

APPENDIX IRR - D

HHHI's 2015 to 2020 CDM Plan

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Halton Hills Hydro and Milton Hydro

Joint CDM Plan Briefing Memo

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Submitted to:
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1 Introduction

In February 2015, Halton Hills Hydro Inc. (“Halton Hills” or “HHH”) and Milton Hydro Distribution Inc. (“Milton Hydro” or “MH”) contracted ICF International (ICF) to develop a 2015-2020 Joint Conservation and Demand Management (CDM) Plan under the new Conservation First Framework.

This Joint CDM Plan Briefing Memo accompanies the following documents that will be filed with the Independent Electricity System Operator (IESO):

- The CDM Plan Template, which summarizes this Joint CDM Plan
- IESO Cost-Effectiveness Tools for both LDCs
- IESO Achievable Potential Tool results for HHH and for MH.

1.1 Background

Halton Hills Hydro Inc. and Milton Hydro Distribution Inc. are planning for a ‘next generation’ of energy efficiency programs to begin this year and extend to 2020 under Ontario’s new Conservation First Framework (CFF). The CFF sets a provincial target of 7 TWh of electricity conservation by the end of December 2020; each local distribution company (LDC) in the province has been assigned a budget, along with a portion of the overall target based on the achievable conservation potential for the region determined by the IESO in consultation with the LDCs. The table below summarizes the utilities’ assigned targets and associated budgets.

Halton Hills Hydro and Milton Hydro have a long-standing collaboration on CDM in place. In the new 2015-2020 framework, they jointly commissioned achievable potential studies for their respective markets and contracted ICF to develop this Joint CDM Plan.

Submitting a Joint CDM Plan makes sense for HHH and MH (together, the ‘utilities’) due to their similar customer bases and geographic proximity. The utilities’ service areas are adjacent; both are in the GTA West IESO Planning Region, and both serve communities in the Halton Region. Halton Hills Hydro is owned by the Town of Halton Hills and Milton Hydro is owned by the Town of Milton.

	Halton Hills Hydro	Milton Hydro
Total 2015-2020 CDM Target (GWh)	30.94	45.36
Total 2015-2020 CDM Budget (\$)	\$8,387,497	\$11,911,927

Each LDC is responsible for developing a CDM Plan aimed at achieving 100% of its target and a minimum of 8.3% per milestone year within its allotted budget. Each LDC in the province can offer a mix of province-wide and LDC designed local or regional programs; the mix must include programming aimed at the residential, low-income, commercial (including multi-family), small business, agricultural institutional and industrial sector within its service territory.

Program design and delivery need to consider and include any collaboration that has been fostered with other regional LDCs and the local natural gas distributors. The Joint CDM Plan must pass the IESO cost-effectiveness tests based on the IESO Measures and Assumptions List, comply with the IESO rules for program duplication and M&V protocols, and be either funded by full cost-recovery or pay for performance program models. The Joint CDM Plan must address the electricity regional planning underway and the planning that is expected during the period of the Plan (2015-2020).

1.2 Plan Development Process

This section describes how the Joint CDM Plan was developed and how each of the following tasks was completed:

- Task Area 1: Project Initiation
- Task Area 2: Research & Stakeholder Engagement
- Task Area 3: Program Design
- Task Area 4: Reporting and Finalization

Task Area 1: Project Initiation

The project initiation task area included an in-person kick-off meeting with Halton Hills Hydro and Milton Hydro project staff and submission of a revised work plan and schedule. The purpose of this task area was to set up project administration procedures, review and finalize the Project Plan and Schedule, and initiate CDM planning.

Task Area 2: Stakeholder Engagement

This task area included outreach to the utilities' customers via an online survey directed at small businesses in each service territory, as well as an interview with the Town of Halton Hills. The results of these outreach activities are described in Appendix A.

Task Area 3: Portfolio Development

Portfolio development included CDM portfolio modeling, resource planning and creating a funding mechanism strategy using the full cost recovery (FCR) approach. Based on information provided by the utilities, ICF developed assumptions to feed into IESO's Cost-Effectiveness Tool and CDM Plan Template. Information provided by utilities included:

- IESO Conservation & Demand Management Status Reports
- CDM Annual Reports
- PAB funding and modification requests
- Draft Northwest Greater Toronto Area Integrated Regional Resource Plan
- Third-Party application review costs
- Commercial and institutional performance based pilot background information
- Correspondence with Union Gas
- Program tracking worksheets (e.g. municipal street light inventories, completed retrofit projects and retrofit project pipeline)

Task Area 4: Reporting and Finalization

Based on the feedback provided by the utilities, this Joint CDM Plan Briefing Memo was created, which is accompanied by:

- CDM Plan Template, and
- Cost-Effectiveness Tool results for both LDCs
- Achievable Potential Tools

2 Scenarios

In this section, we discuss the details of how the Joint CDM Plan was developed. We start by presenting the results of the Business-as-Usual (BAU) scenario that considers projected energy savings, budget expenditures and cost-effectiveness for the current suite of province-wide programs. We then discuss the Enhanced scenario (ES), which is based on the BAU but with new and enhanced programs (including approved or proposed regional and pilot programs), and placeholders added in order to achieve each LDC's target within its allocated budget. The Joint CDM Plan submitted to the IESO is based on the Enhanced scenarios developed for each LDC.

2.1 Business as Usual Scenario Summary

This section provides a high level overview of the energy savings, budget and cost-effectiveness under the Business-as-Usual (BAU) scenario.

As shown below, continuing existing province-wide programs at current levels as assumed in the BAU scenario, HHH would achieve about 37% of its energy conservation target using 61% of its allocated budget, while MH would reach approximately 27% of its target using 42% of its allocated budget. Therefore, if the utilities were to continue current programs in a manner similar to the previous framework (2011-2014), both would likely achieve less than half of their conservation target under the CFF.

Halton Hills Hydro	PAC: 1.87			TRC: 1.82	
Program	Savings (kWh)	Portion of Target (%)	Total Cost (\$)	Portion of Budget (%)	Cost-Efficiency (\$/kWh)
Retrofit	6,690,313	22%	\$1,972,777	24%	0.29
Heating and Cooling	195,600	1%	\$ 384,459	5%	1.97
Appliance Retirement	-	0%	\$ 40,211	0%	N/A
Coupon	1,599,153	5%	\$ 355,253	4%	0.22
New Construction	1,434,590	5%	\$1,423,774	17%	0.99
Home Assistance Program	348,271	1%	\$ 326,405	4%	0.94
Direct Install Lighting	28,815	0%	\$ 25,088	0%	0.87
High Performance New Construction	684,000	2%	\$ 400,158	5%	0.59
Audit Funding	606,828	2%	\$ 145,873	2%	0.24
PSUI	-	0%	\$ 32,809	0%	N/A
Total:	11,587,570	37%	\$5,106,807	61%	0.44

Milton Hydro	PAC: 1.94			TRC: 1.71	
Program	Savings (kWh)	Portion of Target (%)	Total Cost (\$)	Portion of Budget (%)	Cost-Efficiency (\$/kWh)
Retrofit	8,749,720	19%	\$ 2,265,433	19%	0.26
Heating and Cooling	373,157	1%	\$ 474,103	4%	1.27
Appliance Retirement	-	0%	\$ 30,354	0%	N/A
Coupon	1,663,646	4%	\$ 380,428	3%	0.23
New Construction	-	0%	\$ -	0%	N/A
Home Assistance Program	221,199	0%	\$ 254,514	2%	1.15
Direct Install Lighting	10,806	0%	\$ 32,554	0%	3.01
High Performance New Construction	684,000	2%	\$ 1,315,373	11%	1.92
Audit Funding	606,828	1%	\$ 167,368	1%	0.28
PSUI	-	0%	\$ 65,917	1%	N/A
Total:	12,309,356	27%	\$ 4,986,045	42%	0.41

2.2 Enhanced Scenario

This section provides a high level overview of the energy savings, budget and cost-effectiveness for each utility under the Enhanced scenario, which together form the Joint CDM Plan for the utilities.

The CDM Plan results for Halton Hills Hydro are summarized as follows:

- A CDM budget of **\$8.4** million dollars over the 6-year period, translating into an average of \$1.4 million dollars per year. This represents **100%** of HHH's assigned 2020 budget.
- This budget leads to an estimated persistent savings of **30.9** GWh by 2020. This represents **100%** of HHH's savings target.
- The overall Program Administrator Cost ratio is **3.5**, indicating a cost-effective portfolio well above the IESO target of 1.0. This difference provides some protection against portfolio underperformance over time. If HHH implements the portfolio as estimated, the utility would not be subject to financial risks or remedies.
- This portfolio has approximately 41% of the total target not assigned to current provincial or pilot programs. This indicates that HHH will need to implement new local or provincial programs (as they become available) in order to achieve its target.

A breakdown of savings and budget by program, as well as annual budget and savings for HHH over the period of the ECA are provided in the tables below:

Halton Hills Hydro		PAC: 3.49		TRC: 1.98	
Program	Savings (kWh)	Portion of Target (%)	Total Cost (\$)	Portion of Budget (%)	
Retrofit	10,524,115	34.0%	2,774,354	33.1%	
Heating and Cooling	125,925	0.4%	116,013	1.4%	
Coupon	1,597,162	5.2%	445,139	5.3%	
New Construction	1,477,631	4.8%	1,060,565	12.6%	
Home Assistance Program	348,274	1.1%	249,641	3.0%	
High Performance New Construction (HPNC)	1,025,999	3.3%	308,452	3.7%	
Audit Funding	682,682	2.2%	141,166	1.7%	
PSUI	1,425,000	4.6%	465,460	5.5%	
Energy Manager	743,841	2.4%	356,253	4.2%	
M&T	-	0.0%	-	0.0%	
Existing DI Program	28,815	0.1%	-	0.0%	
Benchmarking Program	201,780	0.7%	62,571	0.7%	
New Direct Install Program	180,128	0.6%	78,484	0.9%	
Placeholder Res	3,774,945	12.2%	1,397,640	16.7%	
C&I Placeholder	8,826,382	28.5%	931,760	11.1%	
Total:	30,962,677	100.0%	8,387,497	100.0%	

	Overall Target	2015	2016	2017	2018	2019	2020
Halton Hills Hydro							
Yearly (MWh)		2,966	3,269	2,650	7,563	7,020	7,495
Cumulative (MWh)	30,940	2,966	6,235	8,885	16,448	23,468	30,963
Cumulative (%) of Target		10%	20%	29%	53%	76%	100%

	Overall Budget	2015	2016	2017	2018	2019	2020
Halton Hills Hydro							
Annual Costs (\$)		148,602	1,310,004	1,054,842	1,975,594	1,920,341	1,978,115
Cumulative Costs (\$)	8,387,497	148,602	1,458,606	2,513,448	4,489,042	6,409,383	8,387,497
Cumulative (%) of Budget		2%	17%	30%	54%	76%	100%

The CDM Plan results for Milton Hydro are summarized as follows:

- A CDM budget of **\$11.9** million dollars over the 6-year period, translating into an average of \$2.0 million dollars per year. This represents **100%** of MH's assigned 2020 budget.
- This budget leads to an estimated persistent savings of **45.3** GWh by 2020. This represents **100%** of MH's savings target.
- The overall Program Administrator Cost ratio is **3.4**, indicating a cost-effective portfolio well above the IESO target of 1.0. This difference provides some protection against portfolio underperformance over time. If MH implements the portfolio as estimated, the utility would not be subject to financial risks or remedies.
- This portfolio has approximately 13% of the total target not assigned to current provincial or pilot programs. This indicates that MH will need to implement new local or provincial programs (as they become available) in order to achieve its target.

A breakdown of savings and budget by program, as well as annual budget and savings over the period of the ECA for MH are provided in the tables below:

Milton Hydro		PAC: 3.39		TRC: 1.74	
Program	Savings (kWh)	Portion of Target (%)	Total Cost (\$)	Portion of Budget (%)	
Retrofit	16,725,002	36.9%	4,308,370	36.2%	
Heating and Cooling	302,075	0.7%	175,523	1.5%	
Coupon	1,661,575	3.7%	553,979	4.7%	
New Construction	2,218,102	4.9%	1,695,001	14.2%	
Home Assistance Program	221,201	0.5%	175,874	1.5%	
High Performance New Construction (H	798,000	1.8%	817,617	6.9%	
Audit Funding	606,828	1.3%	167,722	1.4%	
PSUI	16,720,000	36.9%	2,874,312	24.1%	
Energy Manager	-	0.0%	-	0.0%	
M&T	-	0.0%	-	0.0%	
Existing DI Program	10,806	0.0%	3,805	0.0%	
Benchmarking Program	147,972	0.3%	51,868	0.4%	
New Direct Install Program	136,897	0.3%	65,438	0.5%	
Placeholder Res	2,325,761	5.1%	715,693	6.0%	
C&I Placeholder	3,489,535	7.7%	306,725	2.6%	
Total:	45,363,753	100.0%	11,911,928	100.0%	

	Overall Target	2015	2016	2017	2018	2019	2020
Milton Hydro							
Yearly (MWh)		4,245	5,408	5,652	20,829	4,641	4,584
Cumulative (MWh)	45,359	4,245	9,653	15,305	36,134	40,775	45,359
Cumulative (%) of Target		9%	21%	34%	80%	90%	100%

	Overall Budget	2015	2016	2017	2018	2019	2020
Milton Hydro							
Annual Costs (\$)		154,013	2,055,615	1,745,898	4,250,928	1,875,051	1,830,423
Cumulative Costs (\$)	11,911,927	154,013	2,209,628	3,955,526	8,206,453	10,081,505	11,911,928
Cumulative (%) of Budget		1%	19%	33%	69%	85%	100%

As required by the IESO, the CDM Plans, individually and together (in the Joint CDM Plan), achieve 100% of the assigned target within the allocated budget. The bulk of the savings within each CDM Plan come from the Retrofit program category. It is worth noting the following:

- Halton Hills Hydro and Milton Hydro achieve 34% and 37% of the savings target, respectively, via the Retrofit program. Having the bulk of savings coming from the Retrofit program presents a risk to each utility – it will be important to diversify the savings results across other programs as pilots are completed and new programs become available.
- A significant portion of Halton Hills Hydro’s target (41%) and budget (32%) is allocated to Placeholders (or ‘unassigned target’) – it will be particularly important for HHH to launch new province-wide programs efficiently, as soon as they become available.
- Milton Hydro’s CDM Plan assumes significant savings (37%) from the PSUI program (accounting for Combined Heat and Power projects). To our knowledge, none of these have been completed in MH’s service territory to-date. Should these projects not materialize as expected, the cost-effectiveness of MH’s portfolio will be reduced.
- Moving forward, HHH and MH should shift budget between programs and cost categories to account for expected variations in program participation in the future. This Joint CDM Plan is

based on best estimates of future participation, based on past performance as well as the planning team's estimates of changes to participation.

2.2.1 Resource Assumptions

This section describes the assumptions that have gone into calculating the budgets for the CDM Plans of each LDC, by resource type.

Halton Hills Hydro and Milton Hydro are pursuing full-cost recovery for all of their provincial programs at the present time. The choice of funding model will be re-evaluated periodically during the LDCs' review of the plan performance. In order to build up the LDCs' CDM Plan budgets, the following cost categories were considered:

- **LDC Labour:** This cost category includes an estimate of the LDC's full-time, contract, and co-op student salaries for the 2015-2020 period. These are considered fixed costs and do not vary with program activity.
- **Third-Party Resources:** Neither LDC makes extensive use of fixed-cost third-party resources. Budgeted fixed costs include on-going support for CDM plan development and program design. Halton Hills Hydro's portion of the salary of the anticipated Embedded Energy Manager in the town of Caledon (a shared resource with Hydro One) has also been included here.
- **Marketing Costs:** Based on discussions during the CDM planning process, ICF estimated the utilities' marketing budget.
- **Per-project Variable Costs:** This cost category includes both variable program costs (e.g. application review) as well as per-project incentive costs. In many cases, the LDCs perform their own project reviews. The full list of per-project variable costs is provided below.

Further details about the assumptions in each of these categories are provided below. Please note that all fixed costs were assumed to grow at 2% per year to account for inflation.

LDC Labour

Labour resource costs have been calculated on a Full-Time Equivalent (FTE) basis, which allows the use of a common unit of effort across staff members and programs. The FTE method uses a single salary figure for all staff members, based on the historical average per-staff LDC spending under the 2011-2014 framework.

Halton Hills Hydro's labour cost was modelled using a FTE-equivalent salary of approximately \$140,000 per staff member, including burden (overhead). The total labour cost averages \$229,166 per full year of program delivery under the new framework. This total salary includes one FTE staff, as well as:

- The President and CEO of HHH for 10% of the person's time
- A Project Manager for 20% of the person's time
- A new shared resource between HHH and MH, for 41% of the person's time

Halton Hills Hydro's labour costs per-program, including ramp-up time based on anticipated hiring dates of resources, are as follows:

Halton Hills Hydro Labour Budget Allocation by Program	Estimated Budget Dedicated to Program					
	2015	2016	2017	2018	2019	2020
Retrofit	\$104,832	\$140,915	\$159,455	\$160,353	\$161,224	\$164,448
Heating and Cooling	\$13,104	\$17,614	\$0	\$0	\$0	\$0
Appliance Retirement	\$0	\$0	\$0	\$0	\$0	\$0
Coupon	\$13,104	\$19,816	\$22,458	\$22,908	\$25,702	\$26,216
New Construction	\$1,638	\$2,202	\$2,246	\$2,291	\$2,337	\$2,383
Home Assistance Program	\$4,914	\$6,605	\$6,738	\$6,872	\$7,010	\$7,150
Direct Install Lighting	\$6,552	\$0	\$0	\$0	\$0	\$0
High Performance New Construction (HPNC)	\$4,914	\$6,605	\$6,738	\$6,872	\$7,010	\$7,150
Audit Funding	\$1,638	\$2,202	\$2,246	\$2,291	\$2,337	\$2,383
PSUI	\$4,914	\$11,009	\$15,721	\$16,035	\$16,356	\$16,683
New DI Program	\$0	\$8,807	\$4,492	\$4,582	\$4,673	\$4,767
New C&I Program	\$0	\$0	\$0	\$2,291	\$2,337	\$2,383
Res Placeholder	\$0	\$0	\$0	\$0	\$0	\$0
C&I Placeholder	\$0	\$0	\$0	\$0	\$0	\$0
Energy Manager	\$8,190	\$4,404	\$4,492	\$4,582	\$4,673	\$4,767
2015 Retrofit	\$0	\$0	\$0	\$0	\$0	\$0
2015 Energy Manager	\$0	\$0	\$0	\$0	\$0	\$0
Total (\$)	\$ 163,800	\$ 220,180	\$ 224,584	\$ 229,076	\$ 233,657	\$ 238,330

Milton Hydro's labour cost was modelled using a FTE-equivalent salary of approximately \$153,000 per staff member, including burden (overhead). The total labour cost averages \$396,007 per full year of program delivery under the new framework. This total salary includes the existing one full-time equivalent (FTE) staff as well as:

- the President and CEO of MH for 20% of the person's time in 2015, and 10% for each year thereafter
- the Director of Regulatory Affairs for 10% of the person's time in 2015, and 20% for each year thereafter
- the Vice-President Finance for 10% of their time
- a new resource for communications and administration support for 50% of the person's time beginning in 2016
- a new shared resource between HHH and MH, for 59% of the person's time.

Milton Hydro's labour costs per-program, including ramp-up time based on anticipated hiring dates of resources are as follows:

Milton Hydro Labour Budget Allocation by Program	Estimated Budget Dedicated to Program					
	2015	2016	2017	2018	2019	2020
Retrofit	\$124,950	\$258,727	\$256,139	\$281,055	\$286,676	\$292,409
Heating and Cooling	\$4,200	\$15,219	\$15,524	\$0	\$0	\$0
Appliance Retirement	\$0	\$0	\$0	\$0	\$0	\$0
Coupon	\$28,350	\$41,853	\$38,809	\$39,585	\$44,415	\$45,303
New Construction	\$16,800	\$15,219	\$11,643	\$15,834	\$12,113	\$12,355
Home Assistance Program	\$4,200	\$7,610	\$7,762	\$7,917	\$8,075	\$8,237
Direct Install Lighting	\$6,300	\$3,805	\$0	\$0	\$0	\$0
High Performance New Construction (HPNC)	\$6,300	\$7,610	\$3,881	\$3,959	\$4,038	\$4,118
Audit Funding	\$4,200	\$7,610	\$7,762	\$7,917	\$8,075	\$8,237
PSUI	\$14,700	\$11,414	\$23,285	\$23,751	\$24,226	\$24,711
New DI Program	\$0	\$3,805	\$3,881	\$3,959	\$4,038	\$4,118
New C&I Program	\$0	\$0	\$0	\$0	\$0	\$0
Res Placeholder	\$0	\$0	\$0	\$0	\$0	\$0
C&I Placeholder	\$0	\$0	\$0	\$0	\$0	\$0
Energy Manager	\$0	\$0	\$0	\$0	\$0	\$0
PSUI - CHP	\$0	\$7,610	\$19,405	\$11,876	\$12,113	\$12,355
Total (\$)	\$210,000	\$380,480	\$388,090	\$395,852	\$403,769	\$411,844

Third-Party Resources

Halton Hills Hydro has allocated a fixed cost of \$3,000 in 2017 for start-up costs for the new Direct Install Lighting program, and a fixed cost of \$3,000 in 2018 for the start-up of the Commercial and Institutional Benchmarking program, which is expected to be developed following the pilot program in which both utilities are participating. Finally, HHH's budget includes 50% of the LDC cost for an Embedded Energy Manager starting halfway through 2015. It was assumed that the annual salary covered by the LDCs is \$108,000, with 2% inflation assumed per year.

Milton Hydro has included \$4,500 in 2016 and 2017 for start-up costs related to the new Direct Install Lighting program, and has also allocated a fixed cost of \$3,000 in 2018 for the start-up of the Commercial and Institutional Benchmarking program. Additionally, Milton Hydro has included a total of \$40,000 across the last four years of the framework for the development and technical support of combined heat and power projects under PSUI.

In addition, ICF's work to prepare the Joint CDM Plan is included in each budget as a fixed cost in 2016. Halton Hills Hydro has budgeted \$15,000 annually for on-going CDM Plan support, while Milton Hydro has budgeted \$20,000 annually.

Marketing Costs

The total marketing budget for each LDC has been estimated to be approximately 10% of the fixed CDM budget, and allocated on a per-program basis as outlined below for Halton Hills Hydro followed by Milton Hydro:

Halton Hills Hydro Program & Activity	Budgeted Amount					
	2015	2016	2017	2018	2019	2020
Overall CDM Marketing	\$20,000	\$35,000	\$35,700	\$36,414	\$37,142	\$37,885
Coupon	\$0	\$3,000	\$3,060	\$3,121	\$3,184	\$3,247
PSUI	\$1,000	\$2,000	\$2,040	\$2,081	\$2,122	\$2,165
Direct Install Lighting	\$500	\$0	\$0	\$0	\$0	\$0
Home Assistance Program	\$1,000	\$2,000	\$2,040	\$2,081	\$2,122	\$2,165
High Performance New Construction (HPNC)	\$1,000	\$1,200	\$1,224	\$1,248	\$1,273	\$1,299
Audit Funding	\$0	\$0	\$0	\$0	\$0	\$0
Heating and Cooling	\$1,000	\$2,000	\$2,000	\$0	\$0	\$0
New DI Program	\$0	\$1,000	\$1,020	\$1,040	\$1,061	\$1,082
Res Placeholder	\$0	\$0	\$0	\$0	\$0	\$0
C&I Placeholder	\$0	\$0	\$0	\$0	\$0	\$0
New C&I Program		\$0	\$0	\$2,000	\$2,040	\$2,081
Energy Manager	\$3,000	\$0	\$0	\$0	\$0	\$0
New Construction	\$0	\$0	\$0	\$0	\$0	\$0
Retrofit	\$12,000	\$20,000	\$20,400	\$20,808	\$21,224	\$21,649
2015 Energy Manager	\$0	\$0	\$0	\$0	\$0	\$0
2015 Retrofit	\$0	\$0	\$0	\$0	\$0	\$0
Total Yearly Budget	\$39,500	\$66,200	\$67,484	\$68,794	\$70,170	\$71,573

Milton Hydro Program & Activity	Budgeted Amount					
	2015	2016	2017	2018	2019	2020
Overall CDM Marketing	\$0	\$10,000	\$10,200	\$10,404	\$10,612	\$10,824
PSUI	\$1,000	\$1,020	\$1,040	\$1,061	\$1,082	\$1,104
Coupon	\$5,000	\$5,100	\$5,202	\$5,306	\$5,412	\$5,520
Direct Install Lighting	\$1,500	\$0	\$0	\$0	\$0	\$0
Home Assistance Program	\$750	\$1,000	\$1,000	\$1,020	\$1,040	\$1,061
High Performance New Construction (HPNC)	\$500	\$510	\$520	\$531	\$541	\$552
Audit Funding	\$1,500	\$1,530	\$1,561	\$1,592	\$1,624	\$1,656
Heating and Cooling	\$3,000	\$1,500				
New DI Program	\$0	\$1,000	\$1,020	\$1,040	\$1,061	\$1,082
Energy Manager	\$0	\$0	\$0	\$0	\$0	\$0
Res Placeholder	\$0	\$0	\$0	\$0	\$0	\$0
C&I Placeholder	\$0	\$0	\$0	\$0	\$0	\$0
New C&I Program	\$0	\$0	\$0	\$3,000	\$3,060	\$3,121
New Construction	\$1,000	\$1,020	\$1,040	\$1,061	\$1,082	\$1,104
Retrofit	\$8,000	\$30,000	\$30,600	\$31,212	\$31,836	\$32,473
PSUI - CHP	\$0	\$0	\$0	\$0	\$0	\$0
Total Yearly Budget	\$22,250	\$52,680	\$52,184	\$56,227	\$57,352	\$58,499

Other Expenses

Each LDC allocated a small portion of its budget to other, general CDM expenses; Halton Hills Hydro budgeted \$10,000 per year, while Milton Hydro budgeted \$5,000 in 2015, increasing to \$20,000 annually in subsequent years. A 2% rate of inflation has been assumed.

Per Project Costs

The IESO Cost-Effectiveness Tool requires input of variable and incentive costs on a per-project basis. The values used for the per-project costs are provided below. Please note that the per-project variable and incentive costs are not adjusted for inflation over the period of the ECA.

Total Variable Program Costs Per Unit	Halton Hills Hydro	Milton Hydro
Prescriptive: Lighting	\$2,272.00	\$2,272.00
Prescriptive: Non-Lighting	\$2,272.00	\$2,272.00
Engineered: Lighting	\$2,272.00	\$2,272.00
Engineered: Non-Lighting	\$2,272.00	\$2,272.00
Custom: Lighting	\$2,272.00	\$2,272.00
Custom: Non-Lighting	\$2,272.00	\$2,272.00
HVAC Initiative - 14.5 SEER	\$13.00	\$13.00
HVAC Initiative - 15 SEER	\$13.00	\$13.00
HVAC Initiative – ECM	\$13.00	\$13.00
Coupon	\$1.75	\$1.75
New Construction	\$67.00	\$67.00
HAP	\$270.00	\$270.00
Direct Install Lighting	\$281.00	\$270.00
HPNC	\$5,000.00	\$5,000.00
Audits	\$1,500.00	\$1,500.00
PSUI – PES	\$0.00	\$0.00
PSUI – DES	\$0.00	\$0.00

Total Variable Program Costs Per Unit	Halton Hills Hydro	Milton Hydro
PSUI- Project Incentive	\$0.00	\$0.00
PSUI - CHP 1 MW	\$0.00	\$0.00
Energy Manager	\$0.00	\$0.00
NEW DI Program	\$300	\$300
M&T	\$0.00	\$0.00

The costs for the HVAC and Coupon, as well as a portion of the Small Business Direct Install Lighting programs are based on the IESO central services charges specified in the ECA Toolkit guidelines. Retrofit, Residential New Construction, Home Assistance, and High Performance New Construction (HPNC) costs for each LDC are based on information provided by the LDCs.

The values used for the per-project incentive costs are provided below:

Total Incentive Costs Per Unit	Halton Hills Hydro	Milton Hydro
Prescriptive: Lighting	\$5,270.50	\$5,270.50
Prescriptive: Non-Lighting	\$3,923.60	\$3,923.60
Engineered: Lighting	\$5,187.50	\$5,187.50
Engineered: Non-Lighting	\$7,833.36	\$7,833.36
Custom: Lighting	\$4,690.04	\$4,690.04
Custom: Non-Lighting	\$17,310.06	\$17,310.06
HVAC Initiative - 14.5 SEER	\$250.00	\$250.00
HVAC Initiative - 15 SEER	\$400.00	\$400.00
HVAC Initiative – ECM	\$250.00	\$250.00
Coupon	\$5.00	\$5.00
New Construction	\$1,500.00	\$1,500.00
HAP	\$275.00	\$275.00
Direct Install Lighting	\$1,278.00	\$1,278.00
HPNC	\$12,000.00	\$60,000.00
Audits	\$10,000.00	\$10,000.00
PSUI – PES	\$10,000.00	\$10,000.00
PSUI – DES	\$50,000.00	\$50,000.00
PSUI- Project Incentive	\$100,000.00	\$100,000.00
PSUI - CHP 1 MW	\$1,183,000.00	\$1,183,000.00
Energy Manager	\$0.00	\$0.00
NEW DI Program	\$1,325	\$1,325
M&T	\$37,500.00	\$37,500.00

Most of these values are currently based on provincial averages, aside from Residential New Construction, which is based on estimates observed in other LDC territories and HPNC, which is based on data provided by each LDC.

PAB Funding

Halton Hills Hydro has submitted a PAB funding request for approximately \$275,000 for 2015. This figure is anticipated to cover the funding for programs until they transition over to the new framework. Assuming \$20,000 of the PAB is allocated to Peaksaver, the PAB request would not be sufficient to carry all of the programs through to the end of 2015. To that end, Retrofit is scheduled to transition on November 1, 2015 to the new framework, while the Energy Manager Program is scheduled to transition on June 1, 2015. All other programs are scheduled to transition on January 1, 2016.

Milton Hydro has submitted a PAB funding request for approximately \$435,000 for 2015. This figure is anticipated to cover the funding for programs until they transition over to the new framework. Assuming 28,000 of the PAB is allocated to Peaksaver, the PAB request would not be sufficient to carry all of the programs through to the end of 2015. To that end, Retrofit is scheduled to transition on November 1, 2015 to the new framework. All other programs are scheduled to transition on January 1, 2016.

2.2.2 Program Participation Assumptions

Through discussions with LDC staff and analysis of past program performance, ICF developed the anticipated participation for each program. The results are summarized in the table below. More detailed descriptions of the assumptions used to develop each program's anticipated participation forecast are provided following the table.

Halton Hills Hydro		CDM Plan - Anticipated Participation (# of projects)					
		2015	2016	2017	2018	2019	2020
Program	Conservation Measure						
Retrofit	PRESCRIPTIVE LIGHTING	33	27	18	19	19	19
Retrofit	PRESCRIPTIVE NON-LIGHTING	1	1	1	1	1	1
Retrofit	ENGINEERED LIGHTING	9	10	10	10	10	10
Retrofit	ENGINEERED NON-LIGHTING	1	1	1	1	1	1
Retrofit	CUSTOM LIGHTING	4	4	4	4	4	4
Retrofit	CUSTOM NON-LIGHTING	1	1	1	1	1	1
Heating and Cooling	CAC 14.5 SEER	49	186	0	0	0	0
Heating and Cooling	CAC 15 SEER	136	7	0	0	0	0
Heating and Cooling	ECM FURNACE	314	104	0	0	0	0
Coupon	COUPONS	2,021	2,021	2,021	2,021	2,021	2,021
Coupon	BI-ANNUAL COUPONS	6,284	6,284	6,284	6,284	6,284	6,284
New Construction	NEW HOME CONSTRUCTION	134	134	134	134	134	134
Home Assistance Program	HAP HOME	74	74	74	74	74	74
Direct Install Lighting	SMALL BUSINESS LIGHTING	8	0	0	0	0	0
High Performance New Construction (HPNC)	HPNC PROJECT	3	3	3	3	3	3
Audit Funding	AUDIT PROJECT	2	2	2	3	2	2
PSUI	Preliminary Engineering Study	0	1	0	0	0	0
PSUI	Detailed Engineering Study	0	0	0	0	1	0
PSUI	Process & System Upgrades (Incentive)	0	1	0	1	0	1
NEW DI Prog	Direct Install for Small Business	0	3	4	5	6	6
New C&I Program	New C&I Program	11	11	11	15	15	15
PLACEHOLDER	Residential Future Programming	0	0	0	395	395	395
PLACEHOLDER	Commercial Future Programming	0	0	0	3,813	3,813	3,813
Energy Manager*	Embedded EM	1	2	2	3	3	3

* Energy Manager projects are non-incented savings projects.

Milton Hydro Program		CDM Plan - Anticipated Participation (# of projects)					
		Conservation Measure	2015	2016	2017	2018	2019
Retrofit	PRESCRIPTIVE LIGHTING	57	72	49	22	22	22
Retrofit	PRESCRIPTIVE NON-LIGHTING	1	1	1	1	1	1
Retrofit	ENGINEERED LIGHTING	12	12	12	12	12	12
Retrofit	ENGINEERED NON-LIGHTING	1	1	1	1	1	1
Retrofit	CUSTOM LIGHTING	6	6	6	6	6	6
Retrofit	CUSTOM NON-LIGHTING	3	3	3	3	3	3
Heating and Cooling	CAC 14.5 SEER	45	45	0	0	0	0
Heating and Cooling	CAC 15 SEER	124	124	0	0	0	0
Heating and Cooling	ECM FURNACE	287	287	0	0	0	0
Coupon	COUPONS	2,103	2,103	2,103	2,103	2,103	2,103
Coupon	BI-ANNUAL COUPONS	6,537	6,537	6,537	6,537	6,537	6,537
New Construction	NEW HOME CONSTRUCTION	176	206	206	206	206	206
Home Assistance Program	HAP HOME	47	47	47	47	47	47
Direct Install Lighting	SMALL BUSINESS LIGHTING	3	0	0	0	0	0
High Performance New Construction (HPNC)	HPNC PROJECT	2	2	3	2	3	2
Audit Funding	AUDIT PROJECT	2	2	2	2	2	2
PSUI	Preliminary Engineering Study	0	1	0	0	0	1
PSUI	Detailed Engineering Study	0	0	1	0	0	0
PSUI	Process & System Upgrades (Incentives)	0	1	0	1	0	0
NEW DI Prog	Direct Install for Small Business	0	1	2	4	6	6
New C&I Program	New C&I Program	9	9	9	11	11	11
PLACEHOLDER	Residential Future Programming	0	0	0	2,349	2,349	2,349
PLACEHOLDER	Commercial Future Programming	0	0	0	156	156	156
Energy Manager	Embedded EM	0	0	0	0	0	0
PSUI	PSUI - CHP	0	0	0	2	0	0

Retrofit

Both utilities believe that Retrofit participation could ultimately be increased by between 30% and 45% over and above current participation levels (approximately 30 Retrofit projects annually for each LDC). This increase in participation will be driven in part by a new shared Key Account Manager resource between HHH and MH, as well as a new Embedded Energy Manager for HHH. Participation for the Retrofit prescriptive lighting program between 2015 and 2017 has been increased to account for significant planned street lighting upgrades in both service territories (approximately 3,900 streetlights for HHH, and 8,000 for MH).

PSUI

The PSUI Preliminary Engineering Study and Detailed Engineering Study streams are expected to continue to attract very little participation.

For the capital project stream, both LDCs anticipate that several projects will be completed over the planning period. In addition Milton Hydro expects two 1 MW combined heat and power (CHP) projects to be completed in 2018.

Coupon

The Coupon programs are conservatively forecast to have participation rates in 2015-2020 equivalent to the average of 2013-2014 under the legacy framework, as significant efforts by the LDCs have increased participation.

Energy Manager

Neither LDC currently has an Embedded Energy Manager. Milton Hydro does not anticipate hiring an Energy Manager, while Halton Hills Hydro has included one Embedded Energy Manager beginning in mid-2015 to be shared with Hydro One. Projected participation for this program represents the number of projects expected to deliver non-incented savings. Some participation in this program has been included to indicate non-incented projects that the LDC may submit; these have been estimated at five projects averaging 82,420 kWh, annually.

Small Business Direct Install

This program will be ending after 2015. Given that it is a retiring program, its participation for 2015 has remained in-line with 2013-2014 levels. The expected replacement for this program is modelled separately.

Heating and Cooling

Although Heating and Cooling projects are not broken into these three measure categories in previous reporting, these distinct categories are required in the IESO Cost Effectiveness toolkit. Total applications from past periods were broken out into the three measure categories.

Due to changes to the building code coming into effect in 2017, ECMs will become mandatory and this conservation measure will have to be stopped. Overall this is a very expensive program for the LDC to run, as it consumes a significant budget relative to the small savings it achieves towards the 2020 target. This situation is made worse since the ECM measure was by far the best of the three measures, and without it there is little benefit to the LDC continuing to offer these other incentives. For both LDCs, the two high efficiency air conditioning incentives are phased out at the end of 2016, at the same time as the ECM measure will be removed.

Note that while the working groups are currently considering additional measures for the Heating and Cooling program, the final outcomes are not clear at this point. Such potential program enhancements are captured in the 'unassigned target' placeholder categories.

Residential New Construction

Residential development in the service territories of both LDCs is expected to continue at a similar pace to 2011-2014. Participation rates are therefore expected to increase slightly (approximately 5%) from the average participation from the legacy framework.

Home Assistance Program (HAP)

Participation in the Home Assistance Program is expected to continue at 2014 levels for both utilities. Halton Hills Hydro is discussing a partnership with Union Gas to deliver HAP in HHH's service territory.

Audit Funding

Participation in Audit Funding projects is assumed to remain steady with the legacy framework at relatively low participation rates for 2015-2020.

High Performance New Construction (HPNC)

Neither LDC experienced significant HPNC participation from 2011-2014, and future participation is expected to remain at a similar level for the ECA performance period. Halton Hills Hydro is discussing a partnership with Union Gas to deliver HPNC in the HHH service territory.

Monitoring and Targeting (M&T)

There was no participation in the M&T program for either LDC under the 2011-2014 framework, and therefore, no M&T projects are anticipated to occur under the new framework. However, the program has been included in the portfolio, should either LDC choose to offer it in the future.

NEW Direct Install (Small Business Direct Install)

A new small business direct install program is expected to launch in Q1 2016. As such, we have forecast a ramp up in participation during 2016, and full participation in 2017 onwards. Although increased eligibility is expected, as details are not available yet, the participation and program details are conservatively forecast.

NEW C&I Program (Performance Based Conservation Pilot)

Led by TRCA, this three year Conservation Fund pilot includes the benchmarking of a set of commercial buildings in Halton Hills Hydro's, Milton Hydro's and Hydro One Brampton's service territories. The concept behind this potential program is to provide commercial and institutional facilities with a comparison of their energy performance to that of similar facilities, identify a set of energy efficiency actions that the building owner/manager can implement, track progress towards implementing those actions, and increase the general awareness regarding facility energy consumption.

Placeholders (Unassigned Target)

To meet the required plan targets some more general placeholders have been included, to represent 'unassigned target' or the gap between the plan and the target, for which there is not yet a well-defined plan. This unassigned target is anticipated to be met through enhancements to existing programs, additional new programs, or possibly through target exchange. This approach is in line with the expectations of the IESO, with the understanding that over time LDCs will work to more clearly define how these savings will be achieved.

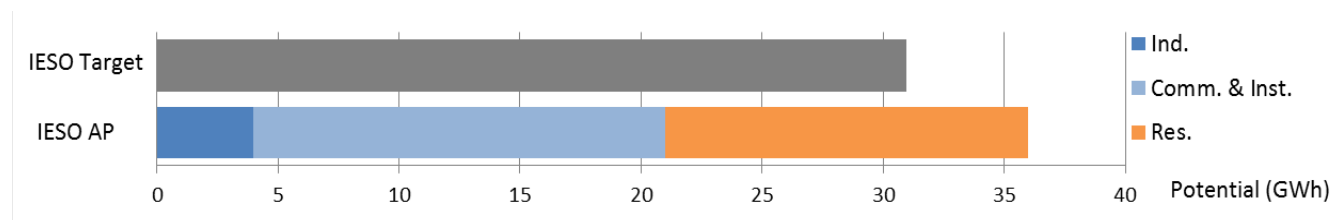
Assumptions for the placeholders have been developed using averages across all residential and C&I sector programs. The primary purpose of the residential and commercial placeholders is ensuring that adequate budget is maintained for yet to be determined future programming efforts that will be required for LDCs to meet their targets.

2.2.3 Comparison to Achievable Potential

Halton Hills Hydro and Milton Hydro retained ICF to estimate the savings potential in their respective service territories for the 2015-2020 period, based on the IESO’s Achievable Potential Tool and total past consumption by sector.

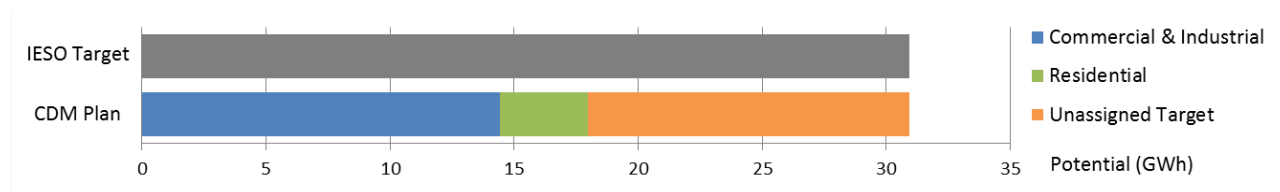
The tables below summarize Halton Hills Hydro’s total calculated upper achievable potential by sector for 2015-2020 in comparison to its target. The IESO target of 30.94 GWh for HHH’s service territory is within the estimated total potential of 36 GWh estimated by ICF using the IESO’s Achievable Potential Tool. Halton Hills Hydro’s target represents 86% of the upper Achievable Potential estimate.

HHH’s total potential by sector compared with the IESO target



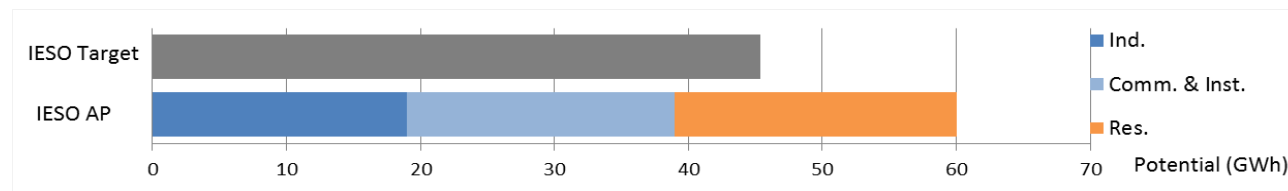
The table below categorizes HHH’s CDM Plan savings into similar sectors as IESO’s Achievable Potential Tool, although the commercial and industrial sector savings in the CDM Plan have been combined because a number of programs target both sectors.

HHH’s Portion of the CDM Plan by sector compared with the IESO target



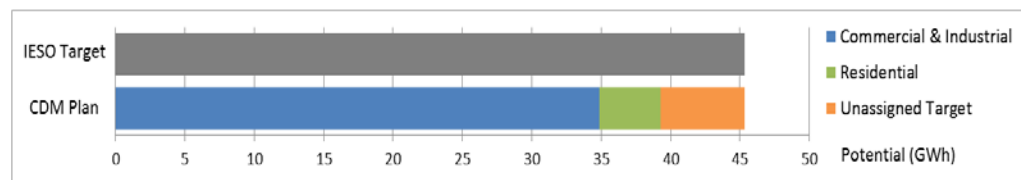
The tables below summarize Milton Hydro’s total calculated upper achievable potential by sector for 2015-2020 in comparison to its target. The IESO target of 45.36 GWh for MH’s service territory is within the estimated total potential of 60 GWh estimated by ICF using the IESO’s Achievable Potential Tool. Milton Hydro’s target represents 76% of the upper Achievable Potential estimate.

MH’s total potential by sector compared with the IESO target



The table below categorizes Milton Hydro’s CDM Plan savings into similar sectors as IESO’s Achievable Potential Tool, although the commercial and industrial sector savings in the CDM Plan have been combined because a number of programs target both sectors.

MH’s Portion of the CDM Plan by sector compared with the IESO target



Comparing the exhibits for each utility shows that while the commercial and industrial results in the CDM Plan are comparable in size to the estimates from the IESO's Achievable Potential Tool, the residential savings make up a much smaller portion of the Joint CDM Plan. This finding is not surprising given the relatively limited number of programming options that are currently available for the residential sector. New programming targeting the residential sector will be crucial to achieving the IESO target. This is especially true for Halton Hills Hydro, for which a large residential potential and a relatively small industrial potential have been identified.

2.3 Risk Management Strategies

The cornerstone of risk management is regular reporting on both costs incurred as well as benefits (e.g. energy savings). The frequency of this reporting is critical; a performance assessment that only occurs yearly may not enable timely corrective actions that would improve performance. On the other hand, a meeting that occurs too frequently may become a burden to LDC CDM staff, particularly since many projects have long lead-times and new topics for discussion may not arise. Therefore, it is recommended that both LDCs establish regular quarterly meetings for CDM staff. These meetings could be conducted internally for each utility, or combined meetings for both utilities. More frequent meetings may be necessary leading up to and including program launch. This frequency is also consistent with the current CDM performance reporting schedule. The suggested agenda for these meetings is as follows:

- Review of past quarterly results and results year-to-date
- Assessment of past results and comparison to forecasts
- Assessment of past and present marketing and engagement events
- Review of project pipeline as well as any collaboration opportunities
- Discussion of contractor performance
- Discussion of new program concepts/upcoming launches/pilots/etc.
- Discussion of opportunities for target and budget sharing (as applicable)

In order to make these meetings as productive as possible, each LDC should establish a common reporting format and methodology for CDM results. This common platform (which may differ in form from what is reported to IESO) will allow for quarter-over-quarter comparison of results. In addition, the IESO will assess annual portfolio cost-effectiveness, and therefore, each LDC should maintain its own version of the Cost-Effectiveness Tool that can be used to manage and estimate program cost-effectiveness on a more granular (e.g. quarterly) basis.

Risk management strategies available to HHH and MH throughout the new framework are summarized below:

- **Back-Weighting Savings in CDM Plan:** By adjusting the Full Cost Recovery (FCR) milestones to be smaller towards the start of the framework period, this will give the LDC time to transition to the new framework and reduce the risk of FCR progress falling below 50% (in which case the LDCs would be exposed to potential remedies, including administrative remedies, budget adjustments and financial remedies, depending on the cost-effectiveness of their FCR portfolio and the milestone year in which progress is being assessed).

- **Maintaining Portfolio Cost-Effectiveness:** Irrespective of program performance, maintaining a cost-effective portfolio is paramount to avoiding budget adjustments and financial remedies throughout the ECA period.
- **On-Going Plan Optimization:** Through the ECA period, both HHH and MH should ensure that they are able to quickly identify any performance shortfalls and take decisive corrective action. This could include review of opportunities for target and budget sharing.
- **Funding Mechanisms:** The utilities should maintain FCR funding of programs until such time where P4P rates are favourable and the cost structure of a potential P4P program is established and well-understood.
- **Review Big-Impact Program Performance Carefully:** A couple of programs dominate the forecast savings – namely, Retrofit and additionally for Milton Hydro, PSUI (via CHP projects). Should either or both of these programs experience delayed or reduced uptake, this would lead to a material effect on the utilities' verified savings. Halton Hills Hydro and Milton Hydro can mitigate these risks by maintaining an up-to-date pipeline that contains a sum of anticipated future savings, weighted by the probability of each project occurring.

3 Collaboration and Regional Planning

In this section we discuss opportunities for regional LDC collaboration, including with the gas utilities, and CDM's contribution to planning in the region.

3.1 Opportunities for Collaboration with Other Utilities

In addition to submitting the Joint CDM Plan, and sharing a new key account manager resource, both utilities are actively working with other utilities in the province, and pursuing further collaborative opportunities. Both HHH and MH are participating in the Performance-Based Conservation Pilot Project being led by the Toronto and Region Conservation Authority, which targets commercial and institutional sector building performance via customer engagement, project identification and savings verification, and in addition to HHH and MH, includes participation of Hydro One Brampton, Peel Region, Halton Region, Union Gas, Enbridge Gas Distribution, and the Real Property Association of Canada.

Additionally, Halton Hills Hydro intends to retain an Energy Manager resource to be shared with Hydro One, in order to support energy efficiency efforts in the Town of Halton Hills and in the Town of Caledon.

Both HHH and MH are also actively investigating opportunities to collaborate with neighboring LDCs, including Hydro One, Hydro One Brampton, Burlington Hydro, Oakville Hydro and Enersource. In addition, HHH is currently discussing a potential partnership with Union Gas to deliver two conservation programs in HHH's service territory. In addition, both HHH and MH are investigating opportunities to access the Collaboration and Innovation Funds to bring forth pilots and collaboration efforts that will meet the specific needs of customers in HHH's and MH's combined service territories.

3.2 CDM Contribution to Regional Planning Considerations

CDM will play a significant role in meeting future load growth within the Region of Halton. To help meet conservation goals under the new conservation framework in Ontario for 2015-2020, HHH and MH each recently completed an achievable potential study, which is helping to guide the development of the Joint CDM Plan, and which will provide guidance on targeted marketing efforts and pilot programs. Both utilities are participating in a potential pilot program, led by the Toronto and Region Conservation Authority to participate in a Performance-Based Conservation program in institutional and commercial buildings, funded by the IESO.

To meet the Joint Plan's savings target, HHH and MH will be active participants in all provincial programs for residential, commercial and industrial sectors, including the Retrofit; HVAC Initiative; Coupons; Residential New Construction; Home Assistance Program; Small Business Lighting; High Performance New Construction; Energy Audits; Existing Building Commissioning; and the Process & System Upgrades Initiative Programs.

To ensure that the provincial programs are as effective as possible, HHH and MH are exploring targeted marketing options to deliver the provincial programs, and could accommodate targeted geographic marketing in each service territory. HHH is also fostering partnerships with Union Gas (for the Home Assistance, Residential New Construction and High Performance New Construction Programs), and is also actively investigating a partnership with the Town of Caledon to hire an Embedded Energy Manager.

Both utilities are currently taking part in the development of an Integrated Regional Resource Plan (IRRP) for the Northwest Greater Toronto, part of the GTA West IESO region. At the time of writing,

the IRRP was in draft, and includes conservation through peak demand reduction as an effective method of meeting near and long term needs; achieving demand reductions associated with the conservation targets is a key element of the near-term plan. The draft plan calls for two new step down transmission facilities - additional transformer station supply capability - at Halton TS (2018 for Halton Hills Hydro, 2020 for Milton Hydro), and recommends that Halton Hills Hydro begin development of the Halton Hills MTS, given a 3 year development time. The plan calls for the utilities to encourage customer participation in FIT, MicroFit and other procurement (CHP) processes of the IESO to address the peak demand issues, all of which are outside of the CDM Plan scope.

The NW GTA Region Working Group will continue to meet regularly throughout the implementation of the plan to monitor progress and developments in the area, and will produce annual update reports that will be posted on the IESO website.

Halton Hills Hydro worked closely with the Town of Halton Hills to develop the Community Energy Plan and the Corporate Energy Plan. Regarding the latter, this assistance and the ongoing relationship with the municipality that it has strengthened will enable Halton Hills Hydro to encourage the Town to choose energy efficient options in capital investments and Town operating expenditures. Milton Hydro has worked closely with the Town of Milton for many years, helping the Town to choose energy efficient options and this relationship will continue during the implementation of the CDM Plan.

3.3 Opportunities for Collaboration with Gas Companies

Both utilities are pursuing opportunities to partner with Union Gas and Enbridge Gas Distribution to pilot and deliver CDM programs. As described above, both utilities are already participating in the Performance-Based Conservation Pilot Project, which involves both of the natural gas utilities.

In addition, HHH is currently discussing a potential partnership with Union Gas to deliver two conservation programs (the Home Assistance Program and the High Performance New Construction Program) in HHH's service territory.

Appendix A Stakeholder Engagement Summary

As a part of the 2015-2020 CDM Plan development process for Halton Hills Hydro (HHH) and Milton Hydro (MH), ICF consulted two external stakeholder groups. This memo summarizes the key findings of these consultations along with CDM planning implications and next steps.

During the course of the project, the following groups were consulted:

- Small Business
- Town of Halton Hills

The results of each of these consultations are described in the sections that follow.

Small Business

Purpose and Scope

ICF, in collaboration with Halton Hills Hydro and Milton Hydro, administered online surveys to the utilities' small business customers. Responses from six small businesses in Halton Hills Hydro's service territory and from 28 small businesses in Milton Hydro's service territory were received.

The purpose of this survey was to gather information on ways to improve energy efficiency programming and to understand customer interest in new program options.

Key Findings

Experience in Energy Efficiency

The table below shows the number of respondents that have experience in implementing energy efficiency projects. In Halton Hills Hydro's service territory, 67% of respondents had experience, and in Milton Hydro's service territory, 75% of respondents had completed energy efficiency projects.

Experience in Energy Efficiency Projects

LDC	Experience in Energy Efficiency Projects?					
	YES	NO	TOTAL	% YES	% NO	% TOTAL
Halton Hills Hydro	4	2	6	67%	33%	100%
Milton Hydro	21	7	28	75%	25%	100%

The energy efficiency projects described covered both electric and gas savings. The common projects listed were (the numbers in brackets indicates the frequency of response):

- Lighting projects (22): which were by far the most popular and included LED, fluorescent, and CFL retrofits, as well as motion sensors, timers, and turning off lights
- High efficiency furnaces and/or AC units (4)
- Thermostats (4): including programmable thermostats and locks on thermostats to prevent occupants from changing settings
- Building envelope measures (3)
- Domestic hot water measures (3)

- Demand shifting behaviours (2), and
- ENERGY STAR office equipment and power bars with timers (1)

Perspective on Existing Programs

The table below summarizes which respondents were familiar with saveONenergy programs. Even though over two-thirds of surveyed customers in both utilities' service territories have experience with energy efficiency projects, only approximately one-third of respondents were familiar with saveONenergy programs.

Familiarity with saveONenergy programs

LDC	Familiar with saveONenergy programs?					
	YES	NO	TOTAL	% YES	% NO	% TOTAL
Halton Hills Hydro	2	4	6	33%	67%	100%
Milton Hydro	8	20	28	29%	71%	100%

Of those who were familiar with the saveONenergy brand, participation in the following programs was noted (the numbers in brackets indicates the number of participants):

- Small Business Lighting (5)
- Retrofit (3)
- High Performance New Construction (2)

Two respondents also said they participated in the Process and Systems Upgrades Initiative, however this is likely an error since the program is aimed at large industrial customers.

Many of the customers that participated in one or more programs thought the programs were effective at reducing their electricity consumption and encouraging the adoption of energy efficiency technologies; however, one respondent, who is a channel partner, believed that the programs were too labour intensive. Another stated that the Small Business Lighting incentive did not cover a major portion of his/her company's upgrade.

New Program Options

New programs are typically designed to overcome existing barriers. As such, we asked respondents what key challenges they are faced with when it comes to energy efficiency and reducing energy costs. The answers we received are described below (the numbers in brackets indicates the frequency of response):

- Lack of knowledge about energy efficient measures or no (perceived) technology alternatives (11): was the most commonly reported barrier. For example, one respondent's main challenge focused on the cost of electric heating.
- Capital cost (6): to implement a measure.
- Operations align peak demand (4): making it difficult to shift demand to off-peak hours, which is less expensive.
- Time (1): to research and implement measures.
- Interruptions to business (1): that some energy efficiency measures cause.
- Tenant-landlord split incentive (2)
- Balancing retail aesthetics with energy consumption (1): for example, in retail lighting
- Perceived gap in programs (3): including no incentives—which does not appear to be accurate—and not enough information, implementation or telephone support
- Program application burden (1): exceeds value of participation

- None (9): Interestingly, many respondents believed they were not faced with challenges or that they had already exhausted all of the energy saving opportunities.

When asked about which delivery mechanism respondents felt is the most useful in assisting businesses improve their energy efficiency, the respondents chose (the numbers in brackets indicates the frequency of response):

- Site visits/energy audits (17)
- Websites (8)
- Workshops (4)
- Other: including opportunity identification (1) and program application support (1)

In addition, one small business customer highlighted the usefulness of a Chamber of Commerce tour of Halton Hills Hydro that occurred a few years ago, during which entrepreneurs learnt about power management tools and asked staff for advice.

Respondents were also asked whether they would be interested in participating in an on-bill financing program. In Halton Hill's service territory, 50% of respondents (3) said they would be interested in such a program and in Milton Hydro's service territory, 46% of respondents (13) said they would be interested.

One respondent also said the individual would be interested in a program that focused on solar power generation.

Implications for CDM Planning & Next Steps

A number of program improvements and new program options were suggested by respondents. In the following bullets we describe how these could be integrated into Halton Hills Hydro and Milton Hydro's Joint CDM Plan.

- Only one-third of respondents were aware of saveONenergy programs. As such, the utilities should continue to build awareness of program offerings. Suggested methods for providing this information include the utilities' websites, workshops, and collaboration with local Chambers of Commerce.
- The small businesses that were surveyed had experience in the following types of energy efficiency projects: lighting, HVAC, building envelop, DHW, demand shifting and office equipment. In addition, there is interest from some small businesses in solar panels and electric heating alternatives (perhaps in technologies such as ductless mini-split systems, which use heat pump technology). This information should be passed along to the Small Business Working Group that is developing the new Small Business program to ensure that these types of projects are assessed for cost-effectiveness and inclusion in the program.
- It is apparent from the survey data that small business customers are looking for information on energy saving opportunities since lack of knowledge was the most common barrier. This barrier can be surmounted either through opportunity identification (site visits/home energy audits were the most preferred delivery mechanisms) or through education (via websites, workshops, and collaboration with Chambers of Commerce). This feedback should be passed on to the Small Business Working Group to ensure that this type of support is an integral part to the new Small Business Program.
- Capital cost of energy efficiency was the second most common barrier, highlighting the continued need for financial incentives. In addition, approximately half of survey respondents said they

would be interested in an on-bill financing program. During the 2015-2020 CDM Framework, Halton Hills Hydro and Milton Hydro should monitor the performance of this program in other LDCs' service territories and, based on its success and cost effectiveness, consider integrating such a program into the Joint CDM Plan.

- Since time constraints and program participation burden are two barriers preventing energy efficiency projects, the utilities should work to simplify and automate program applications and documentation. This objective can be achieved via each of the program-specific Working Groups and the Information Systems Working Group.
- Although LDC targets are focused on energy savings rather than demand savings, some small business customers will be more motivated by measures that reduce consumption during peak times since they are subject to time of use rates. Halton Hills Hydro and Milton Hydro should consider marketing the added benefits of measures that provide peak energy savings in current and future programs.

Town of Halton Hills

Purpose and Scope

ICF met with the Town of Halton Hills to explore opportunities to promote energy conservation within its municipal facilities and to collaborate on promoting energy conservation within communities.

Key Findings

Energy Conservation in Municipal Facilities

The Town of Halton Hills continues to work closely with Halton Hills Hydro. The Town has participated in the Audit Funding, Small Business Lighting and Retrofit saveONenergy programs offered by HHH.

The Town has assembled a Corporate Energy Team to guide and advise the Town on the implementation its Corporate and Community Energy Plans. The Team will have quarterly meetings to identify and discuss opportunities and set priorities. The CEO of HHH, the Conservation and Demand Management Officer at HHH, and Union Gas were members of the committee that helped to develop the Corporate and Community Energy Plans. The CDM Officer continues to participate on the Corporate Energy Team as well as the Town's Sustainability Committee.

The Town reports on progress against the Corporate Energy Plan annually and the Corporate Energy Team will help to coordinate this activity. Electricity, natural gas and Town vehicle fleet fuel data are currently collected manually and aggregated by a consultant. The Town is interested in implementing an Energy Management System to streamline the reporting process.

One significant energy efficiency opportunity (which is included in HHH's CDM Plan) is that the Town is planning a municipal street lighting retrofit. It does not have authority over water treatment and pumping, however, since this is a regional service.

Barriers to energy efficiency that were identified include:

- Access to capital, and
- Human resource constraints, including the effort required to report, identify and rank opportunities.

To partially address the access to funding issue, the Town Council has established a Sustainability Fund which allocates \$50,000 annually towards improvements in municipal facilities.

To partially address the human resource constraint issue, the Town has identified the need for a dedicated employee to champion electricity, natural gas and vehicle fuel efficiencies. In addition, the Town would like to implement an Energy Management System to help streamline annual reporting.

Encouraging Electricity Conservation in Communities

Planned residential developments in the region include Remington Homes and Fernbrook Homes; there may be additional opportunities, however, they were unknown during the time of the meeting.

The Town established a Green Development Standard, which requires that new residential, commercial, institutional, and industrial buildings meet ENERGY STAR performance levels. The standard comes into effect for developments of more than three units or non-residential construction over 100 m² for any building application post-2014.

The Town also publishes a Green Energy Plan Standards booklet for builders, which advises developers to contact HHH and Union Gas, and references saveONenergy. These booklets are publically available, and are often distributed by Town staff during pre-consultation development meetings.

Implications for CDM Planning & Next Steps

Energy Conservation in Municipal Facilities

Based on the discussions during the meeting and ICF's own experiences, the Town's barriers can be addressed in the following ways:

- Access to capital
 - Provide financial incentives (which is already done through the various saveONenergy programs), and
 - Support the Town in accessing additional funding sources (such as natural gas incentives) and alternative financing approaches (such as energy performance contracts). To help the Town access natural gas incentives, HHH agreed to facilitate adding a representative of Union Gas to the Corporate Energy Team.
- Human constraints
 - Explore possibilities to supporting either a dedicated or shared Energy Manager
 - The Town is very interested in accessing the services of an Energy Manager to champion energy efficiency. The Town consumes approximately 5,300 MWh per year (2012) and the Energy Manager program requires savings of about 1,500 MWh, so a dedicated Energy Manager may not be possible.
 - An Energy Manager resource that is shared between the Town of Caledon and Town of Halton Hills is one of the opportunities identified by HHH, and is a high priority for the Team. There may be opportunity to fund this resource in part using the Independent Electricity System Operator's (IESO) Collaboration Fund. While the details of the Collaboration Fund requirements are not yet known, it is likely that the Collaboration Fund business case will need to meet similar thresholds to the existing Energy Manager program. HHH can leverage existing Town collaborative initiatives such as the Community and Corporate Energy Plans as well as the Community Sustainability Strategy to help HHH build a business case for the Collaboration Fund.
 - Promote the existing Monitoring & Targeting program to assist the Town with power monitoring, reporting and planning activities.

- Ensure that Halton Hills is aware of opportunities to streamline procurement of key energy saving technologies such as taking advantage of LAS's Streetlighting Program,¹ which has already satisfied public procurement requirements for specific LED street light models and a street lighting consultant

Encouraging Electricity Conservation in Communities

Based on the meeting outcomes and ICF's experience, the following steps should be taken to promote energy efficiency within the community:

- The Town agreed to describe saveONenergy incentives in its Green Energy Plan Standards booklet and to add this information to its website.
- The Town invited HHH to join its industry working group, which meets quarterly.
- The Town agreed to provide HHH with a list of anticipated developments. In areas where significant growth is expected, HHH should continue to promote the High Performance New Construction and the Residential New Construction program so long as these programs are delivering cost effective savings.

¹ More information is available at: <https://www.las.on.ca/Services/Streetlight-Program.aspx>



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