending for the OPA-Contracted Province-Wide CDM program offered by WNH has been segmented by initiative and summarized in Table 6.

TABLE 6: SPENDING

#	Initiative	Program Administration Budget (PAB)	Participant Based Funding (PBF)	Participant Incentives (PI)	Capability Building Funding (CBF)	TOTAL
Consumer Program						
1	Appliance Retirement	$ 10,150.58	$ -	$ -	$ -	**$ 10,150.58**
2	Appliance Exchange	$ 178.57	$ -	$ -	$ -	**$ 178.57**
3	HVAC Incentives	$ 12,754.31	$ -	$ -	$ -	**$ 12,754.31**
4	Conservation Instant Coupon Booklet	$ 12,425.50	$ -	$ -	$ -	**$ 12,425.50**
5	Bi-Annual Retailer Event	$ -	$ -	$ -	$ -	**$ -**
6	Retailer Co-op	$ -	$ -	$ -	$ -	**$ -**
7	Residential Demand Response	$ 1,029.07	$ -	$ -	$ -	**$ 1,029.07**
10	New Construction Program	$ 635.99	$ -	$ -	$ -	**$ 635.99**
Business Program						
11	Efficiency: Equipment Replacement	$ 93,018.96	$ -	$ *74,524.00*	$ -	**$ 167,542.96**
12	Direct Installed Lighting	$ 10,113.39	$ *53,221.00*	$ *197,585.00*	$ -	**$ 260,919.39**
14	Existing Building Commissioning Incentive	$ 1,661.17	$ -	$ -	$ -	**$ 1,661.17**
15	New Construction and Major Renovation	$ 3,913.45	$ -	$ -	$ -	**$ 3,913.45**
16	Energy Audit	$ 13,059.44	$ -	$ -	$ -	**$ 13,059.44**
17	Commercial Demand Response		$ -	$ -	$ -	**$ -**
19	Demand Response 3	$ 2,206.42	$ -	$ -	$ -	**$ 2,206.42**
Industrial Program						
20	Process & System Upgrades					
	a) preliminary study	$ 2,929.10	$ -	$ -	$ -	**$ 2,929.10**
	b) engineering study	$ 2,929.10	$ -	$ -	$ -	**$ 2,929.10**
	c) program incentive	$ 2,929.10	$ -	$ -	$ -	**$ 2,929.10**
21	Monitoring & Targeting	$ 2,869.57	$ -	$ -	$ -	**$ 2,869.57**
22	Energy Manager	$ 2,848.11	$ -	$ -	$ -	**$ 2,848.11**
23	Equipment Replacement Incentive Initiative	Included as part of Efficiency: Equipment Replacement Business Initiative				
25	Demand Response 3	$ 3,007.94	$ -	$ -	$ -	**$ 3,007.94**
Home Assistance Program						
26	Home Assistance Program	$ 4,589.88	$ -	$ -	$ -	**$ 4,589.88**
Pre 2011 Programs Completed in 2011						
27	Electricity Retrofit Incentive Program	$ -	$ -	$ -	$ -	$ -
28	High Performance New Construction	$ -	$ -	$ -	$ -	$ -
	TOTAL Province-wide CDM PROGRAMS					**$ 508,579.65**

Allocation of funds for OPA-Contracted Province-Wide CDM program that were to be offered by WNH has been segmented by initiative and summarized in Table 7.

TABLE 7: ALLOCATION OF PAB FUNDING FOR PROGRAMS NOT IN MARKET

#		Program Administration Budget (PAB)
Initiatives Not In Market		
8	Midstream Electronics	$ 178.57
9	Midstream Pool Equipment	$ 178.57
13	Demand Service Space Cooling	$ 597.02
18	Demand Response 1 (Commercial)	$ 2,206.42
19	Demand Response 1 (Industrial)	$ 3,007.96
33	Home Energy Audit Tool	$ 178.57
TOTAL Province-wide CDM PROGRAMS Not In Market		$ 6,347.11

Spending for the Pre-2011 CDM programs offered by WNH has been segmented by initiative and summarized in Table 8. This spending is not part of WNH's PAB funding but funding received under the program extensions respectively.

TABLE 8: PRE-2011 PROGRAM SPENDING

#	Program	Program Administration - LDC	Program Administration - 3rd Party	Participant Incentive	Total
Initiatives Not In Market					
1	Residential Demand Response Extension	$ 18,458.30	$ 27,272.07	$ 5,950.00	$ 51,680.37
2	Electricity Retrofit Incentive Program	$ -	$ -	$ -	$ -
	TOTAL Pre-2011 Program Spending	$ 18,458.30	$ 27,272.07	$ 5,950.00	$ 51,680.37

2.5 Evaluation

2.5.1 EVALUATION FINDINGS

Evaluation findings for the OPA-Contracted Province-Wide CDM program offered by WNH has been segmented by initiative and summarized in Table 9.

TABLE 9: EVALUATION FINDINGS

#	Initiative	OPA Province-Wide Key Evaluation Findings
Consumer Program		

1	Appliance Retirement	• Overall participation continues to decline year over year
		  • Participation declined 17% from 2010 (from over 67,000 units in 2010 to over 56,000 units in 2011)
		• 97% of net resource savings achieved through the home pick-up stream
		  • Measure Breakdown: 66% refrigerators, 30% freezers, 4% Dehumidifiers and window air conditioners
		• 3% of net resource savings achieved through the Retailer pick-up stream
		  • Measure Breakdown: 90% refrigerators, 10% freezers
		• Net-to-Gross ratio for the initiative was 50%
		  • Measure-level free ridership ranges from 82% for the retailer pick-up stream to 49% for the home pick-up stream
		  • Measure-level spillover ranges from 3.7% for the retailer pick-up stream to 1.7% for the home pick-up stream

2	Appliance Exchange	• Overall eligible units exchanged declined by 36% from 2010 (from over 5,700 units in 2010 to over 3,600 units in 2011)
		  • Measure Breakdown: 75% window air conditioners, 25% dehumidifiers
		• Dehumidifiers and window air conditioners contributed almost equally to the net energy savings achieved
		  • Dehumidifiers provide more than three times the energy savings per unit than window air conditioners
		• Window air conditioners contributed to 64% of the net peak demand savings achieved
		• Approximately 96% of consumers reported having replaced their exchanged units (as opposed to retiring the unit)
		• Net-to-Gross ratio for the initiative is consistent with previous evaluations (51.5%)

3	HVAC Incentives	• Total air conditioner and furnace installations increased by 14% (from over 95,800 units in 2010 to over 111,500 units in 2011)
		  • Measure Breakdown: 64% furnaces, 10% tier 1 air conditioners (SEER 14.5) and 26% tier 2 air conditioners (SEER 15)
		  • Measure breakdown did not change from 2010 to 2011
		• The HVAC Incentives initiative continues to deliver the majority of both the energy (45%) and demand (83%) savings in the consumer program
		  • Furnaces accounted for over 91% of energy savings achieved for this initiative
		• Net-to-Gross ratio for the initiative was 17% higher than 2010 (from 43% in 2010 to 60% in 2011)
		  • Increase due in part to the removal of programmable thermostats from the program, and an increase in the net-to-gross ratio for both Furnaces and Tier 2 air conditioners (SEER 15)

4	Conservation Instant Coupon Booklet	• Customers redeemed nearly 210,000 coupons, translating to nearly 560,000 products
		  • Majority of coupons redeemed were downloadable (~40%) or LDC-branded (~35%)
		  • Majority of coupons redeemed were for multi-packs of standard spiral CFLs (37%), followed by multi-packs of specialty CFLs (17%)
		• Per unit savings estimates and net-to-gross ratios for 2011 are based on a weighted average of 2009 and 2010 evaluation findings
		• Careful attention in the 2012 evaluation will be made for standard CFLs since it is believed

		that the market has largely been transformed

5	Bi-Annual Retailer Event	• Customers redeemed nearly 370,000 coupons, translating to over 870,000 products
		  ○ Majority of coupons redeemed were for multi-packs of standard spiral CFLs (49%), followed by multi-packs of specialty CFLs (16%)
		• Per unit savings estimates and net-to-gross ratios for 2011 are based on a weighted average of 2009 and 2010 evaluation findings
		  ○ Standard CFLs and heavy duty outdoor timers were reintroduced to the initiative in 2011 and contributed more than 64% of the initiative's 2011 net annual energy savings
		  ○ While the volume of coupons redeemed for heavy duty outdoor timers was relatively small (less than 1%), the measure accounted for 10% of net annual savings due to high per unit savings
		• Careful attention in the 2012 evaluation will be made for standard CFLs since it is believed that the market has largely been transformed.

6	Retailer Co-op	• Initiative was not evaluated in 2011 due to low uptake. Verified Bi-Annual Retailer Event per unit assumptions and free-ridership rates were used to calculate net resource savings

7	Residential Demand Response	• Approximately 20,000 new devices were installed in 2011
		  ○ 99% of the new devices enrolled controlled residential central AC (CAC)
		• 2011 only saw 1 atypical event (in both weather and timing) that had limited participation across the province
		  ○ The ex-ante impact developed through the 2009/2010 evaluations was maintained for 2011; residential CAC: 0.56 kW/device, commercial CAC: 0.64 kW/device, and Electric Water Heaters: 0.30 kW/device

8	Residential New Construction	• Initiative was not evaluated in 2011 due to limited uptake • Business case assumptions were used to calculate savings
Business Program		

9	Equipment Replacement Incentive Initiative	• Gross verified energy savings were boosted by lighting projects in the prescriptive and custom measure tracks
		• Lighting projects overall were determined to have a realization rate of 112%; 116% when including interactive energy changes
		  ○ On average, the evaluation found high realization rates as a result of both longer operating hours and larger wattage reductions than initial assumptions
		  ○ Low realization rates for engineered lighting projects due to overstated operating hour assumptions
		• Custom non-lighting projects suffered from process issues such as: the absence of required M&V plans, the use of inappropriate assumptions , and the lack of adherence to the M&V plan
		• The final realization rate for summer peak demand was 94%
		  ○ 84% was a result of different methodologies used to calculate peak demand savings
		  ○ 10% due to the benefits from reduced air conditioning load in lighting retrofits
		• Overall net-to-gross ratios in the low 70's represent an improvement over the 2009 and 2010 ERIP program where net-to-gross ratios were in the low 60's and low 50's, respectively.
		• Strict eligibility requirements and improvements in the pre-approval process contributed to the improvement in net-to-gross ratios

10	Direct Install Lighting	• Though overall performance is above expectations, participation continues to decline year over year as the initiative reaches maturity • 70% of province-wide resource savings persist to 2014 ○ Over 35% of the projects for 2011 included at least one CFL measure

		• Resource savings from CFLs in the commercial sector only persist for the industry standard of 3 years • Since 2009 the overall realization rate for this program has improved • 2011 evaluation recorded the highest energy realization rate to date at 89.5% • The hours of use values were held constant from the 2010 evaluation and continue to be the main driver of energy realization rate • Lights installed in "as needed" areas (e.g., bathrooms, storage areas) were determined to have very low realization rates due to the difference in actual energy saved vs. reported savings
11	Existing Building Commissioning Incentive	• Initiative was not evaluated in 2011, no completed projects in 2011
12	New Construction and Major Renovation	• Initiative was not evaluated in 2011 due to low uptake • Assumptions used are consistent with preliminary reporting based on the 2010 Evaluation findings and consultation with the C&I Work Group (100% realization rate and 50% net-to-gross ratio)
13	Energy Audit	• The evaluation is ongoing. The sample size for 2011 was too small to draw reliable conclusions.
14	Commercial Demand Response	• See residential demand response (#7)
15	Demand Response 3	• See Demand Response 3 (#20)
Industrial Program		
16	Process & System Upgrades	• Initiative was not evaluated in 2011, no completed projects in 2011
17	Monitoring & Targeting	• Initiative was not evaluated in 2011, no completed projects in 2011
18	Energy Manager	• Initiative was not evaluated in 2011, no completed projects in 2011
19	Efficiency: Equipment Replacement Incentive (part of the C&I program schedule)	• See Efficiency: Equipment Replacement (#9)
20	Demand Response 3	• Program performance for Tier 1 customers increased with DR-3 participants providing 75% of contracted MW for both sectors • Industrial customers outperform commercial customers by provide 84% and 76% of contracted MW, respectively • Program continues to diversify but still remains heavily concentrated with less than 5% of the contributors accounting for the majority (~60%) of the load reductions. • By increasing the number of contributors in each settlement account and implementation of the new baseline methodology the performance of the program is expected to increase
Home Assistance Program		
21	Home Assistance Program	• Initiative was not evaluated in 2011 due to low uptake • Business Case assumptions were used to calculate savings
Pre-2011 Programs completed in 2011		

22	Electricity Retrofit Incentive Program	• Initiative was not evaluated • Net-to-Gross ratios used are consistent with the 2010 evaluation findings (multifamily buildings 99% realization rate and 62% net-to-gross ratio and C&I buildings 77% realization rate and 52% net-to-gross ratio)
23	High Performance New Construction	• Initiative was not evaluated • Net-to-Gross ratios used are consistent with the 2010 evaluation findings (realization rate of 100% and net-to-gross ratio of 50%)

2.5.2 EVALUATION RESULTS

Evaluation results for the OPA-Contracted Province-Wide CDM programs offered by WNH has been segmented by initiative and summarized in Table 10, while summarized results are presented in Table 11. Note these results were taken directly from WNH's 2011 Annual Report Data provided by the OPA.

TABLE 10: EVALUATION RESULTS

#	Initiative	Realization Rate		Gross Savings		Net-to-Gross Ratio		Net Savings		Contribution to Targets	
		Peak Demand Savings	Energy Savings	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Peak Demand Savings	Energy Savings	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Program-to-Date: Net Annual Peak Demand Savings (kW) in 2014	Program-to-Date: 2011-2014 Net Cumulative Energy Savings (kWh)
Consumer Program											
1	Appliance Retirement	100%	100%	49	359,259	51%	52%	24	180,566	24	722,161
2	Appliance Exchange	100%	100%	5	5,919	52%	52%	2	3,051	1	11,046
3	HVAC Incentives	100%	100%	691	1,292,287	60%	60%	417	773,162	417	3,092,649
4	Conservation Instant Coupon Booklet	100%	100%	10	169,297	114%	111%	11	186,550	11	746,201
5	Bi-Annual Retailer Event	100%	100%	15	269,499	113%	110%	17	294,427	17	1,177,710
6	Retailer Co-op	-	-	0	0	-	-	0	0	0	0
7	Residential Demand Response	0%	0%	72	0	-	-	72	0	0	0
8	Residential New Construction	-	-	0	0	-	-	0	0	0	0
Business Program											
9	Equipment Replacement Incentive Initiaitve	97%	116%	372	1,949,090	71%	74%	263	1,433,122	263	5,732,486
10	Direct Install Lighting	108%	90%	231	664,665	93%	93%	248	617,168	176	2,257,745
11	Existing Building Commissioning Incentive	-	-	0	0	-	-	0	0	0	0
12	New Construction and Major Renovation	-	-	0	0	-	-	0	0	0	0
13	Energy Audit	-	-	0	0	-	-	0	0	0	0
14	Commercial Demand Response	0%	0%	5	0	-	-	5	0	0	0
15	Demand Response 3	76%	100%	146	4,323	n/a	n/a	110	4,323	0	4,323
Industrial Program											
16	Process & System Upgrades	-	-	0	0	-	-	0	0	0	0
17	Monitoring & Targeting	-	-	0	0	-	-	0	0	0	0
18	Energy Manager	-	-	0	0	-	-	0	0	0	0
19	Equipment Replacement Incentive Initiaitve	90%	101%	249	1,453,318	72%	78%	180	1,128,878	180	4,515,511
20	Demand Response 3	84%	100%	465	23,003	n/a	n/a	392	23,003	0	23,003
Home Assistance Program											
21	Home Assistance Program	-	-	0	0	-	-	0	0	0	0
Pre-2011 Programs completed in 2011											
22	Electricity Retrofit Incentive Program	78%	78%	346	1,742,736	52%	53%	181	913,663	181	3,654,650
23	High Performance New Construction	100%	100%	363	1,865,774	50%	50%	182	932,887	182	3,731,548
24	Toronto Comprehensive	-	-	0	0	-	-	0	0	0	0
25	Multifamily Energy Efficiency Rebates	-	-	0	0	-	-	0	0	0	0
26	Data Centre Incentive Program	-	-	0	0	-	-	0	0	0	0
27	EnWin Green Suites	-	-	0	0	-	-	0	0	0	0

Assumes demand response resources have a persistence of 1 year

TABLE 11: SUMMARIZED PROGRAM RESULTS

Program	Gross Savings		Net Savings		Contribution to Targets	
	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Incremental Peak Demand Savings (kW)	Incremental Energy Savings (kWh)	Program-to-Date: Net Annual Peak Demand Savings (kW) in 2014	Program-to-Date: 2011-2014 Net Cumulative Energy Savings (kWh)
Consumer Program Total	842	2,096,261	544	1,437,756	470	5,749,767
Business Program Total	754	2,618,079	626	2,054,613	438	7,994,555
Industrial Program Total	714	1,476,321	572	1,151,881	180	4,538,514
Home Assistance Program Total	0	0	0	0	0	0
Pre-2011 Programs completed in 2011 Total	709	3,608,510	362	1,846,550	362	7,386,199
Total OPA Contracted Province-Wide CDM Programs	3,019	9,799,171	2,104	6,490,800	1,451	25,669,035

2.6 Additional Comments

As a result of program schedules being negotiated, finalized and rolled out in the first and second quarters, 2011 should be considered to be a year of building the foundation for the initiatives and framework for delivery. Due to the number of initiatives, complexity of the schedules and intricacies within the initiatives, many of the initiatives were in a "start-up" mode. As a result, WNH required significant time to familiarize themselves with the new schedules and initiative rules, develop processes and procedures to deliver the initiatives, and procure the necessary program delivery support services and resources prior to being market ready and launching the initiatives. This lead to the an interruption in program availability and delivery which translated into having to reengage the market which proved to be a slow process.

Many of the initiatives customers had become accustomed to experienced significant makeovers, and rebranding, while many new initiatives were launched which required WNH to provide significant education, engagement of customers, channel partners and stakeholders. And although the new framework provides a period of four year certainty surrounding the initiatives and their associated incentives, reengaging customers and getting into their business cycles and capital budgets requires significant time. As a result, many of the projects will move forward in subsequent years, thereby many of the savings WNH has projected will also be realized in the succeeding years.

WNH CDM strategy was developed based on a full portfolio of programs and initiatives, being ready for deployment January 1, 2011 and available for the full 4 years, but as noted earlier programs and initiatives were rolled out throughout the year. In addition, a number of programs were not available in 2011, or had minimal uptake due to inadequate market research and deficient program design. Furthermore, although some initiatives were released to the market by the OPA, WNH nor the market was ready with established let alone available technologies (i.e. *peaksaver*PLUS^{TM} initiative) and skilled, experienced resources (i.e. Key account Manager, Embedded Energy Manager and Roving Energy Manager initiatives), which additional slowed progress towards CDM targets. All of these factors when combined further challenged WNH's delivery strategy, and results.

Many of the initiatives begin offered specifically to residential (i.e. Appliance Retirement, Various Coupons within the Annual and Bi-Annual Initiatives and the Heating and Cooling Incentive) and small business customers (i.e. Direct Install Lighting) have been in market for several years and are reaching market saturation. Therefore new and/or significantly refreshed initiatives are required to ensure we are addressing the market needs, engaging the market and continuing momentum.

Based on the foundation and framework developed in 2011, increased marketing efforts, additional resourcing and program enhancements, WNH has observed a steady increase in market awareness, initiative uptake and the pipeline of projects. Furthermore the settling of the initiative delivery and application processes coupled with comfort with

the initiatives, results are on the rise, program uptake, and as a result WNH is optimistic in it is ability to achieve the CDM targets.

3 Combined CDM Reporting Elements

3.1 Progress Towards CDM Targets

WNH achieved an incremental net peak demand savings of 2.10 MW in 2011, of which 1.45 MW is expected to persist through 2014 which represents 9.18% of WNH's net peak demand target. Table 12 summarizes net peak demand savings and their contribution towards the CDM targets.

TABLE 12: NET PEAK DEMAND SAVINGS AT THE END USER LEVEL (MW)

Implementation Period	Annual			
	2011	2012	2013	2014
2011 - Verified	2.10	1.52	1.52	1.45
2012				
2013				
2014				0.00
Verified Net Annual Peak Demand Savings Persisting in 2014:				1.45
Waterloo North Hydro Inc. 2014 Annual CDM Capacity Target:				15.79
Verified Portion of Peak Demand Savings Target Achieved in 2014(%):				9.18%
LDC Milestone submitted for 2011 (4.3 MW)				27.23%
Variance				-18.05%

Variances in WNH's net peak demand can be attributed to a number of factors most of which are outside of the WNH's control. Factors include, but are not limited to:

- Lack of persistence of demand response results as reported. The OPA assumes that demand response do not persist beyond one year. The above results do not reflect do not reflect 649 kW currently under contract and should these contracts persist the variance is decreased to 13.93%.

- Large projects results not reflected in early results due to long project timelines, therefore larger projects are expected to decrease the variance in 2013 and 2014.

- Input assumptions, models and estimates used for developing CDM strategy and forecasting of results such as net to gross, free ridership, realization rate and other factors used to evaluate the programs were in many cases different.

- Programs not available for a full year and several programs not in market at all.

- No attribution of TOU rates savings. WNH expects net demand savings as a result of TOU Rates would decrease the variance.

WNH achieved an incremental net energy savings of 6.49 GWh's in 2011, resulting in a cumulative total of 25.67 GWh's in 2014, which represents 38.61% of WNH net energy

target. Table 13 summarizes net energy savings and their contribution towards the CDM targets.

TABLE 13: NET ENERGY SAVINGS AT THE END-USER LEVEL (GWH)

Implementation Period	Annual				Cumulative
	2011	2012	2013	2014	2011-2014
2011 - Verified	6.49	6.46	6.44	6.27	25.67
2012					
2013					
2014					
Verified Net Cumulative Energy Savings 2011-2014:					25.67
Waterloo North Hydro Inc. 2011-2014 Cumulative CDM Energy Target:					66.49
Verified Portion of Cumulative Energy Target Achieved (%):					38.61%
LDC Milestone submitted for 2011 (19.097 GWh)					19.10
Variance					34.41%

Variance's in WNH's net energy savings can be attributed to a number of factors, most of which are outside of the control of WNH. Factors include, but are not limited to:

- 2011 program results, which accounted for 28% of the total achieved in 2011.
- Input assumptions, models and estimates used for developing CDM strategy and forecasting of results such as net to gross, free ridership, realization rate and other factors used to evaluate the programs were in many cases different.
- Increased program uptake with several initiatives as compared to what was forecasted.
- Cumulative effect of the realized net energy savings, that is the persistence was more significant than when the CDM strategy was developed and results forecasted.

3.2 CDM Strategy Modifications

WNH will not be modifying their original CDM strategy at this time as WNH is confident and optimistic that with enhancements to current programs, increased resources program outreach and engagement, the launching of the not in market OPA-Contracted Province-Wide Programs or replacement thereof, coupled with contribution from TOU Rates will make up for the variance.

As noted by Environmental Defence in Exhibit I, Tab 2, Schedule 21, approximately 60 MW of potential solar, biogas and combined heat and power projects have been proposed in the City of Guelph through the Combined Heat and Power Standard Offer Program and Feed-in-Tariff Program.[1]

The following tables illustrate the potential contribution of these projects to addressing the capacity needs of the Kitchener-Waterloo-Cambridge-Guelph ("KWCG") area, if all of the projects were ideally connected in the South-Central Guelph subsystem.

As illustrated in Table 1 below, following the development of the distributed generation facilities, a supply capacity need would still exist in South-Central Guelph starting in 2017, and the remaining capacity needs of the KWCG area would not be addressed. Thus the need for the recommended transmission reinforcements would not be deferred or avoided.

Should transmission investments be made at Cedar TS in Guelph to allow for the connection of the South-Central Guelph and Kitchener-Guelph subsystems, the projects could help contribute to the capacity needs of the broader KWCG area. However, as illustrated in Table 2 below, a supply capacity need would still exist in the KWCG area starting in 2013. Thus the need for the recommended transmission reinforcements would not be deferred or avoided.

[1] 30 MW of solar, 2 MW of biogas and 28 MW of combined heat and power as noted by Environmental Defence in Exhibit I-2-21.

Table 1 – Supply Capacity Needs in the KWCG Area Considering 60 MW of Installed Distributed Generation in South-Central Guelph

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
South-Central Guelph Supply Capacity Needs	23	29	32	36	40	44	48	53	55	57	59
30 MW of Solar Contribution @ Peak			9	9	9	9	9	9	9	9	9
28 MW of CHP @ Peak			27	27	27	27	27	27	27	27	27
2 MW of Biogas @ Peak			2	2	2	2	2	2	2	2	2
Total Solar, CHP and Biogas Contribution @ Peak			**38**	**38**	**38**	**38**	**38**	**38**	**38**	**38**	**38**
Remaining South-Central Guelph Supply Capacity Needs at Time of Peak	**23**	**29**	**-**	**-**	**2**	**5**	**10**	**14**	**16**	**19**	**21**

Note that in the table above, the contribution of solar, biogas and combined heat and power projects is shown at the time of peak electricity demand.

For planning purposes, capacity contribution is the amount of installed generation capacity that can be relied on to meet demand during peak hours. A capacity contribution of 30% is used for solar resources, and 98% for biogas and combined heat and power resources.

Table 2 – Supply Capacity Needs in the KWCG Area Considering 60 MW of Installed Distributed Generation in the KWCG Area and Station Upgrades at Cedar TS

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
South-Central Guelph Supply Capacity Needs	23	29	32	36	40	44	48	53	55	57	59
Kitchener-Guelph Supply Capacity Needs							3	14	15	17	20
Cambridge Supply Capacity Needs		8	18	29	40	51	63	72	83	96	109
Total Supply Capacity Needs at Time of Peak	**23**	**36**	**50**	**65**	**80**	**95**	**114**	**138**	**153**	**170**	**188**
30 MW of Solar Contribution @ Peak			9	9	9	9	9	9	9	9	9
28 MW of CHP Contribution @ Peak			27	27	27	27	27	27	27	27	27
2 MW of Biogas Contribution @ Peak			2	2	2	2	2	2	2	2	2
Total Solar, CHP and Biogas Contribution @ Peak			**38**	**38**	**38**	**38**	**38**	**38**	**38**	**38**	**38**
Remaining Total Supply Capacity Needs at Time of Peak	**23**	**36**	**12**	**27**	**41**	**56**	**76**	**100**	**114**	**131**	**149**

Note that in the table above, the contribution of solar, biogas and combined heat and power projects is shown at the time of peak electricity demand.

For planning purposes, capacity contribution is the amount of installed generation capacity that can be relied on to meet demand during peak hours. A capacity contribution of 30% is used for solar resources, and 98% for biogas and combined heat and power resources.

Further Breakdown of Assessment to Compare Cost of Distributed Generation Options and Recommended Transmission Reinforcements in the KWCG Area

The purpose of this attachment is to provide further breakdown of the assessment to compare the cost of distributed generation options and the recommended transmission reinforcements in the KWCG area, as originally provided in Exhibit I-2-26. The meaning of each of the columns presented below is described at the bottom of the table.

			COLUMN I	COLUMN II	COLUMNS III								
			Estimated Annual Capacity Factor	**Estimated PV of All-In Cost & Energy Displacement to 2023**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Combined Heat and Power (CHP) on Natural Gas	ROW I	Annual All-In Capital and Energy Costs (2012 $ in Millions)	0.45		$88	$88	$88	$88	$88	$88	$88	$88	$88
	ROW II	Annual Displaced Energy Cost (2012 $ in Millions)			$19	$23	$25	$31	$33	$35	$40	$39	$39
	ROW III	Net Capital and Energy Cost (2012 $ in Millions)			$69	$65	$63	$57	$55	$54	$48	$49	$50
		Estimated PV (2012 $ in Millions)		**$395**									
Peaking Natural Gas	ROW I	Annual All-In Capital and Energy Costs (2012 $ in Millions)	0.05		$27	$27	$27	$27	$27	$27	$27	$27	$27
	ROW II	Annual Displaced Energy Cost (2012 $ in Millions)			$2	$3	$3	$3	$4	$4	$4	$4	$4
	ROW III	Net Capital and Energy Cost (2012 $ in Millions)			$25	$24	$24	$24	$23	$23	$23	$23	$23
		Estimated PV (2012 $ in Millions)		**$160**									
Solar - Ground Mount	ROW I	Annual All-In Capital and Energy Costs (2012 $ in Millions)	0.14		$213	$213	$213	$213	$213	$213	$213	$213	$213
	ROW II	Annual Displaced Energy Cost (2012 $ in Millions)			$20	$23	$26	$32	$34	$36	$41	$40	$40
	ROW III	Net Capital and Energy Cost (2012 $ in Millions)			$193	$189	$187	$181	$179	$177	$171	$172	$173
		Estimated PV (2012 $ in Millions)		**$1,245**									
Solar - Rooftop (10-250 kW)	ROW I	Annual All-In Capital and Energy Costs (2012 $ in Millions)	0.13		$327	$327	$327	$327	$327	$327	$327	$327	$327
	ROW II	Annual Displaced Energy Cost (2012 $ in Millions)			$18	$22	$24	$30	$31	$33	$38	$37	$37
	ROW III	Net Capital and Energy Cost (2012 $ in Millions)			$308	$305	$302	$297	$295	$294	$288	$289	$290
		Estimated PV (2012 $ in Millions)		**$2,045**									
Recommended Transmission Reinforcements	ROW I	Annual All-In Capital and Operating Costs (2012 $ in Millions)	-		$7	$7	$7	$7	$7	$7	$7	$7	$7
	ROW II	Annual Displaced Energy Cost (2012 $ in Millions)			-	-	-	-	-	-	-	-	-
	ROW III	Net Capital and Operating Cost (2012 $ in Millions)			$7	$7	$7	$7	$7	$7	$7	$7	$7
		Estimated PV (2012 $ in Millions)		**$45**									
Peaking Natural Gas Required in Rest of Province in 2018	ROW I	Annual All-In Capital and Energy Costs (2012 $ in Millions)	0.05		-	-	-	$27	$27	$27	$27	$27	$27
	ROW II	Annual Displaced Energy Cost (2012 $ in Millions)			-	-	-	$3	$4	$4	$4	$4	$4
	ROW III	Net Capital and Energy Cost (2012 $ in Millions)			-	-	-	$24	$23	$23	$23	$23	$23
		Estimated PV (2012 $ in Millions)		**$100**									

Explanatory Notes:

1. System peak capacity needs are expected to emerge in 2018 and be larger than the capacity need in the KWCG area throughout the planning horizon; as such, the cash flows for the peaking natural gas generation requried in the rest of the province start in 2018.
2. The assessment assumes that the energy needs of the province can be met through the existing fleet of generation supply; as such, the energy produced by the distributed generation displaces energy that would have otherwise been produced by the marginal generating unit.

Description of Columns and Rows:

COLUMN I	The annual capacity factor is used to determine how much energy would be produced by the distributed generation; this is used to determine the all-in annualized costs and the amount of energy displaced on the system through the operation of the distributed facility.
COLUMN II	This column presents the estimated present value of the all-in cost and energy displacement of the distributed generation out to 2023. The cash flows contributing to this present value are shown in COLUMNS III. These value were originally provided in Columns A and B of Table 3 in Exhibit I-2-26.
COLUMN III	These columns present the annual cash flows associated with the all-in cost, energy displacement and net capital and energy cost in 2012$ (refer to the description in ROW I, ROW II and ROW III below). These annual cash flows are used to determine the present value shown in COLUMN II.
ROW I	This row describes the annual cash flows associated with the all-in capital, fixed, variable and fuel cost (i.e., all-in annualized capital and energy cost) of the distributed generation. They are determined by multiplying the all-in annualized costs shown in Table 1 of Exhibit I-2-26 by the amount of distributed generation required shown in Table 2 of Exhibit I-2-26.
ROW II	The annual value of the displaced energy at the system level, from distributed generation operation, is shown in this row. It is determined by multiplying estimates of the system marginal cost by the amount of energy that would have been produced by the distributed generation alternatives, which is determined by the capacity factor shown in COLUMN I.
ROW III	This row shows the net annual capital and energy cost of each of the potential alternatives; it is determined by subtracting ROW II from ROW I.

Glossary of Terms:

Annual Capacity Factor	The annual capacity factor is a measure of how often a given generation facility will run over one year; it is the ratio of how much energy is actually produced to the amount that theoretically could be produced if the facility ran at full power for the entire year.
All-In Annualized Capacity and Energy Costs	All-in annualized costs represent the annual portion of the total cost of building and operating a particular asset; they are determined by allocating the total costs over the asset's useful life. The all-in annualized costs of typical DG alternatives and the recommended transmission alternatives are shown in Table 1 of Exhibit I-2-26.

Displaced System Energy	It is the OPA's view that the system has sufficient energy production from its existing supply fleet to meet energy requirements, operation of distributed generation in a local area would cause displacement of energy that would have otherwise been provided by another generator typically at or near the margin. If the displaced energy is more expensive than that of the distributed generator, a net reduction in cost will occur. If, however, the displaced energy is cheaper than that of the distributed generator, a net increase in cost will occur.

Marginal Cost	The cost of the next 1 MW of supply; generally equal to the operating costs of the last generation facility called to market to meet the electricity demand.