

4.0 Progress on Energy Conservation Targets

Contents

4.0 Energy Conservation Target Updates	1
Contents.....	1
Abstract.....	1
4.1 Electricity Conservation Targets	2
4.1.1 Electricity Conservation Programs (Utility-Run)	2
4.1.2 Transmission-Connected Customer Savings	2
4.1.3 Electricity Demand Response Savings.....	3
4.2 Natural Gas Conservation Targets	3
4.2.1 Enbridge Conservation Target	4
4.2.2 Union Gas Conservation Target	4
4.3 Transportation Fuel Conservation Targets	5
4.3.1 Renewable Fuel Standard for Gasoline.....	5
4.3.2 Increase Number of Electric and Hydrogen Vehicles.....	5
4.4 Propane, Oil, and Other Fuels Conservation Targets.....	6
4.5 OPS Energy Use Reduction Targets.....	6
Endnotes	7

Abstract

This chapter describes the province’s progress in meeting any targets it has established for reducing the use or making more efficient use of electricity, natural gas, propane, oil and transportation fuels.

The ECO’s mandate includes reporting on Ontario’s progress in meeting government established targets to reduce or make more efficient use of energy. The ECO considers “government-established targets” to result from either a formal government policy or a Minister directing activities that specify an amount of energy to be conserved.¹

The tables in this section provide an overview of progress towards government-established energy targets for the 2015-2016 reporting year. Progress on all targets is reported as of December 31, 2015, unless otherwise indicated.

Note to reader: Several targets reviewed last year are not included in this year’s review because:

- The target period is completed (i.e., old electricity utility targets, energy storage)
- The target was superseded (i.e., the low carbon fuel standard, 1 in 20 vehicles to be EVs)

- The target was abandoned (i.e., the Premier's agreement at the 2008 Council of the Federation)
- It is not a target (i.e., the Ministry of Education's energy use database)

4.1 Electricity Conservation Targets

Target	30 TWh reduction of electricity demand in 2032 due to conservation efforts from 2005 onwards
Source	Long-Term Energy Plan 2013
Responsibility to Address	Ministry of Energy/Independent Electricity System Operator
Update²	13,530 TWh of electricity savings in 2015, not all of which will persist until 2032 (from: utility run conservation programs, codes and standards, pricing policies, and other programs not delivered by LDCs and the IESO).
Timeline expended	37% (11 of 28 years)
Progress Achieved	45%

4.1.1 Electricity Conservation Programs (Utility-Run)

Target	7 TWh of electricity reduction in 2020, due to conservation activities by distribution utilities between 2015-2020	
Source	2015-2020 Conservation First Framework (MENG Directive to IESO) ³	
Responsibility to Address	Local Distribution Companies, with oversight by Independent Electricity System Operator	
Update	In year one of the new framework, 2015 province-wide energy savings from conservation programs were 1.2 TWh, higher than in any year under the 2011-2014 framework	
Relationship with other Conservation Targets	Achievements contribute to the province's conservation target of 30 TWh by 2032, as set out in the 2013 Long-Term Energy Plan	
Timeline Expended	16.6%	<i>See Chapter 6 to learn how LDCs are progressing toward this target.</i>
Progress Achieved	17.14%	

4.1.2 Transmission-Connected Customer Savings

Target	1.7 TWh of electricity savings from transmission-connected customers by the end of 2020
---------------	--

Source	2015-2020 Conservation First Framework
Responsibility to Address	Independent Electricity System Operator
Update	The latest verified results, as of the end of 2015, indicate the Industrial Accelerator Program has achieved 49 GWh (3%) of the 1.7 TWh target. 2015 results are expected to increase slightly due to adjustments. ⁴
Timeline Expended	≈ 10.5% (7 of 67 months, June 2015 - December 2020)
Progress Achieved	3%

4.1.3 Electricity Demand Response Savings

Target	Demand Response to meet 10% of peak demand in 2025 (2,400 MW under current forecasts)
Source	2013 Long-Term Energy Plan
Responsibility to Address	Ministry of Energy/Independent Electricity System Operator
Details	Demand Response will include peak reduction amounts from:⁵ • Time-of-use (TOU) pricing strategies • The Industrial Conservation Initiative (ICI) • The Capacity-Based Demand Response (CBDR) program⁶ • Dispatchable Load • The Demand Response Pilot program⁷ • Peaksaver residential Demand Response program⁸ • Demand Response Auction.⁹
Update	1,871.9 MW peak demand reduction in 2015: • CBDR: 526.2 MW¹⁰ • Peaksaver: 184.4 MW • ICI: 1,102.6 MW • TOU: 58.7 MW Note: The IESO response to ECO on progress to target noted only the first two initiatives; however, the ECO believes that the last two initiatives should also count towards the target
Timeline Expended	16.6%
Progress Achieved	78%

4.2 Natural Gas Conservation Targets

Ontario's two large natural gas utilities (Enbridge Gas Distribution and Union Gas) have annual performance targets for their conservation activities. These targets and their reported results must be approved by the Ontario Energy Board. Depending on their verified results, the gas utilities receive varying amounts of government funding.

While these targets are not "government-established targets," the ECO also reports on them to provide a more complete understanding of the state of energy conservation in Ontario.

4.2.1 Enbridge Conservation Target

Target	6.36 billion m³ cumulative natural gas savings due to conservation activities between 2015-2020	
Source	Enbridge's 2015-2020 Demand Side Management Plan ¹¹ , in response to Ontario Energy Board's 2015-2020 Natural Gas DSM Framework ¹²	
Responsibility to Address	Enbridge Gas Distribution	
Update	2015 Cumulative Savings: 865.6 million m ³ ¹³ (2015 target: 774.359 million m ³ target)	
Timeline Expended	16.6%	<i>See Chapter 5 to learn more about how Enbridge is progressing toward this target.</i>
Progress Achieved	13.5% (according to 2015 target: 112%)	

4.2.2 Union Gas Conservation Target

Target	6.16 billion m³ cumulative natural gas savings due to conservation activities between 2015-2020	
Source	Union Gas' 2015-2020 Demand Side Management Plan, in response to Ontario Energy Board's 2015-2020 Natural Gas DSM Framework	
Responsibility to Address	Union Gas	
Update¹⁴	1.57 billion m ³ of cumulative net natural gas savings ¹⁵ (2015 target: 2.1 billion m ³)	
Timeline Expended	16.6%	<i>See Chapter 5 to learn more about how Union Gas is progressing toward this target.</i>
Progress Achieved	25% (according to 2015 target: 75%)	

4.3 Transportation Fuel Conservation Targets

The transportation fuel targets reported here involves fuel switching away from petroleum fuels (gasoline and diesel). As this fuel switching reduces the use of petroleum fuels and may also improve energy efficiency (particularly for electric vehicles), these targets are considered to fall within the ECO's reporting mandate.

4.3.1 Renewable Fuel Standard for Gasoline

Target	Reduce greenhouse gas emissions from gasoline by 5% by 2020 via Renewable fuel standard for gasoline
Source	Climate Change Action Plan, 2016
Responsibility to Address	Ministry of the Environment and Climate Change
Update <i>(as of July 2017)</i>	A Renewable Fuels Standard for gasoline was proposed on the Environmental Registry (# 012-7923) on January 11, 2017. As of the time of writing, no decision has been posted. This target appears to supersede Ontario's pre-existing commitment to establish a low carbon fuel standard; a target that was never acted upon.

4.3.2 Increase Number of Electric and Hydrogen Vehicles

Target	5% of passenger vehicle sales to be electric or hydrogen in 2020 <i>(Supersedes previous target: 1 in 20 vehicles EV driven in Ontario by 2020.)</i>
Source	Climate Change Action Plan, 2016
Responsibility to Address	Ministries responsible for initiatives that will help the government to achieve its target: MTO: Electric Vehicle Incentives and Charging Infrastructure MENG: Overnight Charging MOECC: Vehicle Replacement MFin: working with federal government to eliminate HST on battery-EVs Mol: EV Charging at Government Facilities MMA: <i>Building Code</i> amendments
Update <i>(as of December 2016)</i>	Per Carma Fleet: EVs represented about 0.2% of all new motor vehicle sales (highest provincial year-over-year growth: 67% increase in annual sales). ¹⁶ Per DesRosiers: electric and hybrid represented 1.5% of sales in 2015 ¹⁷
Timeline Expended	25%
Progress Achieved	Note to Ministry of Transportation: Does the Ministry of Transportation have data on passenger vehicle sales in 2015 and 2016, including the number of these sales that were

	for hydrogen or electric vehicles, to enable tracking of progress to date on this target? Also, does the ministry have a target for EV charging stations?
--	--

4.4 Propane, Oil, and Other Fuels Conservation Targets

The Ministry of Energy's 2017 Long-Term Energy Plan discussion Guide, *Planning Ontario's Energy Future*, poses the question "should Ontario set conservation targets for other fuel types, such as oil and propane."¹⁸ Our office has urged the government to do just that in our two of our recent reports.¹⁹ No decision has yet been made by the Ministry.

4.5 OPS Energy Use Reduction Targets

Target	Reduce GHG emissions from the Ontario Public Service by 27% by 2020/2021, compared against the 2006 baseline.
Date Announced	2009 ²⁰
Responsibility to Address	Treasury Board Secretariat
Update <i>(as of March 31, 2016)</i>	GHG emissions reduced by an estimated 81.7 kt (-29.5% from the 2006 baseline) ²¹ Vehicle fuel consumption: -26.7% CO _{2e} Air travel: -8.0% CO _{2e} Energy use in government-buildings: -31.8% CO _{2e} * <i>* a large part of the drop in emissions from building energy use is caused by the lower emissions profile of the electricity grid in 2015.</i>
Timeline expended	64% (7 of 11 years)
Progress Achieved	109%

Target	Add 500 electric vehicles to Ontario Public Service fleet by 2020
Date Announced	2009
Responsibility to Address	Treasury Board Secretariat
Update <i>(as of March 31, 2016)</i>	Note to Treasury Board Secretariat: Could you please provide us with an update on progress towards this target- we believe that data we reported in our 2015/2016 Conservation Report on p.46 (70 electric vehicles), is not current as of March 31, 2016.
Timeline expended	64% (7 of 11 years)
Progress Achieved	14% ²²

Endnotes

¹ Some targets include a deadline for conclusion of the conservation activities and some specify energy savings from a particular sector or class of customers. Although not stated, the ECO assumes, unless otherwise indicated, that the quantity of energy specified represents net savings (i.e., adjusted for free riders and other factors).

² IESO, Response to Question #9 (separate excel spreadsheet)

³ Need Directive reference

⁴ By factoring in unverified 2015 adjustments (accounting for projects completed in 2015, but were not reported in time for 2015 verification processes) and 2016 reported results, both of which are currently undergoing the 2016 verification processes, the Industrial Accelerator Program has achieved 196 GW of the 1.7 TWh target (12%) as of December 31, 2016. If considering savings currently under contract, 599 GWh energy savings or 35% of the Industrial Accelerator Program target has been contracted.

⁵ Time-of-use (TOU) pricing – the observed impact of TOU meters during system peaks.

Industrial Conservation Initiative (ICI) – the observed impact of ICI over the high-five peaks days based on eligible participants.

Capacity-Based Demand Response (CBDR) – the quantity of capacity participating in the CBDR program.

Dispatchable Load – the observed quantity of DL available during system peak, adjusted for participation in ICI, DR Auction and DR Pilot in order to avoid double counting.

DR Pilot – the quantity of DR Pilot resources procured, adjusted for participation in the DR Auction in order to avoid double counting.

Peaksaver – the effective capacity of Peaksaver resources.

DR Auction Target Capacity – the quantity of capacity the IESO seeks to procure through the DR Auction. The quantity is not adjusted for non-performance.

⁶ The IESO transitioned the Demand Response 2 and Demand Response 3 programs to the Capacity Based Demand Response Program in March 2015.

⁷ Developed by IESO in May 2016.

⁸ IESO is in the process of transitioning the Peaksaver PLUS program into an IESO administered market based structure.

There was one system wide Peak Saver Plus curtailment event in 2015: July 29th between 2 and 6 pm.

Province wide impact (Central Air Conditioning):

Residential = 175 MW

Small commercial = 1.9 MW

Pool pumps = 0.04 MW

Electric water heater = 3.95 MW

⁹ A 7% year-over-year growth in the DR Auction target capacity has been instituted in order to meet the target in the 2013 LTEP. (Demand Response Working Group, "Update on Target Capacity and Commitment Period", Sep 30, 2016)

¹⁰ Contracts held by the IESO under a previous Ontario Power Authority Program called Demand Response 3 contracts began to be moved to a transitional market called the Capacity-Based Demand Response (CBDR) program in April 2015. The CBDR program is evolving into a competitive procurement process for demand response capacity using an auction. There is currently 159 MW enrolled in the CBDR program, and the transition schedule is:

- 37 MW will expire on April 30, 2018, leaving 122 MW in the program;
- 122 MW will expire on October 31, 2018, after which there will be no capacity enrolled in the CBDR program.

¹¹ Filed: 2015-04-01; EB-2015-0049; Exhibit B; Tab 1; Schedule 2; Page 3 of 26

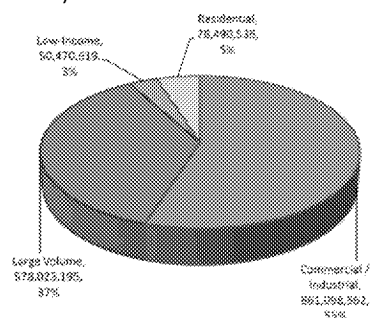
¹² Pages 11-12: www.oeb.ca/sites/default/files/uploads/Report_Demand_Side_Management_Framework_20141222.pdf

¹³ Table 3.9, 2015 Unverified Total Historic Cumulative Net Natural Gas Savings

¹⁴ Union Gas, Draft 2015 Annual Report, Table 3.9 (Unverified)

Table 4.0 - 2015 Program Results

Program	Annual Net Gas Savings (m ³)	Cumulative Net Gas Savings (m ³)
Residential	4,898,590	78,490,538
Commercial / Industrial	52,830,111	861,098,562
Low-Income	2,251,790	50,470,619
Large Volume	49,257,616	578,023,195
Optimum Home	NA	NA
Program Subtotal	109,238,107	1,568,082,915



EVERY JOULE COUNTS: ONTARIO ENERGY USE AND CONSERVATION YEAR IN REVIEW (DRAFT)

¹⁶ www.fleetcarma.com/ev-sales-canada-2016-final/

¹⁷ Context on the numbers, see: www.theglobeandmail.com/report-on-business/ontarios-target-for-electric-vehicle-sales-doesnt-add-up/article30363187/

¹⁸ At 37.

¹⁹ Developing the Long-Term Energy Plan, p.18; Conservation Let's Get Serious, p.151

²⁰ (see: ECO 2009 (Volume Two), Section 4.7; 2014 (Section 3.1))

21

	Baseline Energy Amount (2006/07)	Energy Consumption in 2009/10	Energy Consumption in 2014/15 (Target Year)	Energy Consumption in 2015/16	% GHG Reduction from Baseline						
					09/10	10/11	11/12	12/13	13/14	14/15	15/16
Vehicle Fuel [Litres and kilotonnes CO _{2e} (GHG)]	41,365,508 L 98.3 kt CO _{2e}	37,638,885 L 89.4 kt CO _{2e}	32,188,324 L 76.5 kt CO _{2e}	30,328,473 L 72.0 kt CO_{2e}	9.1% CO _{2e}	8.3% CO _{2e}	10.9% CO _{2e}	16.2% CO _{2e}	18.1% CO _{2e}	22.2% CO _{2e}	26.7% CO_{2e}
Air Travel [kilometres ♦ and kilotonnes CO ₂ (GHG)]	46,978,380 km 5.6 kt CO _{2e}	38,184,928 km 4.6 kt CO _{2e}	39,848,087 km 4.8 kt CO _{2e}	43,210,992 km 5.2 kt CO_{2e}	18.7% CO _{2e}	15.8% CO _{2e}	19.9% CO _{2e}	25.6% CO _{2e}	18.5% CO _{2e}	15.2% CO _{2e}	8.0% CO_{2e}
Emissions in Facilities* (provided by MOI) [kilotonnes CO _{2e} (GHG)]	<u>2006</u> Baseline **173.246 kt CO_{2e}	<u>2009</u> Calendar Year	<u>2014</u> Calendar Year ***124.417 kt CO_{2e}	<u>2015</u> Calendar Year ****118.1 99 kt CO_{2e}	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u> 28.2% CO_{2e} from baseline	<u>2015</u> 31.8% CO_{2e} from baseline
Total: OPS Environmental Footprint [kilotonnes CO _{2e} (GHG)]	277.146 kt CO_{2e}			195.399 kt CO_{2e}							29.5%

²² Conservation Let's Get Serious, p.46