BOMA INTERROGATORY 5

Issues 1.1, 1.3, 5.1

INTERROGATORY

Reference: *Ibid*, p17; Conservation First Framework

(a) Please explain the status of the implementation of the Conservation First Framework, its target date for completing implementation, and milestones.

(b) Please list the projects (and dollar amounts of the grants/loans for each) with description of each project (including the role of the LDC) that the IESO has funded through the LDC Innovation Fund. Please describe the purpose and background for this project, its funding targets and milestones.

(c) Please provide copies of the 2015 and 2016 quarterly conservation reports and the annual verified or draft conservation results posted to date by the IESO, both with respect to the Conservation First Framework.

(d) Please provide an organizational chart of the IESO, which shows all managerial positions, including Vice-Presidents, and the next level of management below the Vice-Presidents, and the size (FTEs, dollars) of the units for which each of the Vice-Presidents and next level managers are responsible.

(e) How does the IESO propose to integrate its market renewal efforts with the OEB/utility driven initiative to introduce fixed rates in place of volumetric rates for various rate cases, especially residential ratepayers? How will this integration impact the growth of distributed generation, demand response, energy storage, and other demand side contributions? How will it impact net metering?

RESPONSE

(a) The Conservation First Framework runs from January 1, 2015 to December 31, 2020. The IESO is currently facilitating the Mid-term review process outlined in the March 31, 2014 direction to the OPA (please refer to Exhibit I, Tab 1.1, Schedule 2.04, Attachment 2), which is to be completed by June 1, 2018. Final target achievement will be assessed based on verified results for completed CDM activities by December 31, 2020.

(b) Please refer to the response to BOMA Interrogatory 3 part (f) at Exhibit I, Tab 1.0, Schedule 2.03.

(c) Please refer to Attachments 1 through 10 for the Q1 2015-Q1 2017 Quarterly Conservation Reports, and the 2015 Annual Verified Conservation Results Report. The 2016 Annual Verified Conservation Results Report is expected to be posted in December 2017.

The 2015 and 2016 Annual Verified Conservation LDC Results Reports are available through the links below. These reports have been provided through web-link as they are complex spreadsheets with multiple tabs.

http://www.ieso.ca/-/media/files/ieso/document-library/conservation/ldc-results/final-verified-2016-annual-ldc-cdm-program-results-report-province-20170630.xlsx?la=en

http://www.ieso.ca/-/media/files/ieso/document-library/conservation/ldc-results/2015/final-2015-annual-verified-results-report-ldc-summary-20160630.xlsx?la=en

(d) Please refer to the response to SEC Interrogatory 7 at Exhibit I, Tab 1.1, Schedule 7.07 for an organizational chart of the IESO. The 2017 budgeted FTEs and dollars grouped by Vice-Presidents, and the next level of management below is as follows:

2017 Budget - VPs and Direct Reports (FTEs and $) ('000)	FTEs	Dollars
CEO	**8**	**1,759**
CEO Office	3	995
Internal Audit	5	765
Market and System Operations	**194**	**31,267**
VP Office	8	1,368
Market Operations	83	15,422
Power System Assessments	61	8,291
Operations Integration	42	6,186
Market and Resource Development	**97**	**13,267**
VP Office	2	460
Contract Management	48	6,478
Resource Development & Strategy	27	3,710
Markets	20	2,619
Conservation and Corporate Relations	**90**	**13,618**
VP Office	3	715
Conservation Performance	25	3,615
Alliances & Marketing	18	2,847
Program & Partner Services	15	1,913
Stakeholder & Public Affairs	29	4,529
Information and Technology Services	**146**	**45,783**
VP Office	4	958
Organizational Governance Support	26	12,870
Business Solutions	60	14,682
Technology Services	56	17,273
Planning, Legal, Indigenous Relations & Regulatory Affairs	**61**	**11,006**
VP Office	2	407
Corporate Counsel	14	2,407
Board		655
Regulatory Affairs	7	1,182
First Nations & Metis Relations	3	425
Resource Integration	19	3,278
Transmission Integration	16	2,652
Corporate Services	**80**	**12,613**
VP Office & Corporate Controller	20	3,105
Financial Planning & Analysis	8	1,369
Treasury Operations	4	676
Human Resources	13	2,061
Settlements	35	5,403
Market Assessments and Compliance Division	**15**	**3,076**
Market Renewal Program	**25**	**8,263**

(e) The OEB is having all LDCs move to fixed distribution rates by 2019 for residential customers. In a backgrounder issued by the OEB[1] on the move to fixed distribution rates, it stated:

> *It is the Electricity line that makes up approximately 50% of the residential customer bill and signals customers on the cost of power production. This is the line that collects charges for the*

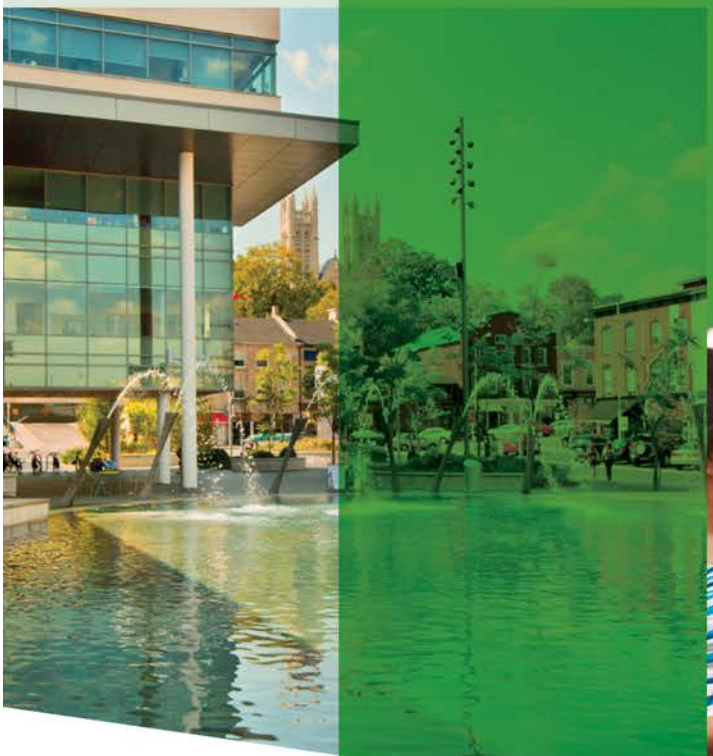
[1] http://cf.oeb.ca/oeb/_Documents/EB-2012-0410/OEB_Distribution_Rate_Design_Backgrounder_20150406.pdf

electricity commodity which varies with market forces like supply and demand. Here customers are more appropriately charged a variable rate.

Given the OEB's position as quoted above, the IESO does not see that there is a need to integrate the market renewal program with the OEB's direction for fixed distribution rates for residential customers.

Conservation Progress Report

FIRST QUARTER | 2015



ieso
Independent Electricity System Operator

Overview

The Independent Electricity System Operator (IESO) oversees a portfolio of electricity conservation and demand management programs that provide savings for all sectors. The IESO supports local distribution companies' (LDCs) delivery of programs to their residential, business, and industrial customers, and offers programs directly to transmission-connected customers. This report highlights the achievements of **save**ON**energy**OM programs and conservation initiatives in the first quarter (Q1) of 2015 in January, February, and March. Preliminary Q1 2015 results indicate 159 gigawatt-hours (GWh) net energy savings from LDC-delivered and non-LDC delivered programs—enough energy to power over 16,000 households for an entire year.[1] In addition, 599 megawatts (MW) of net peak demand savings were achieved.

January 1, 2015 was the official start of the Conservation First Framework. This framework spans 2015-2020 and aims to achieve 7 terawatt-hours (TWh) of electricity savings by December 31, 2020, through programs and initiatives offered to all customer segments: residential, low-income, small business, commercial, agricultural, institutional and industrial customers. In the new framework, each LDC has a single energy-savings target and no demand-savings target. Demand savings will continue to be tracked and reported, as demand is an important part of energy planning.

This report outlines the quarter's highlights, details of each program's savings results and program participation results. Note that quarterly results are preliminary reports on savings. Annual reports, available later in the following year, contain the verified savings results. This report also contains the final quarter results for the **DEMAND RESPONSE 3** (DR3) program; as of April 1, 2015, the DR3 program participants were transitioned to the capacity market.[2]

The IESO strives to report the most accurate and reliable results, based on rigorous best practices in evaluation, measurement and verification (EM&V) processes.[3] For more information on the programs, please visit saveonenergy.ca.

[1] Based on 9,600 kWh/yr/household

[2] For more information on demand response in Ontario, visit http://www.ieso.ca/Pages/Ontario%27s-Power-System/Reliability-Through-Markets/Demand-Response.aspx

[3] The EM&V Protocols and Requirements as well as the Measures & Assumptions List are available here: http://www.powerauthority.on.ca/opa-conservation/conservation-information-hub/evaluation-measurement-verification

Q1 2015 conservation highlights

- **Establishment of the Conservation First Implementation Committee.**
  In Q1, the Conservation First Implementation Committee (CFIC) was established by the IESO in collaboration with LDCs, Enbridge, Union Gas, the Ministry of Energy, and the Electricity Distributor's Association to provide oversight to the Working Groups described below. CFIC's mandate is to provide guidance to the Working Groups to prioritize and undertake actions to enhance the performance of existing province-wide programs and to develop successful new programs to support achievement of the provincial target.

- **Establishment of four Working Groups under the new framework.**
  There are now four Working Groups: Residential, Non-Residential, Data & Reporting, and Marketing & Sales. Each Working Group will develop a workplan and budget for the group's annual deliverables and outcomes, and will report back at CFIC meetings quarterly or as requested.

- **Submission of CDM plans by LDCs.**
  LDCs continued to submit CDM plans to the IESO during the quarter. All CDM plans are due by May 1. These plans outline the strategy each LDC will use to cost-effectively meet its portion of the provincial target. LDCs can offer a mix of province-wide, local and regional programs. Approved plans are available here: http://www.ieso.ca/Pages/Conservation/Conservaton-First-Framework/Conservation-and-Demand-Management-Plans.aspx.

- **Establishment of a $70M Innovation Fund to support LDC-led program development.**
  The IESO supports LDCs' development of new programs through the Innovation Fund. As of this quarter, there are nearly a dozen new pilots contracted, with more ideas being discussed. Savings from new program pilots will be attributable to the LDCs' targets. Details of contracted business cases for new program pilots are posted here: http://www.powerauthority.on.ca/cfund/funded-projects.

- **Continuing improvement of RETROFIT PROGRAM performance.**
  Energy savings achieved through the **RETROFIT PROGRAM** this quarter exceeded the energy savings achievement during the same period in 2014.

- **Satisfaction and engagement of participants in RETROFIT PROGRAM.**
  Participants continue to be engaged in the **RETROFIT PROGRAM** with likelihood to recommend the program at 84 percent.

Conservation portfolio results

Table 1 summarizes the 2015 conservation portfolio results for the quarter. For the purposes of this report, LDC-delivered programs include those delivered by LDCs, contractors, retailers and aggregators. Non-LDC delivered program savings are attributed to the **INDUSTRIAL ACCELERATOR PROGRAM**, and **DR3** and residential demand response (***peaksaver***®) customers enrolled pre-2011 that have not re-signed participant agreements with their Aggregator or LDC.

Table 1: Conservation portfolio results*

	Q1 2015	
	Net energy savings (GWh)	**Net peak demand savings (MW)**
LDC-delivered programs	159	414
Non-LDC delivered programs	0.5	184
Total	**159**	**599**

**Savings reported at generator level; totals may not align due to rounding.*

Table 2 provides the net peak demand savings and net energy savings for the residential, business and industrial programs for the quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this quarter.

Table 2: Net peak demand and net energy savings for residential and business programs*

Initiative	Delivery agent	Net Energy Savings (GWh)	Net Peak Demand Savings (MW)
LDC-delivered programs			
Residential			
FRIDGE & FREEZER PICKUP	Contractors	2.0	0.3
Exchange Events	Retailers	0	0
HEATING & COOLING INCENTIVE	Contractors	4.7	2.4
Annual **COUPONS**	Retailers	5.2	0.3
Spring/Fall **COUPON EVENT**	Retailers	0	0
***peaksaver* PLUS®**	LDCs	0	137.1
NEW HOME CONSTRUCTION	LDCs	0	0
Other			
ABORIGINAL CONSERVATION PROGRAM	IESO	0	0
HOME ASSISTANCE PROGRAM	LDCs	0.7	0.1
Business			
RETROFIT PROGRAM	LDCs	124.1	19.7
SMALL BUSINESS LIGHTING	LDCs	12.9	3.7
HIGH PERFORMANCE NEW CONSTRUCTION	LDCs	0.3	0.1
AUDIT FUNDING	LDCs	0.2	0
***peaksaver* PLUS** (small commercial)	LDCs	0	2.3
DEMAND RESPONSE 3	Aggregators	0.1	21.6

**Savings reported at generator level.*

Table 2: Net peak demand and net energy savings for residential and business programs* (cont'd)

Initiative	Delivery agent	Net Energy Savings (GWh)	Net Peak Demand Savings (MW)
(cont.) LDC-delivered programs			
Industrial			
PROCESS & SYSTEMS	IESO	5.4	0.6
Energy Manager	LDCs	2.3	0.2
DEMAND RESPONSE 3	IESO	0.7	225.7
Non-LDC delivered programs			
INDUSTRIAL ACCELERATOR PROGRAM	IESO	0	0
Non-LDC **DEMAND RESPONSE 3**	IESO	0.5	145
Non-LDC residential demand response	IESO	0	39

**Savings reported at generator level.*

Program participation

Table 3 provides the participation results for the residential, business and industrial programs for the quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this quarter.

Table 3: Conservation program participation results

Initiative	Q1 2015	Metric
LDC-delivered programs		
Residential		
FRIDGE & FREEZER PICKUP	4,502	Appliances
Exchange Events	0	Appliances
HEATING & COOLING INCENTIVE	9,014	Installations
Annual **COUPONS**	208,567	Coupons
Spring/Fall **COUPON EVENT**	0	Coupons
peaksaver* PLUS®	430,249	Devices
NEW HOME CONSTRUCTION	109	Products
Other		
ABORIGINAL CONSERVATION PROGRAM	0	Homes
HOME ASSISTANCE PROGRAM	1,146	Homes
Business		
RETROFIT PROGRAM	2,461	Projects
SMALL BUSINESS LIGHTING	3,490	Projects
HIGH PERFORMANCE NEW CONSTRUCTION	5	Buildings
AUDIT FUNDING	12	Audits
***peaksaver* PLUS** (small commercial)*	4,534	Devices
DEMAND RESPONSE 3	155	Facilities
Industrial		
PROCESS & SYSTEMS	4	Projects
Energy Manager	30	Projects
DEMAND RESPONSE 3	337	Facilities
Non-LDC delivered programs		
INDUSTRIAL ACCELERATOR PROGRAM	0	Projects
Non-LDC **DEMAND RESPONSE 3**	57	Facilities
Non-LDC residential demand response*	67,284	Devices

**Includes total count of all available thermostats, switches and in-home devices.*

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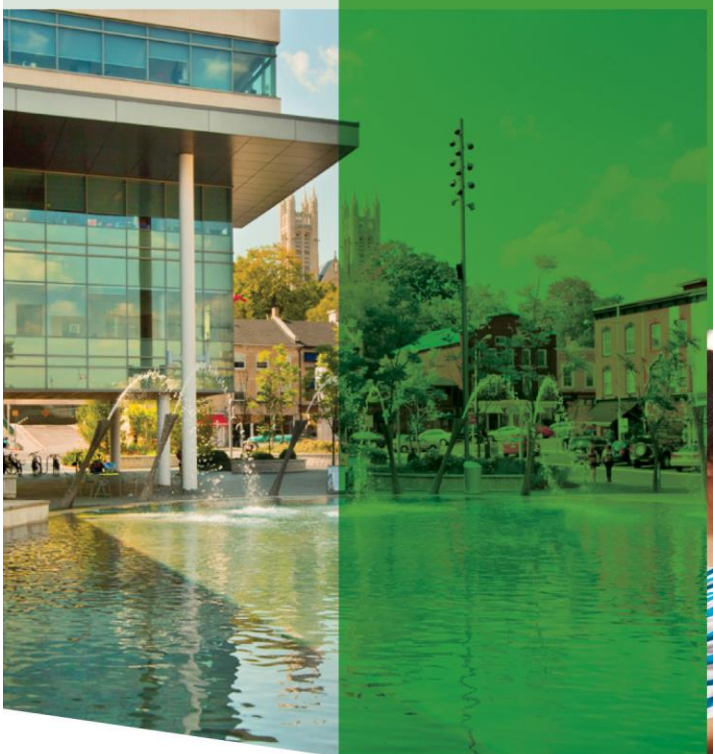
Conservation Progress Report

SECOND QUARTER | 2015



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Overview

The Independent Electricity System Operator (IESO) oversees a portfolio of electricity conservation and demand management programs that offer savings for all Ontarians. The IESO supports local distribution companies' (LDCs) delivery of programs to their residential, business, and industrial customers, and offers programs directly to transmission-connected customers. This report highlights the achievements of **save**ON**energy**OM programs and conservation initiatives in the second quarter (Q2) of 2015, as well as year-to-date (YTD) totals for 2015. Preliminary Q2 2015 results indicate 166 gigawatt-hours (GWh) net energy savings from LDC-delivered and non-LDC delivered programs—enough energy to power over 17,000 households for an entire year.[1] In addition, 210 megawatts (MW) of net peak demand savings were achieved.

The IESO's conservation and demand management efforts are guided by the Conservation First Framework, which spans over 2015-2020 and aims to achieve 7 terawatt-hours (TWh) of electricity savings through programs and initiatives offered to all customer segments: residential, low-income, small business, commercial, agricultural, institutional and industrial customers. In the new framework, each LDC has a single energy-savings target and no demand-savings target. However, demand savings will continue to be tracked and reported, as demand is an important part of energy planning.

This report includes highlights from the past quarter, details of each program's savings results and program participation results for both Q2 2015 as well as YTD totals for 2015. The savings in this report are preliminary. The 2015 Annual Conservation Results Report will be available later in the following year and will contain final, verified savings results.

For more information on the IESO's conservation and demand management programs, please visit saveonenergy.ca.

[1] Based on 9,600 kWh/yr/household

Q2 2015 Conservation Highlights

- **LDCs take step forward in achieving Conservation First Framework (CFF) targets**
  All Conservation and Demand Management (CDM) plans were submitted by the May 1, 2015 deadline. The plans outline the strategy each LDC will use to cost-effectively meet their portion of the provincial target. As of July 1, 2015, 70% of the CFF target has been conditionally approved[2]. In addition, five LDCs have successfully launched CFF programs.

- **Spring COUPON event achieves big savings for residential sector**
  This year's Spring **COUPON event** successfully achieved 35.9 GWh of savings. Increases in LED awareness, LDC distribution of coupons and retailer participation, in addition to declining LED pricing, all contributed to the successful campaign. **COUPON event** continues to provide an accessible and easy-to-use way for residential consumers to save energy.

- **The RETROFIT PROGRAM a boost for Ontario businesses**
  The **RETROFIT PROGRAM** achieved 66.9 GWh of net energy savings in Q2 2015, more than any other conservation program across the residential or business program portfolios. By providing incentives to install newer, more energy efficient solutions, the program continues to help businesses operate more efficiently and improve their bottom line and remains one of the most cost-effective conservation programs.

- **Large increase in savings from the ABORIGINAL CONSERVATION PROGRAM**
  During the second quarter of 2015, the **ABORIGINAL CONSERVATION PROGRAM** designed to help First Nation communities—including remote and northern communities—reduce their electricity use delivered 807 MWh in energy savings; an over 800% increase over the same period in 2014.

[2] Plans and the accompanying conditional approval letters can be found here: http://www.ieso.ca/Pages/Conservation/Conservaton-First-Framework/Conservation-and-Demand-Management-Plans.aspx.

Conservation Portfolio Results

Table 1 summarizes Q2 2015 conservation portfolio results. For the purposes of this report, LDC-delivered programs include those delivered by LDCs (directly or through contractors, retailers and aggregators). Non-LDC delivered program savings are attributed to the **INDUSTRIAL ACCELERATOR PROGRAM** and residential demand response (***peaksaver***®) customers enrolled pre-2011 who have not re-signed participant agreements with their Aggregator or LDC.

Table 1: Conservation portfolio results*

	Q2 2015	
	Net energy savings (GWh)	**Net peak demand savings (MW)**
LDC-delivered programs	165	29
Non-LDC-delivered programs	1	181
Total	**166**	**210**

**Savings reported at generator level; totals may not align due to rounding.*

Table 2 provides the net peak demand savings and net energy savings for the residential, business and industrial programs for the second quarter, as well as totals for 2015. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this quarter.

Table 2: Net peak demand and net energy savings for residential and business programs*

Initiative	Delivery agent	2015 Net Energy Savings (GWh)		2015 Net Peak Demand Savings (MW)	
LDC-delivered programs		**Q2**	**YTD**	**Q2**	**YTD**
Residential					
Fridge & Freezer Pickup	Contractors	0.14	1.93	0.03	0.30
Exchange Events	Retailers	-	-	-	-
Heating & Cooling Incentive	Contractors	4.35	12.81	2.73	7.45
Annual COUPONS	Retailers	3.60	11.96	0.23	0.76
Spring/Fall COUPON event	Retailers	35.85	35.96	2.30	2.31
New Home Construction	LDCs	0.98	4.87	0.02	0.10
Home Assistance Program					
Home Assistance Program	LDCs	1.17	3.42	0.13	0.40
Business					
Retrofit Program	LDCs	66.87	191.70	15.03	32.87
Small Business Lighting	LDCs	13.90	28.16	4.03	8.16
High Performance New Construction	LDCs	0.98	2.93	0.27	0.76
Audit Funding	LDCs	0.10	0.78	0.02	0.17
Industrial					
PROCESS & SYSTEMS	IESO	30.23	43.88	3.85	5.42
Energy Manager	LDCs	7.12	21.89	0.70	3.07
Non-LDC delivered programs					
INDUSTRIAL ACCELERATOR PROGRAM	IESO	0.25	0.31	0.03	0.034
Residential/Small Commercial Demand Response	IESO	-	-	180.40	180.402
Aboriginal Conservation Program	IESO	0.87	0.87	0.08	0.078

Program Participation

Table 3 provides the participation results for the residential, business and industrial programs for the second quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this second quarter.

Table 3: Conservation program participation results

Initiative	2015		Metric
LDC-delivered programs	**Q2**	**YTD**	
Residential			
Fridge & Freezer Pickup	403	4,938	Appliances
Exchange Events	-	-	Appliances
Heating & Cooling Incentive	12,803	31,247	Installations
Annual COUPONS	144,845	483,972	Measures
Spring/Fall COUPON event	1,567,209	1,571,949	Measures
New Home Construction	154	593	Homes
Home Assistance Program			
Home Assistance Program	1,863	4,409	Homes
Business			
Retrofit Program	1,725	4,646	Projects
Small Business Lighting	3,925	7,809	Projects
High Performance New Construction	11	29	Buildings
Audit Funding	6	45	Audits
Industrial			
Process & Systems	1	5	Projects
Energy Manager	26	86	Projects
Demand Response 3	-	-	Facilities
Non-LDC delivered programs			
Industrial Accelerator Program	1	2	Projects
Non-LDC Residential Demand Response*	509,360	509,360	Devices
Aboriginal Conservation Program	514	516	Homes

**Includes total count of all available thermostats, switches and in-home devices.*

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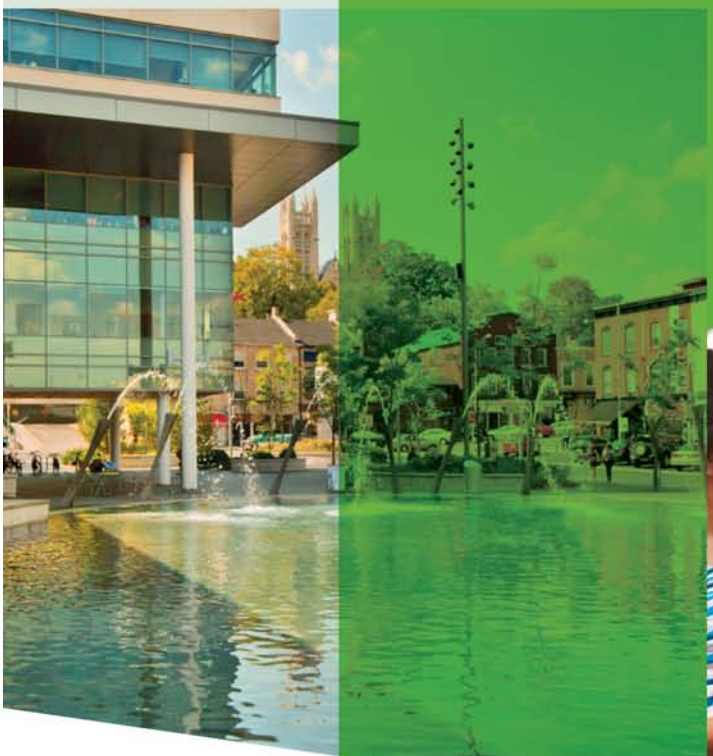
Conservation Progress Report

THIRD QUARTER 2015



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Overview

The Independent Electricity System Operator (IESO) oversees a portfolio of electricity conservation and demand management programs that offer savings for all Ontarians. The IESO supports local distribution companies' (LDCs) delivery of programs to their residential, business, and industrial customers, and offers programs directly to transmission-connected customers. This report highlights the achievements of **save**ON**energy**OM programs and other conservation initiatives in the third quarter (Q3) of 2015, as well as year-to-date (YTD) totals for 2015. Preliminary Q3 2015 results indicate 96 gigawatt-hours (GWh) net energy savings from LDC-delivered and non-LDC delivered programs and 184 megawatts (MW) of net peak demand savings were achieved.

The IESO's conservation and demand management efforts are guided by the Conservation First Framework, which spans over 2015-2020 and aims to achieve 7 terawatt-hours (TWh) of electricity savings through programs and initiatives offered to all customer segments: residential, low-income, small business, commercial, agricultural, institutional and industrial customers. In the new framework, each LDC has a single energy-savings target and no demand-savings target. However, demand savings will continue to be tracked and reported, as demand is an important part of energy planning.

This report includes highlights from the past quarter, details of each program's savings results and program participation results for both Q3 2015 as well as YTD totals for 2015. The savings in this report are preliminary. The 2015 Annual Conservation Results Report will be available later in the following year and will contain final, verified savings results.

For more information on the IESO's conservation and demand management programs, please visit saveonenergy.ca.

Q3 2015 Conservation Highlights

Conservation and Demand Management (CDM) Plans

The IESO has conditionally approved 42 CDM Plans, representing 72 of the 75 LDCs – approximately 99.9% of the allocated 7 TWh CDM target. The plans outline the strategy each LDC will use to cost-effectively meet their portion of the provincial target.[1]

Residential Programs

- The saveONenergy Heating and Cooling Incentive was the highest contributor of energy savings in the residential portfolio representing 40% of the residential energy savings achievement
- LEDs account for 73% of measures installed for the Bi-Annual COUPON event
- CFLs represent 24% of the measures redeemed during the Bi-Annual COUPON event
- Improvements to customer satisfaction of the Heating and Cooling Incentive generates approximately 20% of residential program savings

Business Programs

- saveONenergy Retrofit program continues to account for the majority of the portfolio energy savings at 68% and remains one of the most cost-effective conservation programs
- Customer satisfaction metric measuring the likelihood that **save**ON**energy** customers would recommend the programs to others indicates that 84% of Retrofit customers are very likely to recommend the program.

[1] Plans and the accompanying conditional approval letters can be found here: http://www.ieso.ca/Pages/Conservation/Conservaton-First-Framework/Conservation-and-Demand-Management-Plans.aspx.

Conservation Portfolio Results

Table 1 summarizes Q3 2015 conservation portfolio results. For the purposes of this report, LDC-delivered programs include those delivered by LDCs (directly or through contractors, retailers and aggregators). Non-LDC delivered program savings are attributed to the **INDUSTRIAL ACCELERATOR PROGRAM** and residential demand response (***peaksaver***®) customers enrolled pre-2011 who have not re-signed participant agreements with their Aggregator or LDC.

Table 1: Conservation portfolio results*

	Q3 2015	2015	Q3 2015	2015
	Net energy savings (GWh)	**Net energy savings (GWh)**	**Net peak demand savings (MW)**	**Net peak demand savings (MW)**
LDC-delivered programs	95	487	18	90
Non-LDC-delivered programs	1	2	166	166
Total	**96**	**489**	**184**	**256**

**Savings reported at generator level; totals may not align due to rounding.*

Table 2 provides the net peak demand savings and net energy savings for the residential, business and industrial programs for the third quarter, as well as totals for 2015. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this quarter.

Table 2: Net peak demand and net energy savings for residential and business programs*

Initiative	Delivery Agent	Net Energy Savings (GWh)		Net Peak Demand Savings (MW)	
LDC-delivered programs		**Q3 2015**	**2015**	**Q3 2015**	**2015**
Residential					
Fridge & Freezer Pickup	Contractors	0.77	3.06	0.13	0.51
Heating & Cooling Incentive	Contractors	4.48	23.44	2.54	12.86
Annual COUPONS	Retailers	4.39	16.24	0.29	1.07
Spring/Fall COUPON event	Retailers	0.18	25.96	0.02	1.99
New Home Construction	LDCs	1.34	2.55	0.28	0.47
Commercial & Industrial					
Retrofit Program	LDCs	64.02	283.23	9.95	45.21
Small Business Lighting	LDCs	14.66	44.21	4.04	12.18
Existing Building Commissioning	LDCs	0.01	0.01	0.00	0.00
High Performance New Construction	LDCs	0.19	7.89	0.11	2.41
Audit Funding	LDCs	1.61	9.51	0.33	1.95
Process & Systems	IESO	0.00	33.64	0.00	4.10
Monitoring & Targeting	LDCs	0.56	4.10	0.14	0.77
Energy Manager	LDCs	0.81	23.01	0.34	5.45
Home Assistance Program					
Home Assistance Program	LDCs	1.83	9.70	0.25	1.16
Non-LDC delivered programs					
Industrial Accelerator Program	IESO	0.00	0.48	0.00	0.03
Residential/Small Commercial Demand Response	IESO	0.00	0.00	165.91	165.91
Aboriginal Conservation Program	IESO	0.94	1.97	0.08	0.20

Program Participation

Table 3 provides the participation results for the residential, business and industrial programs for the third quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this third quarter.

Table 3: Conservation program participation results

Initiative	Q3 2015	2015	Metric
LDC-delivered programs			
Residential			
Fridge & Freezer Pickup	1,712	6,709	Appliances
Heating & Cooling Incentive	14,658	64,450	Installations
Annual COUPONS	262,843	983,872	Measures
Spring/Fall COUPON event	9,862	1,596,065	Measures
New Home Construction	751	1,563	Homes
Commercial & Industrial			
Retrofit Program	1,270	6,456	Projects
Small Business Lighting	4,130	12,206	Projects
Existing Building Commissioning	1	1	Projects
High Performance New Construction	4	30	Buildings
Audit Funding	23	136	Audits
Process & Systems	0	5	Projects
Monitoring & Targeting	1	4	Projects
Energy Manager	51	175	Projects
Home Assistance Program			
Home Assistance Program	2,191	11,617	Homes
Non-LDC delivered programs			
Industrial Accelerator Program	0	3	Projects
Residential/Small Commercial Demand Response	510,811	510,811	Devices
Aboriginal Conservation Program	661	1,407	Homes

**Includes total count of all available thermostats, switches and in-home devices.*

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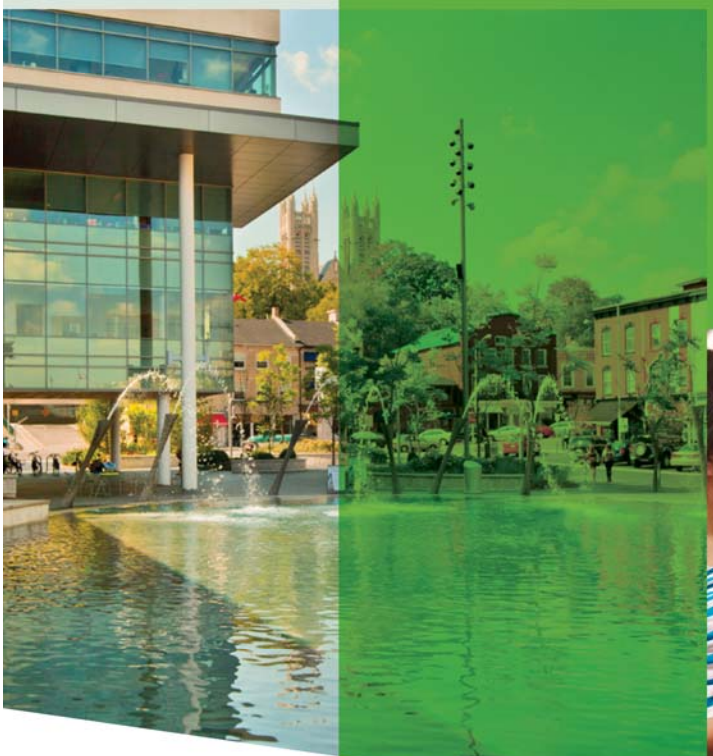
Conservation Progress Report

FOURTH QUARTER 2015



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Overview

The Independent Electricity System Operator (IESO) oversees a portfolio of electricity conservation and demand management programs that offer savings for all Ontarians. The IESO supports local distribution companies' (LDCs) delivery of programs to their residential, business, and industrial customers, and offers programs directly to transmission-connected customers.

This report highlights the achievements of Save on Energy programs and other conservation initiatives in the fourth quarter (Q4) of 2015, as well as year-to-date (YTD) totals for 2015. Preliminary Q4 2015 results indicate 480 gigawatt-hours (GWh) net energy savings from LDC-delivered and non-LDC delivered programs and 238 megawatts (MW) of net peak demand savings were achieved.

The IESO's conservation and demand management efforts are guided by the Conservation First Framework, which spans over 2015-2020 and aims to achieve 7 terawatt-hours (TWh) of electricity savings through programs and initiatives offered to all customer segments. The framework also includes delivering 1.7 TWh of energy savings through the Industrial Accelerator program.

The savings in this report are preliminary. The 2015 Annual Conservation Results Report will be available later this year and will contain final, verified savings results.

For more information on the IESO's conservation and demand management programs, please visit saveonenergy.ca.

Conservation Highlights

Submission of CDM plans by LDCs

The IESO has approved all CDM Plans, with the expectation of one plan consisting of three LDCs – approved plans represent approximately 99.9% of the allocated 7 TWh CDM target. The plans outline the strategy each LDC will use to cost-effectively meet their portion of the provincial target. Approved plans are available here: http://www.ieso.ca/Pages/Conservation/Conservaton-First-Framework/Conservation-and-Demand-Management-Plans.aspx

Energy and Demand Savings

In 2015, LDC and Non-LDC delivered programs achieved 1,279 GWh of energy savings and 366 MW of demand reduction.

Residential Programs

- In 2015, the Save on Energy residential programs saved 136 GWh which is the equivalent to removing approximately 14,000 homes from the grid
- The Bi-Annual Coupon program was the highest contributor of energy savings in the residential portfolio in 2015, representing 38% (51 GWh) of the residential energy savings achievement
- In 2015, Save on Energy Coupons accounted for 4.4 Million measures redeemed across the province accounting for 73 GWh of energy savings
    - 99% of the measures redeemed were lighting measures
- The Heating & Cooling Incentive continues to be a significant contributor to the residential portfolio, accounting for 28% (38 GWh) of the residential energy savings achievement

Business Programs

- In 2015, the Save on Energy business programs saved 1 TWh of energy savings which is the equivalent to removing 114,000 homes from the grid
- Business programs accounted for over 89% of the 2020 energy savings target achievement
    - The Retrofit programs accounted for 58%
    - The Process & Systems Upgrade Incentive accounted for 24%

Conservation Portfolio Results

Table 1 summarizes Q4 2015 conservation portfolio results. For the purposes of this report, LDC-delivered programs include those delivered by LDCs (directly or through contractors, retailers and aggregators). Non-LDC delivered program savings are attributed to the **INDUSTRIAL ACCELERATOR PROGRAM** and residential demand response (***peaksaver***®) customers enrolled pre-2011 who have not re-signed participant agreements with their Aggregator or LDC.

Table 1: Conservation portfolio results*

	Q4 2015	2015	Q4 2015	2015
	Net energy savings (GWh)	Net energy savings (GWh)	Net peak demand savings (MW)	Net peak demand savings (MW)
LDC-delivered programs	479	1,231	68	190
Non-LDC-delivered programs	1	48	171	176
Total	**480**	**1,279**	**238**	**366**

**Savings reported at generator level; totals may not align due to rounding.*

Table 2 provides the net peak demand savings and net energy savings for the residential, business and industrial programs for the fourth quarter, as well as totals for 2015. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this quarter.

Table 2: Net peak demand and net energy savings for residential and business programs*

Initiative	Delivery agent	Net Energy Savings (GWh)		Net Peak Demand Savings (MW)	
LDC-delivered programs		**Q4 2015**	**2015**	**Q4 2015**	**2015**
Residential					
Fridge & Freezer Pickup	Contractors	2.52	6.59	0.40	1.08
Heating & Cooling Incentive	Contractors	7.79	38.00	4.12	20.70
Annual COUPONS	Retailers	3.38	22.55	0.22	1.48
Spring/Fall COUPON event	Retailers	23.44	50.93	1.48	3.59
New Home Construction	LDCs	1.13	4.47	0.08	0.61
Commercial & Industrial					
Retrofit Program	LDCs	199.51	681.28	28.26	91.98
Small Business Lighting	LDCs	16.34	62.74	4.55	17.33
Existing Building Commissioning	LDCs	0.73	0.99	0.23	0.34
High Performance New Construction	LDCs	0.22	29.87	0.06	7.95
Audit Funding	LDCs	1.47	17.14	0.30	3.51
Process & Systems	IESO	217.43	279.65	27.36	34.77
Monitoring & Targeting	LDCs	0.00	1.33	0.00	0.21
Energy Manager	LDCs	2.61	22.29	0.28	4.74
Home Assistance Program					
Home Assistance Program	LDCs	2.21	13.21	0.34	1.71
Non-LDC delivered programs		**Q4 2015**	**2015**	**Q4 2015**	**2015**
Industrial Accelerator Program	IESO	1.17	46.09	0.15	5.59
Residential/Small Commercial Demand Response	IESO	0.00	0.00	170.48	170.48
Aboriginal Conservation Program	IESO	0.00	2.31	0.00	0.24

Program Participation

Table 3 provides the participation results for the residential, business and industrial programs for the fourth quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this third quarter.

Table 3: Conservation program participation results

Initiative	Q4 2015	2015	Metric
LDC-delivered programs			
Residential			
Fridge & Freezer Pickup	5,507	14,524	Appliances
Heating & Cooling Incentive	16,669	100,029	Installations
Annual COUPONS	201,890	1,363,074	Measures
Spring/Fall COUPON event	1,382,532	3,066,946	Measures
New Home Construction	542	2,834	Homes
Commercial & Industrial			
Retrofit Program	3,731	14,657	Projects
Small Business Lighting	4,462	17,353	Projects
Existing Building Commissioning	7	9	Projects
High Performance New Construction	9	64	Buildings
Audit Funding	21	245	Audits
Process & Systems	15	23	Projects
Monitoring & Targeting	0	1	Projects
Energy Manager	26	324	Projects
Home Assistance Program			
Home Assistance Program	1,842	13,482	Homes
Non-LDC delivered programs			
Industrial Accelerator Program	5	15	Projects
Residential/Small Commercial Demand Response	526,683	526,683	Devices
Aboriginal Conservation Program	0	1,727	Homes

**Includes total count of all available thermostats, switches and in-home devices.*

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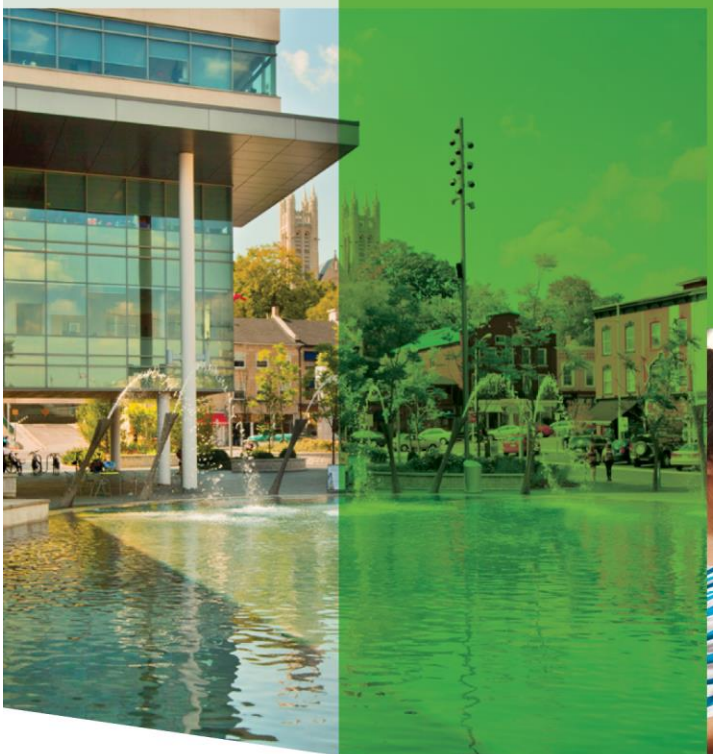
Conservation Progress Report

FIRST QUARTER 2016



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Overview

The Independent Electricity System Operator (IESO) oversees a portfolio of electricity conservation and demand management programs that offer savings for all Ontarians. The IESO supports local distribution companies' (LDCs) delivery of programs to their residential, business, and industrial customers, and offers programs directly to transmission-connected customers.

This report highlights the achievements of Save on Energy programs and other conservation initiatives in the first quarter (Q1) of 2016. Preliminary results indicate 16 gigawatt-hours (GWh) net energy savings from LDC-delivered and non-LDC delivered programs and 173 megawatt (MW) of net peak demand savings were achieved.

The IESO's conservation and demand management efforts are guided by the Conservation First Framework, which spans over 2015-2020 and aims to achieve 7 terawatt-hours (TWh) of electricity savings through programs and initiatives offered to all customer segments. The framework also includes delivering 1.7 TWh of energy savings through the Industrial Accelerator program.

All Conservation results in this report are preliminary, unverified and subject to evaluation, measurement and verification prior to be reported as final, verified. For more information on the IESO's conservation and demand management programs, please visit saveonenergy.ca.

Conservation Highlights

The IESO has continued to lead the advancement of a culture of conservation in Ontario, working with the local distribution companies (LDCs) and others to connect customers to energy-efficient solutions. The following are highlights from Q1 2016:

All LDCs have submitted CDM Plans: LDCs continued to submit CDM plans to the IESO during the quarter. These plans outline the strategy each LDC will use to cost-effectively meet its portion of the provincial target. LDCs can offer a mix of province-wide, local and regional programs. The IESO has conditionally approved 42 of 43 plans accounting for 99.9 percent of the 7 TWh target. Approved plans are available here: http://www.ieso.ca/Pages/Conservation/Conservaton-First-Framework/Conservation-and-Demand-Management-Plans.aspx.

Progress towards Savings Targets: Based on preliminary unverified results, LDCs have collectively achieved 16.8% towards the provincial Conservation First Framework (CFF) targets. This is a great achievement as the province has continued the momentum of the previous framework. Additionally, to date the Industrial Accelerator Program has achieved 63 GWh of the 1.8 TWh target. This number will increase as more projects are verified and implemented.

Enhancements in the Home Assistance Program are now available in market: The Program has been enhanced to respond to current market needs. An increase in measure funding to reward and maximize installations of energy saving measures has been implemented. Additionally, an increase to the Health and Safety allowance has been introduced to deliver greater energy-related benefits to participants.

New Innovation in IESO's Conservation Fund: The IESO's Conservation Fund helps transform the market by supporting innovative energy-saving pilots and bringing ground-breaking new processes, technologies and policies to the market. The IESO is currently supporting PowerStream's POWER.HOUSE project. This project will install 20 residential solar storage units in the PowerStream service area to evaluate their benefits to customers, the distribution system and the provincial grid. Public reports on conservation outcomes, electricity system benefits and LDC business models will be produced and shared publicly with all Ontario LDCs.

New Small Business Lighting Program Launched: The new program offers a free onsite lighting assessment and up to $2,000 in incentives for turnkey lighting installation. A standard incentive for measures that exceed the $2,000 threshold is also available. The enhanced program will now accept general service customers with average demand of less than 100 kW (up from 50kW in the previous program).

Conservation Portfolio Results

Table 1 summarizes Q1 2016 conservation portfolio results. For the purposes of this report, LDC-delivered programs include those delivered by LDCs (directly or through contractors, retailers and aggregators). Non-LDC delivered program savings are attributed to the **INDUSTRIAL ACCELERATOR PROGRAM** and residential demand response (***peaksaver***®) customers enrolled pre-2011 who have not re-signed participant agreements with their Aggregator or LDC. All reported LDC activity and savings are based on projects reported and invoiced to the IESO only. Any pipeline projects that have an installation date in Q1 2016 are excluded from above.

Table 1: Conservation portfolio results*

	Q1 2016	2016	Q1 2016	2016
	Net energy savings (GWh)	Net energy savings (GWh)	Net peak demand savings (MW)	Net peak demand savings (MW)
LDC-delivered programs	7	7	1	1
Non-LDC-delivered programs	9	9	173	173
Total	**16**	**16**	**174**	**174**

**Savings reported at generator level; totals may not align due to rounding.*

Table 2 provides the net peak demand savings and net energy savings for the residential, business and industrial programs for the first quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this quarter.

Table 2: Net peak demand and net energy savings for residential and business programs*

Initiative	Delivery agent	Net Energy Savings (MWh)		Net Peak Demand Savings (kW)	
LDC-delivered programs		**Q1 2016**	**2016**	**Q1 2016**	**2016**
Residential					
Heating and Cooling Program	Contractors	0	0	0	0
Coupon Program	Retailers	2,268	2,268	143	143
New Construction Program	LDCs	0	0	0	0
Home Assistance Program	LDCs	147	147	60	60
Commercial & Industrial					
Retrofit Program	LDCs	4,473	4,473	680	680
Small Business Lighting Program	LDCs	0	0	0	0
Existing Building Commissioning Program	LDCs	0	0	0	0
High Performance New Construction Program	LDCs	12	12	2	2
Audit Funding Program	LDCs	0	0	0	0
Process & Systems Upgrades Program	IESO	0	0	0	0
Monitoring & Targeting Program	LDCs	0	0	0	0
Energy Manager Program	LDCs	0	0	0	0
Non-LDC delivered programs		**Q1 2016**	**2016**	**Q1 2016**	**2016**
Industrial Accelerator Program	IESO	9,226	9,226	1,200	1,200
Residential/Small Commercial Demand Response†	IESO	0	0	171,587	171,587

**Savings reported at generator level; totals may not align due to rounding.*

†Residential/Small Commercial Demand Response participation is based on available capacity as at March 31st, 2016 since program inception and is not indicative of incremental installations in Q1 2016

Program Participation

Table 3 provides the participation results for the residential, business and industrial programs for the first quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this third quarter.

Table 3: Conservation program participation results

Initiative	Q1 2016	2016	Metric
LDC-delivered programs			
Residential			
Heating and Cooling Program	0	0	Installations
Coupon Program	97,657	97,657	Measures
New Construction Program	0	0	Homes
Home Assistance Program	121	121	Homes
Commercial & Industrial			
Retrofit Program	186	186	Projects
Small Business Lighting Program	0	0	Projects
Existing Building Commissioning Program	0	0	Projects
High Performance New Construction Program	1	1	Buildings
Audit Funding Program	0	0	Audits
Process & Systems Upgrades Program	0	0	Projects
Monitoring & Targeting Program	0	0	Projects
Energy Manager Program	0	0	Projects
Non-LDC delivered programs			
Industrial Accelerator Program	1	1	Projects
Residential/Small Commercial Demand Response*	327,285	327,285	Devices

**Includes total count of all available thermostats, switches and in-home devices.*

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Conservation Progress Report

SECOND QUARTER 2016

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Overview

The Independent Electricity System Operator (IESO) oversees a portfolio of electricity conservation and demand management programs that offer savings for all Ontarians. The IESO supports local distribution companies' (LDCs) delivery of programs to their residential, business, and industrial customers, and offers programs directly to transmission-connected customers.

This report highlights the achievements of Save on Energy programs and other conservation initiatives in the second quarter (Q2) of 2016. Preliminary results indicate 149 gigawatt-hours (GWh) net energy savings from LDC-delivered and non-LDC delivered programs and 203 megawatts (MW) of net peak demand savings were achieved.

The IESO's conservation and demand management efforts are guided by the Conservation First Framework, which spans over 2015-2020 and aims to achieve 7 terawatt-hours (TWh) of electricity savings through programs and initiatives offered to all customer segments. The framework also includes delivering 1.7 TWh of energy savings through the Industrial Accelerator program.

All Conservation results in this report are preliminary, unverified and subject to evaluation, measurement and verification prior to be reported as final, verified. For more information on the IESO's conservation and demand management programs, please visit saveonenergy.ca.

Conservation Highlights

The IESO has continued to lead the advancement of a culture of conservation in Ontario, working with the LDCs and others to connect customers to energy-efficient solutions. The following are highlights from Q2 2016:

Progress towards Savings Targets

Based on preliminary unverified results, LDCs have collectively achieved 1.27 TWh of net persisting energy savings, representing 18% towards the 7 TWh provincial Conservation First Framework (CFF) target by 2020. Additionally, the Industrial Accelerator Program has achieved 0.155 TWh (9%) of the 1.7 TWh target for large transmission-connected customers to be achieved by 2020. With over 0.434 TWh under contract (24% of 1.7TWh target), savings are expected to increase as new projects come into service. 0.121 TWh was newly contracted in Q2 2016.

New Innovation

To date, 8 local LDC-programs and 30 LDC pilots have been approved. Toronto Hydro's PUMPsaver was approved as a local program in Q2 2016 after the successful completion of their 2015 pilot. PUMPsaver provides a no cost turn-key offer to business and industrial customers to improve the efficiency of their pump motors in hydronic systems. In addition, building off the success of PowerStream's local Business Refrigeration Initiative focused on commercial refrigeration upgrades, the IESO approved Enersource's adaptation of their own Business Refrigeration Initiative.

Save on Energy Retrofit Program Enhancements

New LED measures in the Retrofit program have been introduced. The new measures complement the existing offering of prescriptive lighting measures available through the Retrofit Program and ensure eligible measures and incentives continue to keep pace with the marketplace. In addition, in the effort to improve customer experience in the program, the Engineered and Custom track application process been simplified to include two distinct options, enabling the applicant to choose the track that best suits their business needs.

Residential Program Enhancements

The Residential working group is working to improve the customer experience of the Coupons and Heating and Cooling programs by investigating new measures, incentives and program delivery mechanisms. The working group has conducted a review and analysis of a variety of program concepts and held stakeholder consultations. Plans to ensure program continuity and smooth transitions to enhanced program delivery are currently in development.

Conservation Portfolio Results

Table 1 summarizes Q2 2016 conservation portfolio results. For the purposes of this report, LDC-delivered programs include those delivered by LDCs (directly or through contractors, retailers and aggregators). Non-LDC delivered program savings are attributed to the **INDUSTRIAL ACCELERATOR PROGRAM** and residential demand response (***peaksaver***®) customers enrolled pre-2011 who have not re-signed participant agreements with their Aggregator or LDC. All reported LDC activity and savings are based on projects reported and invoiced to the IESO only. Any pipeline projects that have an installation date in Q2 2016 are excluded from above.

Table 1: Conservation portfolio results*

**Savings reported at generator level; totals may not align due to rounding.*

	Q2 2016	2016	Q2 2016	2016
	Net energy savings (GWh)	Net energy savings (GWh)	Net peak demand savings (MW)	Net peak demand savings (MW)
LDC-delivered programs	90	163	9	20
Non-LDC-delivered programs	59	693	194	196
Total	**149**	**232**	**203**	**216**

Table 2 provides the net peak demand savings and net energy savings for the residential, business and industrial programs for the second quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this quarter.

Table 2: Net peak demand and net energy savings for residential and business programs*

Initiative	Delivery Agent	Net Energy Savings (MWh)		Net Peak Demand Savings (kW)	
Save on Energy LDC-delivered programs		**Q2 2016**	**2016**	**Q2 2016**	**2016**
Residential					
Heating and Cooling Program	Contractors	819	4,949	245	1,479
Coupon Program	Retailers	71,096	88,547	6,797	9,104
New Construction Program	LDCs	13	18	1	1
Home Assistance Program	LDCs	648	1,836	335	584
Commercial & Industrial					
Retrofit Program	LDCs	16,789	64,136	1,812	8,465
Small Business Lighting Program	LDCs	678	951	80	100
Existing Building Commissioning Program	LDCs	0	0	0	0
High Performance New Construction Program	LDCs	346	1,548	26	163
Audit Funding Program	LDCs	54	696	10	111
Process & Systems Upgrades Program	IESO	0	0	0	0
Monitoring & Targeting Program	LDCs	0	0	0	0
Energy Manager Program	LDCs	0	0	0	0
Non-LDC delivered programs		**Q2 2016**	**2016**	**Q2 2016**	**2016**
Industrial Accelerator Program	IESO	58,621	69,107	6,922	8,266
Residential/Small Commercial Demand Response	IESO	0	0	187,071	187,567

** Residential/Small Commercial Demand Response participation is based on available capacity as at June 30th, 2016 since program inception and is not indicative of incremental installations in Q2 2016*

***LDC savings reported above are based on projects reported and invoiced to the IESO only. Any pipeline projects that have an installation date in Q2 2016 are excluded from above.*

****All Conservation results are preliminary, unverified and subject to evaluation, measurement and verification prior to be reported as final, verified. Savings reported at generator level; stated results are annual persisting savings.*

Program Participation

Table 3 provides the participation results for the residential, business and industrial programs for the second quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this second quarter.

Table 3: Conservation program participation results

Initiative	Q2 2016	2016	Metric
Save on Energy LDC-delivered programs			
Residential			
Heating and Cooling Program	1,994	10,092	Installations
Coupon Program	2,093,910	2,530,407	Measures
New Construction Program	11	12	Homes
Home Assistance Program	479	1,339	Homes
Commercial & Industrial			
Retrofit Program	387	1,540	Projects
Small Business Lighting Program	88	108	Projects
Existing Building Commissioning Program	0	0	Projects
High Performance New Construction Program	7	20	Buildings
Audit Funding Program	9	43	Audits
Process & Systems Upgrades Program	0	0	Projects
Monitoring & Targeting Program	0	0	Projects
Energy Manager Program	0	0	Projects
Non-LDC delivered programs			
Industrial Accelerator Program	7	23	Projects
Residential/Small Commercial Demand Response*	328,451	328,451	Devices

** Residential/Small Commercial Demand Response participation is based on available capacity as at June 30th, 2016 since program inception*

***LDC savings reported above are based on projects reported and invoiced to the IESO only. Any pipeline projects that have an installation date in Q2 2016 are excluded from above.*

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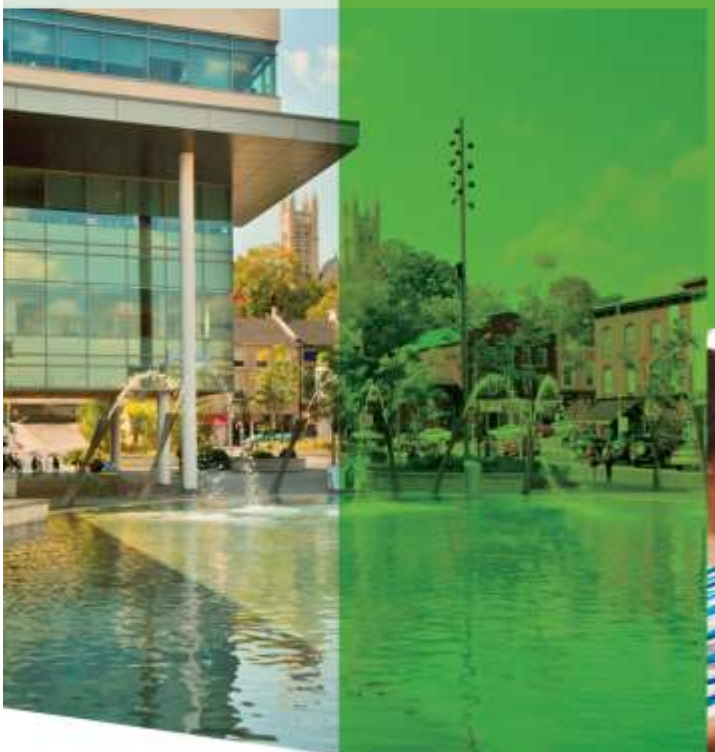
Conservation Progress Report

THIRD QUARTER 2016



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Overview

The Independent Electricity System Operator (IESO) oversees a portfolio of electricity conservation and demand management programs that offer savings for all Ontarians. The IESO supports local distribution companies' (LDCs) delivery of programs to their residential, business, and industrial customers, and offers programs directly to transmission-connected customers.

This report highlights the achievements of Save on Energy programs and other conservation initiatives in the third quarter (Q3) of 2016. Preliminary results indicate 46 gigawatt-hours (GWh) net energy savings from LDC-delivered and non-LDC delivered programs and 191 megawatts (MW) of net peak demand savings were achieved. Key highlights for the quarter include the development of two new province-wide programs initiated as part of the June 10, 2016 Ministry Directive: Energy Performance Program for Multi-Site Customers and a Whole Home Pilot Program for residential customers. In addition, the Achievable Potential Study was posted on July 4, 2016 to help inform the Conservation First Framework (CFF) mid-term review and electricity efficiency planning and programs in Ontario. Finally, the IESO launched the new Save on Energy marketing campaign covering television, cinema, print, and digital media.

The IESO's conservation and demand management efforts are guided by the CFF, which spans over 2015-2020 and aims to achieve 7 terawatt-hours (TWh) of electricity savings through programs and initiatives offered to all customer segments. An additional 1.7 TWh of energy savings is to be achieved through the Industrial Accelerator program.

All Conservation results in this report are preliminary, unverified and subject to evaluation, measurement and verification prior to be reported as final, verified. For more information on the IESO's conservation and demand management programs, please visit saveonenergy.ca.

Conservation Portfolio Results

Table 1 summarizes Q3 2016 conservation portfolio results. For the purposes of this report, LDC-delivered programs include those delivered by LDCs (directly or through contractors, retailers and aggregators). Non-LDC delivered program savings are attributed to the **INDUSTRIAL ACCELERATOR PROGRAM** and residential demand response (***peaksaver***®) customers enrolled pre-2011 who have not re-signed participant agreements with their Aggregator or LDC. All reported LDC activity and savings included in this report are based on projects reported and invoiced to the IESO only. Any project that has an installation date in Q3 2016 but not yet reported and invoiced to the IESO are excluded from above.

Table 1: Conservation portfolio results*

	Q3 2016	2016	Q3 2016	2016
	Net energy savings (MWh)	Net energy savings (MWh)	Net peak demand savings (kW)	Net peak demand savings (kW)
LDC-delivered programs	28,980	326,250	8,636	43,527
Non-LDC-delivered programs	17,197	93,828	182,284	190,848
Total	**46,177**	**420,078**	**190,919**	**234,375**

**Savings reported at generator level; totals may not align due to rounding.*

Table 2 provides the net peak demand savings and net energy savings for the residential, business and industrial programs for the third quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this quarter.

Table 2: Net peak demand and net energy savings for residential and business programs*

Initiative	Delivery Agent	Net Energy Savings (MWh)		Net Peak Demand Savings (kW)	
LDC-delivered programs		**Q3 2016**	**2016**	**Q3 2016**	**2016**
Residential					
Heating and Cooling Program	Contractors	4,772	24,025	4,226	9,170
Coupon Program	Retailers	5,144	112,244	564	7,839
New Construction Program	LDCs	63	156	2	13
Home Assistance Program	LDCs	2,009	4,484	1,324	2,072
Commercial & Industrial					
Retrofit Program	LDCs	13,987	178,283	1,996	23,068
Small Business Lighting Program	LDCs	2,005	4,104	441	864
Existing Building Commissioning Program	LDCs	-	87	-	21
High Performance New Construction Program	LDCs	-	1,254	-	271
Audit Funding Program	LDCs	101	716	21	148
Process & Systems Upgrades Program	IESO	897	897	61	61
Monitoring & Targeting Program	LDCs	-	-	-	-
Energy Manager Program	LDCs	-	-	-	-
Non-LDC delivered programs		**Q3 2016**	**2016**	**Q3 2016**	**2016**
Industrial Accelerator Program	IESO	16,894	93,524	2,476	11,040
Residential/Small Commercial Demand Response	IESO	303	303	179,808	179,808

** Residential/Small Commercial Demand Response participation is based on available capacity as at September 30th, 2016 since program inception and is not indicative of incremental installations in Q3 2016*

***LDC savings reported above are based on projects reported and invoiced to the IESO only. Any pipeline projects that have an installation date in Q3 2016 are excluded from above.*

****All Conservation results are preliminary, unverified and subject to evaluation, measurement and verification prior to be reported as final, verified. Savings reported at generator level; stated results are annual persisting savings.*

Program Participation

Table 3 provides the participation results for the residential, business and industrial programs for the third quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred this quarter.

Table 3: Conservation program participation results

Initiative	Q3 2016	2016	Metric
LDC-delivered programs			
Residential			
Heating and Cooling Program	16,226	68,607	Installations
Coupon Program	235,686	6,351,578	Measures
New Construction Program	15	54	Homes
Home Assistance Program	1,106	2,175	Homes
Commercial & Industrial			
Retrofit Program	369	3,786	Projects
Small Business Lighting Program	363	696	Projects
Existing Building Commissioning Program	0	4	Projects
High Performance New Construction Program	0	38	Buildings
Audit Funding Program	4	96	Audits
Process & Systems Upgrades Program	5	13	Projects
Monitoring & Targeting Program	0	0	Projects
Energy Manager Program	0	5	Projects
Non-LDC delivered programs			
Industrial Accelerator Program	2	25	Projects
Residential/Small Commercial Demand Response*	319,226	319,226	Devices

** Residential/Small Commercial Demand Response participation is based on available capacity as at September 30th, 2016 since program inception*

***LDC savings reported above are based on projects reported and invoiced to the IESO only. Any pipeline projects that have an installation date in Q3 2016 are excluded from above.*

****All Conservation results are preliminary, unverified and subject to evaluation, measurement and verification prior to be reported as final, verified. Savings reported at generator level; stated results are annual persisting savings.*

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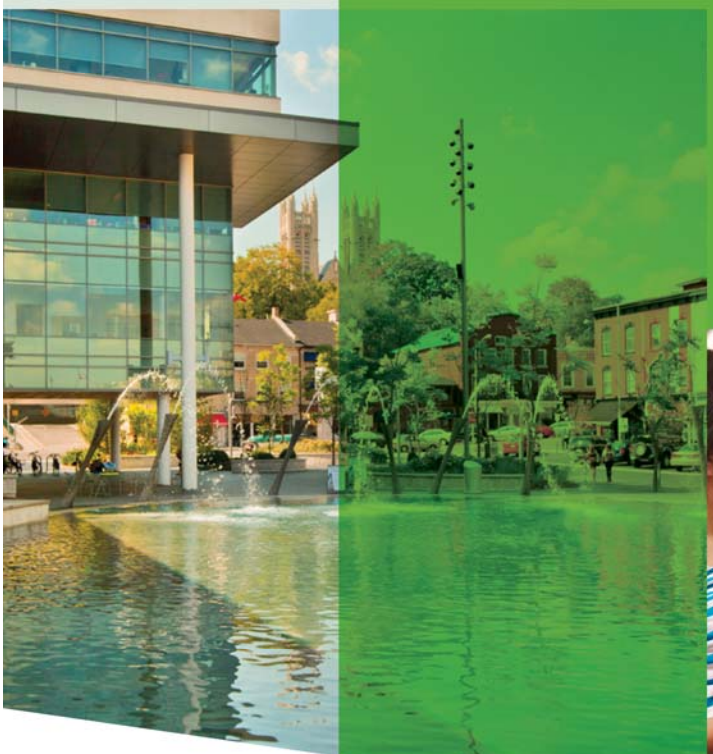
Conservation Progress Report

FOURTH QUARTER 2016



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Overview

The Independent Electricity System Operator (IESO) oversees a portfolio of electricity conservation and demand management programs that offer savings for all Ontarians. The IESO supports local distribution companies' (LDCs) delivery of programs to their residential, business, and industrial customers, and offers programs directly to transmission-connected customers. The IESO's conservation and demand management efforts are guided by the Conservation First Framework (CFF), which spans over 2015-2020 and aims to achieve 7 terawatt-hours (TWh) of electricity savings through programs and initiatives offered to all customer segments. An additional 1.7 TWh of energy savings is to be achieved through the Industrial Accelerator program (IAP).

This report highlights the achievements of Save on Energy programs and other conservation initiatives in the fourth quarter (Q4) of 2016, as well as progress towards the 2020 targets. Preliminary program savings results indicate 97 gigawatt-hours (GWh) and 12 megawatts (MW) of net reported incremental 2020 annual energy and peak demand savings were achieved from LDC delivered and Non-LDC delivered programs.

Under CFF, programs have achieved a total of 1.92 TWh (27%) of the 7 TWh CFF 2020 target reported in 2015-2016. This is lower than the LDCs original forecast of achieving 34% of 2020 targeted by the end of 2016, however LDCs have until April 2017 to report on all 2016 savings for inclusion in the 2016 Verified Results Report and therefore, more savings are expected to reported prior to finalizing the 2016 results by July 1, 2017.

Under IAP, 0.2 TWh (12%) of the 1.7 TWh 2020 IAP 2.0 target has been achieved (in-service) in 2015-2016. In addition, 0.6 TWh (35%) of the 1.7 TWh target is currently under contract.

Key highlights for the quarter include the formation of the Mid-term Review Advisory Group membership and Terms of Reference to supplement broader engagement efforts, by tackling more detailed discussions on the Mid-Term Review. The IESO has also initiated four new initiatives to support the December 16, 2016 Ministry Directive, which include (1)to support and fund pilot projects for new pricing models and non-price tools specified by the Ontario Energy Board through the Conservation Fund; (2) ensure all customers have access to province-wide programs through funding and delivering approved programs in service areas where programs are not currently available; (3) undertaking a pay-for-performance pilot program for IAP eligible customers; and (4) allowing transmission connected customers to have their distribution connected facilities eligible to participate in IAP.

All Conservation results in this report are preliminary, unverified and subject to evaluation, measurement and verification prior to be reported as final. For more information on the IESO's conservation and demand management programs, please visit saveonenergy.ca.

Conservation Portfolio Results

Table 1 summarizes Q4 2016 conservation portfolio results and progress towards target. For the purposes of this report, LDC-delivered programs include those delivered by LDCs (directly or through contractors, retailers and aggregators). Non-LDC delivered program savings are attributed to the **INDUSTRIAL ACCELERATOR PROGRAM**. All reported LDC activity and savings included in this report are based on projects reported and invoiced to the IESO. Any project that has an installation date in 2015 or 2016 but not yet reported and invoiced to the IESO are excluded from above.

Table 1: Conservation Portfolio Results*

	2016 Quarter 4		2015-to-Date		Target (GWh)	2015-to-Date Progress towards Target (%)
	Energy Savings (GWh)	Peak Demand Savings (MW)	Energy Savings (GWh)	Peak Demand Savings (MW)		
LDC-Delivered Programs	97	12	1,923	277	7,000	27
Non-LDC-Delivered Programs	26	3	196	24	1,700	12

**Net Reported Incremental 2020 Annual Savings at the End-User Level as of 2016 Quarter 4*

Table 2 provides the net peak demand savings and net energy savings for the residential, business and industrial programs for the fourth quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred the reported period.

Table 2: Net peak demand and net energy savings for residential and business programs*

	2016 Quarter 4				2015-to-Date			
	First Year Savings		2020 Annual Savings		First Year Savings		2020 Annual Savings	
	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)
LDC-Delivered Programs								
Residential								
Coupon Program	55	4	55	4	329	22	327	22
Heating & Cooling Program	6	2	6	2	92	40	92	40
New Home Construction Program	1	0	1	0	8	1	8	1
Home Assistance Program	2	1	2	1	25	6	21	6
Fridge and Freezer Pick-up Program[2]	0	0	0	0	6	1	0	0
Aboriginal Conservation Program[2]	0	0	0	0	4	1	3	1
Total Residential	**64**	**6**	**64**	**6**	**464**	**71**	**451**	**69**
Business								
Audit Funding Program	0	0	0	0	33	7	0	0
Retrofit Program	28	5	27	4	1,073	152	1,066	150
Small Business Lighting Program	5	1	3	1	61	14	39	9
High Performance New Construction Program	2	0	2	0	28	6	27	6
Existing Building Commissioning Program	0	0	0	0	1	1	0	0
Process & Systems Upgrades Program	0	0	0	0	297	37	297	37
Energy Manager Program	0	0	0	0	37	8	27	5
Monitoring & Targeting Program	0	0	0	0	1	0	0	0
Program Enabled Savings[2]	0	0	0	0	16	1	7	0
Total Business	**35**	**6**	**33**	**5**	**1,548**	**225**	**1,463**	**207**
Local / Regional / Pilots								
Business Refrigeration Incentives Local Program	0	0	0	0	1	0	1	0
Social Benchmarking Local Program	0	0	0	0	6	0	0	0
EnerNOC Pilot Program	0	0	0	0	0	0	0	0
Loblaws Pay-for-Performance Pilot Program	0	0	0	0	8	1	8	1

Strategic Energy Group Pilot Program	0	0	0	0	12	1	0	0
Social Benchmarking Pilot	0	0	0	0	17	2	0	0
Total Local/Regional/Pilot	**0**	**0**	**0**	**0**	**44**	**3**	**9**	**1**
Total LDC-Delivered	**99**	**12**	**97**	**12**	**2,057**	**300**	**1,923**	**277**
Non-LDC-Delivered								
Industrial Accelerator Program	26	3	26	3	196	24	196	24
Total Non-LDC-Delivered	**26**	**3**	**26**	**3**	**196**	**24**	**196**	**24**
LDC-Delivered Demand Response								
Residential and Small Commercial Demand Response Program[3]	0	168	n/a	n/a	0	168	n/a	n/a
Total LDC-Delivered Demand Response	**0**	**168**	**n/a**	**n/a**	**0**	**168**	**n/a**	**n/a**
Grand Total	**125**	**184**	**122**	**15**	**2,253**	**492**	**2,119**	**301**

1 *CDM program savings results are: a) "reported", that is preliminary, unverified and subject to evaluation, measurement and verification (EM&V) prior to being reported as "verified" and final; b) net, accounting for expected realization, free-ridership and spillover; c) incremental and d) at the end-user level;*

2 *Delivered under the 2011 - 2014 + 2015 Extension Legacy Framework only*

3 *Residential and Small Commercial Demand Response Program was delivered under CFF predecessor frameworks and results are based on availability as of December 31, 2016 since program inception and is not indicative of incremental installations in 2016 Quarter 4*

Program Participation

Table 3 provides the participation results for the residential, business and industrial programs for the fourth quarter and progress towards target. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred the reported period.

Table 3: Conservation program participation results

	Delivery Agent	Incremental Participation as of 2016 Quarter 4[1]		
		Metric	2016 Quarter 4	2015-to-Date
LDC-Delivered Programs				
Residential				
Coupon Program	Retailers	Measures	4,319,008	17,812,279
Heating & Cooling Program	Contractors	Installations	13,285	226,730
New Construction Program	LDCs	Homes	19	4,103
Home Assistance Program	LDCs	Homes	886	19,957
Fridge and Freezer Pick-up Program[2]	LDCs	Appliances	0	14,733
Aboriginal Conservation Program[2]	Contractor	Homes	0	1,586
Business				
Audit Funding Program	LDCs	Audits	11	509
Retrofit Program	LDCs	Projects	537	22,228
Small Business Lighting Program	LDCs	Projects	832	20,587
High Performance New Construction Program	LDCs	Buildings	4	243
Existing Building Commissioning Program	LDCs	Projects	0	28
Process & Systems Upgrades Program	LDCs	Projects	7	58
Energy Manager Program	LDCs	Projects	20	450
Monitoring & Targeting Program	LDCs	Projects	0	2
Program Enabled Savings[2]	LDCs	Projects	0	14
Local / Regional / Pilots				
Business Refrigeration Incentives Local Program	LDCs	Projects	89	121
Social Benchmarking Local Program	LDCs	Participants	0	49,125
EnerNOC Pilot Program	Contractor	Projects	0	12
Loblaws Pay-for-Performance Pilot Program	Contractor	Projects	0	18
Strategic Energy Group Pilot Program	Contractor	Projects	0	10
Social Benchmarking Pilot Program	Contractor	Participants	0	150,258
Non-LDC-Delivered Programs				
Industrial Accelerator Program	IESO	Projects	6	48
LDC Delivered Demand Response				
Residential and Small Commercial Demand Response Program[3]	LDCs	Devices	320,158	320,158

1 *CDM program participation results are "reported", that is preliminary, unverified and subject to evaluation, measurement and verification prior to being reported as "verified" and final;*

2 *Delivered under the 2011 - 2014 + 2015 Extension Legacy Framework only;*

3 *Residential and Small Commercial Demand Response Program was delivered under CFF predecessor frameworks and results are based on availability as of December 31, 2016 since program inception and is not indicative of incremental installations in 2016 Quarter 4;*

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Conservation Progress Report

FIRST QUARTER 2017

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Overview

The Independent Electricity System Operator (IESO) oversees a portfolio of electricity conservation and demand management programs that offer savings for all Ontarians. The IESO supports local distribution companies' (LDCs) delivery of programs to their residential, business, and industrial customers, and offers programs directly to transmission-connected customers. The IESO's conservation and demand management efforts are guided by the Conservation First Framework (CFF), which spans over 2015-2020 and aims to achieve 7 terawatt-hours (TWh) of electricity savings through programs and initiatives offered to all customer segments. An additional 1.7 TWh of energy savings is to be achieved through the Industrial Accelerator program (IAP).

This report highlights the achievements of Save on Energy programs and other conservation initiatives in the first quarter (Q1) of 2017, as well as progress towards the 2020 targets. Total preliminary program savings results indicate 99 gigawatt-hours (GWh) and 12 megawatts (MW) of net reported incremental 2020 annual energy and peak demand savings were achieved from LDC delivered and Non-LDC delivered programs.

Under CFF, programs have achieved a total of 2.420 TWh (35%) of the 7 TWh CFF 2020 target as of Q1 2017. Under the Industrial Accelerator Program (IAP), 0.238 TWh (14%) of the 1.7 TWh 2020 IAP target has been achieved (in-service) as of Q1 2017. In addition, 0.606 TWh (36%) of the 1.7 TWh target is currently under contract.

Key highlights for the quarter include the introduction of the Business Refrigeration Program as a new province-wide program. The newly launched Energy Performance Program, the first pay-for-performance program in North America, generated interest from customers resulting in applications. In addition, the Mid-Term Review Advisory Group met twice as part of the broader stakeholder engagement on the Mid-Term Review of the CFF and the IAP.

All Conservation results in this report are preliminary, unverified and subject to evaluation, measurement and verification prior to be reported as final. For more information on the IESO's conservation and demand management programs, please visit www.saveonenergy.ca.

Conservation Portfolio Results

Table 1 summarizes Q1 2017 conservation portfolio results and progress towards target. For the purposes of this report, LDC-delivered programs include those delivered by LDCs (directly or through contractors, retailers and aggregators). Non-LDC delivered program savings are attributed to the **INDUSTRIAL ACCELERATOR PROGRAM**. All reported LDC activity and savings included in this report are based on projects reported and invoiced to the IESO. Any projects that have been completed, but not yet reported and invoiced to the IESO are excluded from the following results.

Table 1: Conservation Portfolio Results*

	2017 Q1		2015-2017 Q1		Target (GWh)	2015-2017 Q1 Progress towards Target (%)
	Energy Savings (GWh)	Peak Demand Savings (MW)	Energy Savings (GWh)	Peak Demand Savings (MW)		
LDC-Delivered Programs	57	7	2,420	324	7,000	35
Non-LDC-Delivered Programs	42	5	238	27	1,700	14

**Net Reported Incremental 2020 Annual Savings at the End-User Level as of 2017Q1*

Table 2 provides the net peak demand savings and net energy savings for the residential, business and industrial programs for the fourth quarter. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred the reported period.

Table 2: Net peak demand and net energy savings for residential and business programs

	2017 Q1				2015-2017 Q1			
	First Year Savings		2020 Annual Savings		First Year Savings		2020 Annual Savings	
	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)
LDC-Delivered Programs								
Residential								
Coupon Program	5	0.3	5	0.3	510	34	505	33
Heating & Cooling Program	3	1	3	1	109	45	109	45
New Home Construction Program	0.02	0.001	0.2	0.001	11	1	11	1
Home Assistance Program	2	1	1	1	29	8	23	7
Fridge and Freezer Pick-up Program[2]	0	0	0	0	6	1	0	0
Aboriginal Conservation Program[2]	0	0	0	0	4	1	3	1
Total Residential	**10**	**2**	**9**	**2**	**669**	**90**	**652**	**88**
Business								
Audit Funding Program	0	0	0	0	36	8	0	0
Retrofit Program	18	3	18	3	1,320	180	1,311	178

	2017 Q1				2015-2017 Q1			
	First Year Savings		2020 Annual Savings		First Year Savings		2020 Annual Savings	
	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)
Small Business Lighting Program	4	1	3	1	68	16	44	10
High Performance New Construction Program	0.5	0.1	0.5	0.1	36	9	36	9
Existing Building Commissioning Program	0	0	0	0	2	1	0	0
Process & Systems Upgrades Program	9	1	9	1	316	32	316	32
Energy Manager Program	4	0	4	0	41	8	31	5
Monitoring & Targeting Program	0	0	0	0	1	0	0	0
Program Enabled Savings[2]	0	0	0	0	16	1	7	0.1
Total Business	**36**	**5**	**35**	**5**	**1,837**	**254**	**1,745**	**234**

	2017 Q1				2015-2017 Q1			
	First Year Savings		2020 Annual Savings		First Year Savings		2020 Annual Savings	
	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)
Local / Regional / Pilots								
Adaptive Thermostat Local Program	0	0	0	0	0	0	0	0
Business Refrigeration Incentives Local Program	12	0.2	12	0.2	14	0.5	14	0.5
First Nation Conservation Local Program	0.8	0.5	0.8	0.5	0.8	0.5	0.8	0.5
PUMPSaver Local Program	0	0	0	0	0	0.08	0	0
Social Benchmarking Local Program	0.002	0	0	0	6	9	0	0
EnerNOC Pilot Program	0	0	0	0	0.3	0	0	0
Loblaws Pay-for-Performance Pilot Program	0	0	0	0	8	1	8	1
Strategic Energy Group Pilot Program	0	0	0	0	12	1	0	0
Social Benchmarking Pilot Program	0	0	0	0	17	2	0	0

	2017 Q1				2015-2017 Q1			
	First Year Savings		2020 Annual Savings		First Year Savings		2020 Annual Savings	
	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)	Energy (GWh)	Peak Demand (MW)
Total Local/Regional/Pilot	**13**	**0.7**	**13**	**0.7**	**58**	**13**	**23**	**2**
Total LDC-Delivered	**59**	**8**	**57**	**7**	**2,565**	**357**	**2,420**	**324**
Non-LDC-Delivered								
Industrial Accelerator Program	42	5	42	5	238	27	238	27
Total Non-LDC-Delivered	**42**	**5**	**42**	**5**	**238**	**27**	**238**	**27**
LDC-Delivered Demand Response								
Residential and Small Commercial Demand Response Program[3]	0	168	0	0	0	168	0	0
Total LDC-Delivered Demand Response	**0**	**168**	**0**	**0**	**0**	**168**	**0**	**0**
Grand Total	**101**	**181**	**99**	**12**	**2,803**	**553**	**2,658**	**351**

1) *CDM program savings results are: a) "reported", that is preliminary, unverified and subject to evaluation, measurement and verification (EM&V) prior to being reported as "verified" and final; b) net, accounting for free-ridership and spillover; c) incremental and d) at the end-user level;*
2) *Delivered under the 2011 - 2014 + 2015 Extension Legacy Framework only;*
3) *Residential and Small Commercial Demand Response Program was delivered under CFF predecessor frameworks and results are based on availability as of March 31, 2017 since program inception and is not indicative of incremental installations in 2017Q1;*

Program Participation

Table 3 provides the participation results for the residential, business and industrial programs for the fourth quarter and progress towards target. Where a value of zero is shown, this indicates that no event, project, or activity associated with savings occurred the reported period.

Table 3: Conservation program participation results

	Delivery Agent	Incremental Participation as of 2017 Q1[1]		
		Metric	2017 Q1	2015-2017 Q1
LDC-Delivered Programs				
Residential				
Coupon Program	Retailers	Measures	289,035	28,624,704
Heating & Cooling Program	Contractors	Installations	5,769	265,699
New Construction Program	LDCs	Homes	17	4,199

Home Assistance Program	LDCs	Homes	826	21,932
Fridge and Freezer Pick-up Program[2]	LDCs	Appliances	0	14,733
Aboriginal Conservation Program[2]	Contractor	Homes	0	1,586
Business				
Audit Funding Program	LDCs	Audits	6	603
Retrofit Program	LDCs	Projects	455	26,385
Small Business Lighting Program	LDCs	Projects	848	21,910
High Performance New Construction Program	LDCs	Buildings	18	349
Existing Building Commissioning Program	LDCs	Projects	0	44
Process & Systems Upgrades Program	LDCs	Projects	5	74
Energy Manager Program	LDCs	Projects	4	462
Monitoring & Targeting Program	LDCs	Projects	0	2
Program Enabled Savings[2]	LDCs	Projects	0	14
Local / Regional / Pilots				
Adaptive Thermostat Local Program	LDCs	Homes	0	2
Business Refrigeration Incentives Local Program	LDCs	Projects	189	507
First Nation Conservation Local Program	LDCs	Homes	461	461
PUMPSaver Local Program	LDCs	Projects	0	5
Social Benchmarking Local Program	LDCs	Participants	166,605	166,608
EnerNOC Pilot Program	Contractor	Projects	0	12
Loblaws Pay-for-Performance Pilot Program	Contractor	Projects	0	18
Social Benchmarking Pilot Program	Contractor	Participants	0	150,258
Strategic Energy Group Pilot Program	Contractor	Projects	0	10
Non-LDC-Delivered Programs				
Industrial Accelerator Program	IESO	Projects	13	74
LDC Delivered Demand Response				
Residential and Small Commercial Demand Response Program[3]	LDCs	Devices	320,158	320,158

1) *CDM program participation results are "reported", that is preliminary, unverified and subject to evaluation, measurement and verification prior to being reported as "verified" and final;*
2) *Delivered under the 2011 - 2014 + 2015 Extension Legacy Framework only;*
3) *Residential and Small Commercial Demand Response Program was delivered under CFF predecessor frameworks and results are based on availability as of March 31, 2017 since program inception and is not indicative of incremental installations in 2017Q1;*

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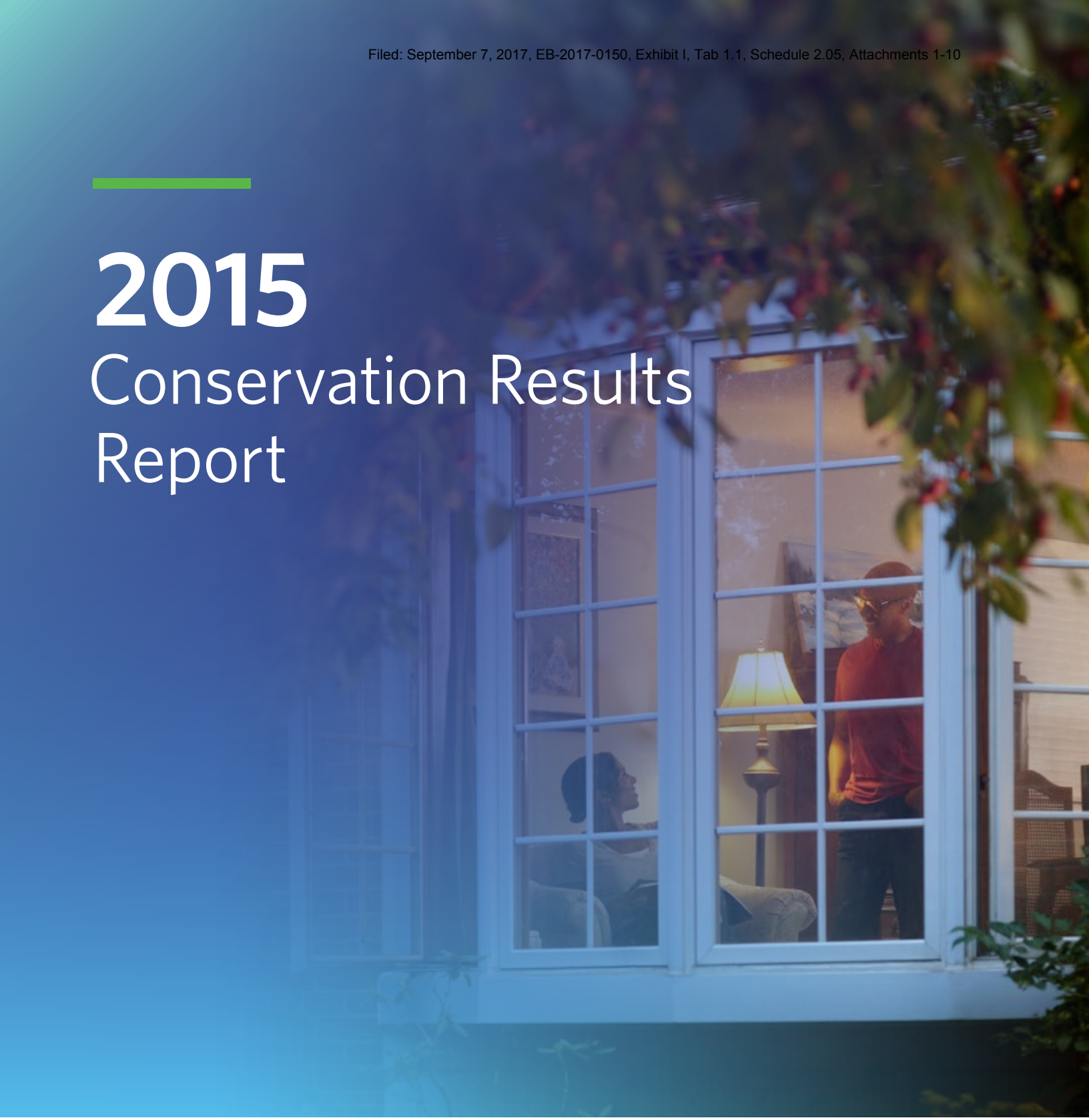

2015 Conservation Results Report

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Message from the Vice-President, Conservation and Corporate Relations

In collaboration with more than 70 local distribution companies (LDCs), the IESO embarked on a new six-year (2015-2020) Conservation First Framework (CFF) that offers committed funding for conservation and energy efficiency to homes and businesses across the province.

Over the past 10 years, Ontarians have achieved 13.5 billion kilowatt-hours (kWh) of electricity savings through both programs and changes to codes and standards.

A total of 1.3 terawatt-hour (TWh) of energy savings was achieved in 2015, equivalent to powering 142,000 homes for one year. Of the 1.3 TWh of energy savings, 1.1 TWh will persist to 2020. The province is on track to meet the 2020 energy-savings target of 7 TWh through CFF programs and 1.7 TWh through the Industrial Accelerator Program (IAP). These 2015 conservation results demonstrate that Ontario is continuing to build on the foundation of past conservation efforts and is moving towards more cost-effective and deeper energy savings.

Energy efficiency and climate change have never been more prevalent in Ontario than they are now. The provincial efforts in promoting a culture of conservation and providing valuable, cost-effective support and resources to homes and businesses are contributing to customers realizing energy-efficiency benefits that go beyond cost savings to improved business operations and more efficient homes.

The IESO works with its partners to promote, monitor, and plan for conservation – as it is the most cost-effective resource to help meet the province's energy needs, as well as one that delivers other non-energy related benefits. In 2015, conservation was delivered at a program cost to consumers of under four cents per kWh. For every dollar invested in energy efficiency programs, Ontarians have saved two dollars in avoided energy costs.

In addition to the energy-efficiency programs delivered through the LDCs, the IESO is committed to encouraging new, innovative solutions and technologies that will help us met our targets. Communities and customers across the province are benefiting through investments in new program ideas and other energy-management initiatives that provide effective and long-term results on a regional or local scale.

The IESO is committed to working together to achieve the goals of the CFF and IAP and I encourage all partners, stakeholders and customers to continue to provide feedback on Ontario's conservation efforts. It is through ongoing participation and collaboration that we will ensure value for customers while providing a reliable and sustainable system for future generations.

I am pleased to share the 2015 conservation report with you and look forward to next year's results.

Sincerely,

Terry Young

Executive Summary

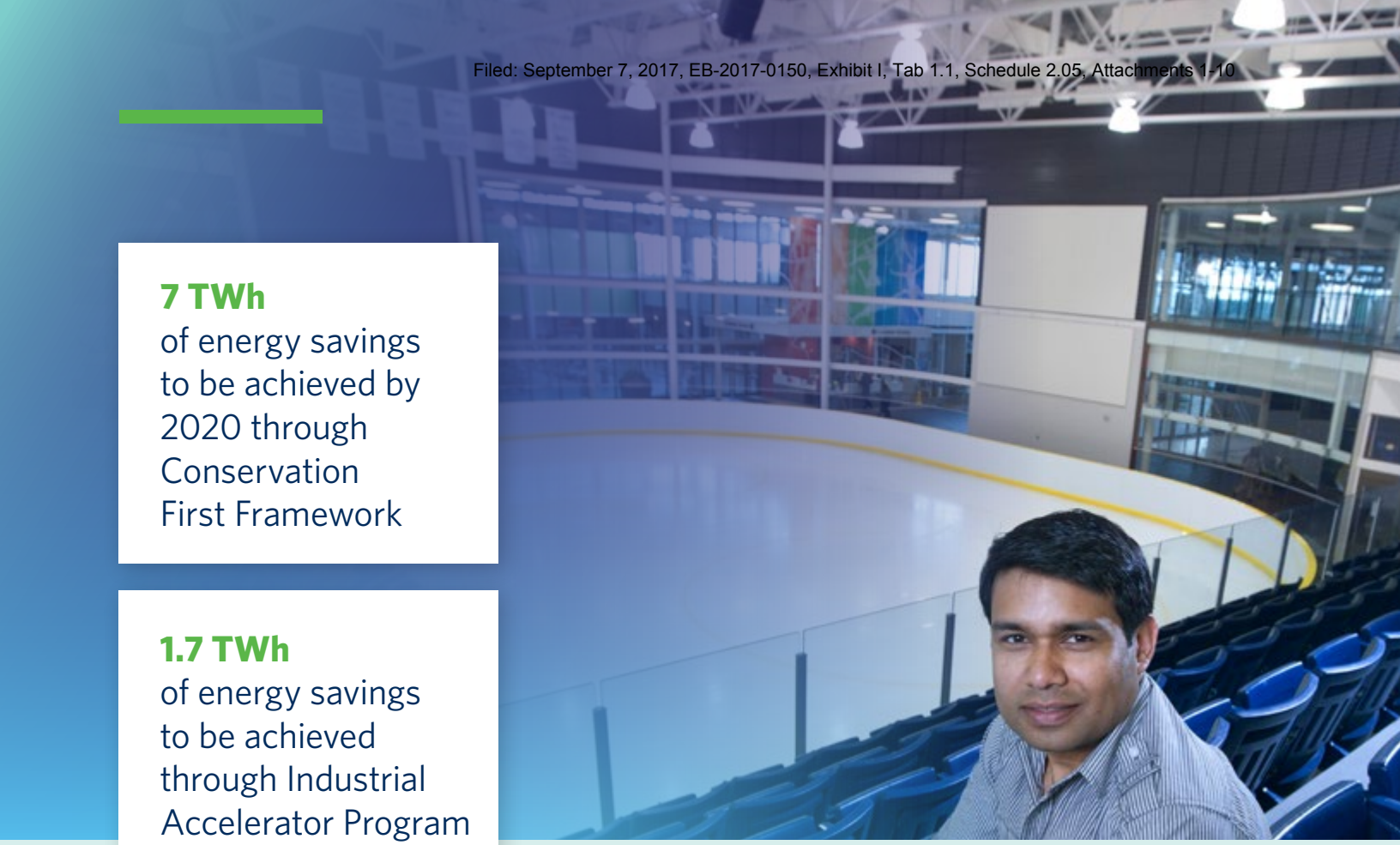
The IESO guides the province's electricity conservation efforts and works collaboratively with Local Distribution Companies (LDCs) and other industries to ensure Ontarians have reliable, clean and cost-effective sources of energy today and in the future.

Many opportunities exist in the marketplace to help all Ontarians use energy more wisely and help reduce energy costs. Conservation programs are available to residents and businesses across the province and include energy-saving initiatives that cost-effectively reduce the demand for electricity, while providing customers with information to help them make wise energy-efficient investments. Through these investments, customers will experience the many benefits that energy efficiency has to offer and will contribute to more sustainable communities by reducing the need to build new generation in the future.

Through the Conservation First Framework (CFF), the IESO and LDCs have collaborated to design and deliver new local, regional and provincial programs that provide LDCs with more flexibility in program design and offer customers more choice. 2015 was a transition year in ensuring that all projects through the 2011-2014 framework were complete, existing province-wide programs were enhanced, and new programs were developed for implementation in 2015-2016. The CFF includes a 7 terawatt-hour (TWh) energy-savings target to be achieved by 2020, and each LDC has been assigned individual targets contributing to the overall provincial target. An additional 1.7 TWh are to be achieved through the IESO's Industrial Accelerator Program (IAP), which offers energy-efficiency incentives to transmission-connected customers.

The objectives of the CFF aim to provide more flexibility for LDCs in the design and delivery of conservation programs to their communities. LDCs submitted Conservation and Demand Management (CDM) plans to the IESO outlining their energy conservation activities in a six-year plan. Details included target and funding information, any new and ongoing programs being delivered, and a choice of funding models. All plans have been approved by the IESO and all proposed programs in each LDC's CDM plan were evaluated for cost-effectiveness prior to being approved. All approved CDM plans can be found on the IESO website.

To support LDCs in the design and delivery of conservation programs, the IESO established the Conservation First Implementation Committee (CFIC) consisting of members from the LDCs, government, and other utilities to guide the success of the framework. The committee also oversees LDC working groups, which are responsible for designing, improving, and providing input into the management of province-wide conservation programs. Working groups and the CFIC share the goal of program design and delivery that offer value and integrate both customer and market needs.



7 TWh
of energy savings to be achieved by 2020 through Conservation First Framework

1.7 TWh
of energy savings to be achieved through Industrial Accelerator Program

A mid-term review of the CFF is planned for completion by June 2018. The review will help identify challenges and opportunities for 2018-2020, focusing on conservation targets and budgets, lessons learned about LDC funding models, customer needs, program effectiveness (including LDC and IESO services), conservation integration with regional planning, CFF alignment with Ontario's 2016 Climate Change Action Plan (CCAP) initiatives, and post-2020 approaches to energy efficiency. A multi-stakeholder advisory group will be formed as part of the engagement to ensure that all interested parties have meaningful opportunities to provide feedback for consideration.

By the end of 2015, there were 12 province-wide programs delivered by LDCs across the province and 10 pilot programs and 5 local programs were approved. All savings achieved from these pilots and programs count towards individual LDC and provincial energy savings targets.

In addition to the province-wide, local and pilot programs the IESO encourages other conservation activities through its collaboration with industry partners on the delivery of training initiatives and its support of new innovative technologies and ideas through the Conservation Fund. A variety of training initiatives currently exist in the marketplace to help build capability and awareness of energy efficiency in the sector. These training initiatives help drive participation in Save on Energy programs and provide a platform for building relationships with key partners and customers to help further influence energy efficiency activities in Ontario.

To measure the success of our conservation efforts the IESO evaluates all conservation programs through its Evaluation, Measurement and Verification process, which assesses the resource savings, cost-effectiveness, and market impacts of each program. The IESO also measures engagement in energy efficiency through its regular market research with partners and customers to gauge satisfaction of current programs and effectiveness of other conservation initiatives such as province-wide advertising. Monitoring behavior towards energy conservation and identifying the key influencers helps inform future program design and initiatives.

The IESO's efforts in supporting LDCs in the delivery of conservation programs, building capability and awareness of energy efficiency, making investments in new innovation, and conducting market research contribute to a sustainable future and promote a culture of conservation across the province. As our communities grow, we must continue to engage and seek input from all stakeholders on Ontario's energy conservation activities.

Conservation Program Achievements

Conservation programs help Ontarians better understand what energy-efficient options work best for them. The benefits of participating in energy efficiency initiatives go beyond cost savings to improving day-to-day operations in businesses and contributing to better quality homes. These initiatives are just a few examples of how Ontarians are contributing to sustainable communities across the province.

The IESO approved 40 LDC CDM plans in 2015, which included the approval of five new local programs. Approved local programs include initiatives such as a business refrigeration incentive, a First Nation conservation initiative, and three social benchmarking initiatives. There were also 10 pilot programs approved in 2015 though the LDC Innovation Fund – providing LDCs with opportunities to better target initiatives that meet the energy needs of their communities.

Province-wide programs delivered by LDCs include incentives for lighting upgrades, purchasing energy-efficient products, and replacing inefficient equipment. Through the LDC working groups the IESO and LDCs have been working to enhance the suite of province-wide conservation programs to improve the customer experience and ensure that each program offering has measures and incentives that offer the most benefits to participants.

Businesses are becoming more productive through investments in energy-efficient upgrades. Business sector participants saved 1,013 gigawatt-hours (GWh) of energy for the province, accounting for 79 percent of the overall energy savings achieved in 2015. Businesses undertook more than 13,000 projects through the Retrofit Program and completed over 18,000 projects through the Small Business Lighting Program. Other highlights include: 12 Process and Systems Upgrades projects, four of which were behind-the-meter generation, and 424 projects were completed through the Energy Managers program. Through this program, energy managers offer customers the opportunity to fund an in-house energy management resource to help identify smart energy-efficient investments.

Residents are making better choices on energy-efficient purchases for their homes. Residential sector participants saved 268 GWh of energy for the province, accounting for 21 percent of the overall energy savings achieved in 2015. Customers across the province redeemed more than 4.1 million coupons in 2015, resulting in over 6.4 million energy-efficient products purchased – more than 5.4 million were for LEDs alone. In addition, there were more than 122,000 installations through the Heating and Cooling Program.

Business

1,013 GWh
of **energy savings achieved**

18,000 +
projects completed through the **Small Business Lighting Program**

424
projects completed through the **Energy Managers Program**

13,000 +
projects taken on through the **Retrofit Program**

Residential

268 GWh
of **energy savings achieved**

4.1 million
coupons redeemed across the province

6.4 million
energy effecient products purchased

122,000 +
installations through the **Heating and Cooling Program**

Through recommendations from customers, stakeholders, LDC working groups, and the evaluation, measurement and verification (EM&V) process, program enhancements are continuously implemented to help meet the needs of customers across the province. Key enhancements to business sector programs include improving the application process and adding new LED measures to the Retrofit Program. In addition, the Small Business Lighting Program was redesigned in 2015 as a new province-wide program. These changes enabled greater participation by expanding eligibility to businesses with an average annual demand of less than 100 kW from 50 kW and increasing the incentive from $1,500 to $2,000. Key enhancements to residential sector programs include exploring new incentives in the Heating and Cooling Program and adding new measures to the Coupons programs.

Through the IAP, 49 GWh of annual electricity savings were brought into service in 2015.

2015 was a year of transition for IAP, with a new mandate introduced on June 23, 2015. The mandate brought a new incentive stream consisting of an Energy Manager program for IAP customers. The Energy Manager stream was also quite active, with eight positions contracted in, covering about one-eighth of the IAP's customer base. The IESO was active in engaging customers to bring potential projects beyond the study phase and into project applications, and the program has seen more than 70 percent of all eligible customers participate in at least one of the incentive streams.

The total cost to deliver programs in 2015 was $461 million; of that total incentive costs were $346 million. To support LDCs in the delivery of conservation programs, the IESO provides central services to evaluate, promote, and research Ontario's conservation efforts. These services include EM&V, province-wide marketing, market research, capability building (including training), IESO infrastructure, and technical support. In addition, the IESO delivers a $70 million LDC Innovation Fund to support innovation of new energy-efficient technologies and a $25 million LDC Collaboration Fund to support program design and delivery among LDCs and working groups.

2015 Conservation Program Savings, Costs, and Participation

	Energy Savings (GWh)	Delivery Costs ($M)	Incentive Costs ($M)	Participation
Residential Sector Programs				
Coupons Program	156	9.8	28.9	6,460,758 products
Heating and Cooling Incentive	56	6.0	52.4	122,389 installations
New Home Construction Program	6	1.3	1.7	4,012 projects
Fridge and Freezer Pick-up Program	6	1.4	1.4	14,733 appliances
Peaksaver PLUS	0.3	7.1	12.4	530,963 devices
Business Sector and Industrial Programs				
Retrofit Program	673	31.9	91.7	13,358 projects
Small Business Lighting Program	50	10.3	29.2	18,643 projects
High Performance New Construction Program	22	3.6	10.3	168 projects
Existing Building Commissioning Program	1	0.7	0.6	11 buildings
Process and Systems Upgrade Program	123	12.6	56.2	12 projects
Industrial Accelerator Program	49	3.7	14.3	16 projects
Educational, Aboriginal, and Low-Income				
Home Assistance Program	16	5.2	16.8	16,526 homes
Aboriginal Conservation Program	4	1.6	5.8	1,586 homes
Audit Funding Program	26	2.2	3.6	358 audits
Energy Manager Program	36	4.5	5.2	424 projects
Monitoring and Targeting Program	1	0.4	0.3	2 projects
Program Enabled Savings	16	0	0	14 projects
Other				
Conservation Fund Pilots*	37.8	1.4	0.5	-
LDC Innovation Fund	-	0.8	-	-
LDC Collaboration Fund	-	0.1	-	-
IESO Central Services	-	2.2	-	-
2011-2014 Legacy Framework Projects	-	11.3	14.2	-
Total	**1,281**	**115.0**	**345.5**	

*Strategic Energy Management Pilot – Commercial, Strategic Energy Management Pilot – Industrial, Pay-for-Performance Pilot, Social Benchmarking Pilot

Program Evaluation and Cost Effectiveness

All programs funded through the IESO are evaluated by independent third-party program evaluators through its EM&V Protocol and Requirements. The evaluation process also provides valuable input into the overall performance of conservation programs, contributing to design enhancements and the creation of new incentives. Evaluation reports for the 2015 programs are available on the IESO website.

Two tests are used to evaluate the benefits and costs of Ontario's conservation efforts. The Program Administrator Cost (PAC) test measures the benefits (avoided energy and resource costs) and costs (all costs associated with delivering a program) from the perspective of the program administrator. The Total Resource Cost (TRC) test measures the benefits and costs from a societal perspective. For a program to be considered cost-effective, the benefits of the program must outweigh the costs at a ratio of greater than 1.0.

In addition to the TRC and PAC tests, the Levelized Unit Electricity Cost (LUEC) is used in comparing energy-efficiency programs with other electricity supply resources. This metric expresses delivery costs (all costs associated with designing, delivering and evaluating a program) as per unit of energy saved (expressed as $/MWh) on an annualized basis.

The IESO evaluates the success of its conservation programs by looking at the performance of the entire portfolio. The portfolio includes a combination of programs with varying degrees of cost effectiveness, from less cost-effective programs delivered to low income customers to the very cost-effective business programs. The bulk of the savings generated from the portfolio (75 percent) come from highly cost-effective programs. This approach reflects the need to serve all customer types, and takes into consideration the fact that some programs are pilot projects intended to garner lessons that can be applied to future programs, while other programs are intended to realize broader benefits, such as assisting low-income households.

2015 Cost Effectiveness Ratio

	TRC	PAC	LUEC ($/MWh)
Residential Sector Programs	3.59	2.20	36.27
Commercial and Industrial Sector Programs	1.00	1.95	33.56
Educational, Aboriginal and Low-Income Programs	0.85	1.15	61.35
Portfolio Total	**1.27**	**1.95**	**35.37**

More information on program cost effectiveness can be found in the appendix.

Conservation Fund

The IESO's Conservation Fund has been bringing new innovative programs and technologies to market for over 10 years. Since 2011, the fund has committed $22 million of support to more than 55 projects, leveraging an additional $37 million in partner support. In 2015, eight projects were approved contributing to the overall energy savings for the province and generating new innovative conservation solutions for the future. A complete list of Conservation Fund projects can be found on the IESO website.

Electrale Innovation – Hydraulic Air Compressor (HAC) Demonstrator Project

Demonstrating an industrial-scale Hydraulic Air Compressor to prove its energy efficiency credentials.

This project will measure and verify the electricity savings of new HAC technology on an industrial scale. It is primarily for deep mining applications and will provide new opportunities for large industrial mining customers to learn more about how this technology can increase their energy efficiency. The project will demonstrate the basic commercial readiness of energy-efficient technology with potential applications in the fields of deep mine cooling, carbon capture, air conditioning and general industrial gas compression.

PowerStream – Residential Solar Storage Pilot (POWER.HOUSE)

Evaluating the conservation, electricity system, and utility business benefits of residential solar storage systems in Ontario.

This project provides an opportunity for an LDC to evaluate and quantify the various benefits (e.g. conservation, distribution system, provincial grid and utility business benefits) that residential solar storage can provide in an Ontario context. PowerStream has installed 20 residential solar storage units in its service area. Reports on conservation outcomes, electricity system benefits and LDC business models will be produced and shared publicly with all LDCs in the province.

LDC Innovation Fund

In 2015, the LDC Innovation Fund provided funding ($70 million over six years) to LDCs, offering a new platform for pilot programs to be implemented in communities across the province and providing an opportunity for these pilots to develop into local, regional or province-wide programs.

Toronto Hydro's PUMPSaver Pilot

This pilot was designed to identify opportunities to optimize hydronic systems for medium to large multi-unit residential buildings and commercial facilities. Opportunities for projects and direct installation of equipment to replace balancing values with variable frequency drives will help to reduce energy consumed by hydronic pump motors. Participation consisted of 10 buildings, six multi-unit residential buildings and four hospitals centres. The pilot demonstrated support of the energy savings and direct-install delivery model for this type of retrofit. The pilot concept has been transitioned to an approved local program that is now in market.

Canadian Niagara/Eastern ON/Algoma Residential Direct Mail Pilot

Canadian Niagara Power, Eastern Ontario Power and Algoma Power, with service provider, Ecofitt, developed a home energy kit pilot through the LDC Innovation Fund called "My Energy Kit". The pilot was implemented to test out market response to receiving free energy saving measures via a direct mail delivery model. Residential customers were offered a package of measures to be ordered online after filling out a survey about measures currently in their home. After completion of the on-line assessment, the LDCs mailed kits directly to residents with the measures to be self-installed. The suite of energy-efficient products included items to target lighting, plug load, weatherization measures and domestic hot water measures (for electric hot water heat). Preliminary market research conducted by the service provider indicated that 97 percent of customers were satisfied with the program and 69 percent of customers would have paid a portion of the retail price to participate. Canadian Niagara Power is currently investigating opportunities to develop a local program based on the success of this pilot. Verified savings results will be available in 2017.

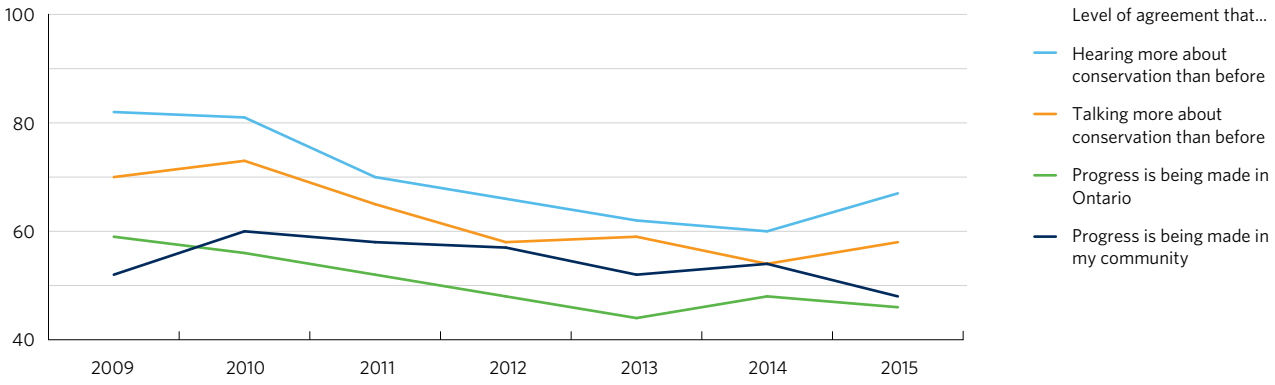
Engagement and Awareness

The IESO measures the effectiveness of its outreach efforts through regular market research activities, including customer and partner surveys, measuring the effectiveness of advertising campaigns and other feedback mechanisms such as focus groups. Measuring the overall engagement with energy efficiency provides the IESO and its partners with meaningful information to help design conservation programs and deliver incentives based on the energy needs of all Ontarians.

SAVE ON ENERGY

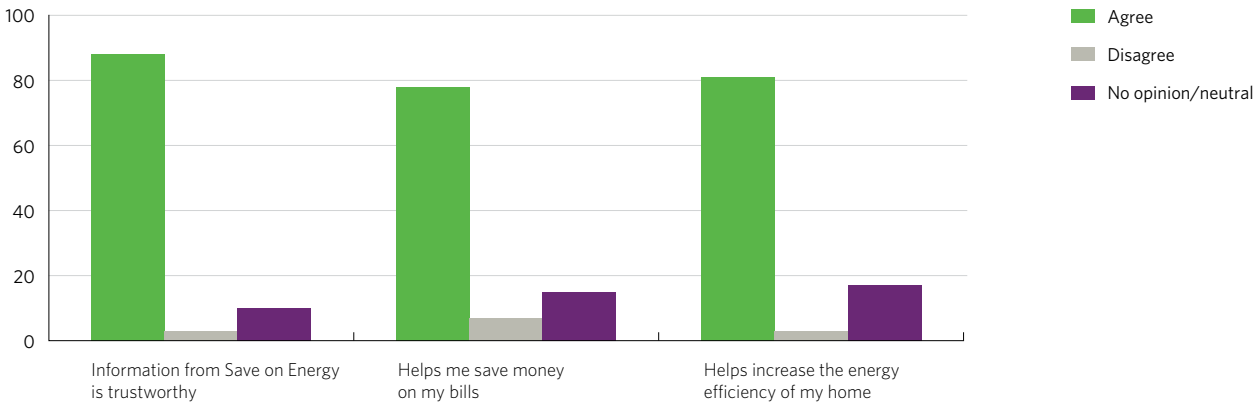
In 2015, overall engagement with energy efficiency among the Ontario public was consistent with prior years. Most (88 percent) people believe they know what to do to reduce energy use and believe that their own efforts are worthwhile but only about half of Ontarians believe progress in using energy wisely is being made across the province. People who know about Save on Energy have a positive impression of the brand, saying that it is trustworthy, helps improve the energy efficiency of their homes and lower their electricity costs.

Visibility of Conservation in Ontario (percent)



Public Opinion of Save on Energy (percent)

Following the advice and participating in the Save on Energy program...



In 2015, 41 percent of Ontario households participated in one or more Save on Energy programs during 2015. One in four participated in multiple Save on Energy programs, a significant increase over 2014. The experience of participating in a program met or exceeded the expectations of 90 percent of residential customers. In fact the majority of customers (7 in 10) said the experience was so good that it made them more likely to participate again, which results in deeper savings, and made it very likely that they would recommend the program to others. This positive word of mouth will result in greater savings.

On the business side engagement is up from 2014 with eight out of 10 business decision makers and influencers being familiar with Save on Energy and agreeing that participation in programs can help their organizations save money. Most (80 percent) business decision-makers and influencers say their senior management pays at least some (50 percent) or a great deal (30 percent) of attention to electricity usage and a strong minority say electricity consumption is becoming a higher priority for their organizations. Just over half of organizations have started implementing a strategy to control energy use and about half say their organizations actively manage consumption. As might be expected education about cost reductions is seen to be the key to increasing engagement in the business sector. Of note, participating businesses receive incentives for roughly half of the eligible projects and more than 90 percent of organizations that participated in the province-wide Retrofit program said the experience met or exceeded their expectations.

One way to increase engagement is to increase the visibility of conservation. Over the 2015/2016 timeframe, the IESO launched a renewed Save on Energy brand combined with a new advertising campaign focusing on building engagement through inspirational and positive messaging around the multiple benefits that come with participating in energy-efficiency projects. The results have already made an impact in shifting people's perceptions and intentions about energy-efficiency programs in Ontario.

Building Capability

The IESO focuses on building the energy-efficiency capabilities of LDCs, channel partners, and electricity customers to achieve greater savings from Save on Energy projects, and to build their capacity to make conservation an integrated part of everyday business. In 2015 efforts were undertaken to expand the reach and scope of the IESO's capability-building initiatives with the objective to support LDCs achieving their CFF target through to 2020.

Expanding the role of capability building requires a solid evaluation methodology to validate the extent to which these initiatives are achieving desired outcomes. To that end, the IESO adopted a new program evaluation protocol for programs where the goal is to change behaviour, rather than equipment. This pioneering methodology was necessary as behaviour change will be a critical objective in meeting CFF targets. This trend is echoed across North America, where utilities are discovering that equipment change outs need to be accompanied by shifts in how that equipment is used. The establishment of this protocol creates the necessary foundation for growth in the role of capability building going forward.

Embedding Energy Management into the way Ontario Does Business

The IESO built capability in 2015 through the Energy Manager Program, which is delivered by LDCs. This program provides funding of up to $80,000 per year to eligible Ontario industrial, commercial or institutional electricity customers to employ a qualified energy manager. Participating organizations commit to contractually agreed-upon reductions in electricity consumption in exchange for funding.

A key objective of the IESO's energy manager initiative is to see energy management adopted by host companies as a normal part of everyday business, and to demonstrate the value of energy management as a means of controlling variable costs such as those for electricity. By the end of 2015, there were 87 energy managers supported by the IESO and embedded in operations all across Ontario ranging from primary processing industrial operations and high technology processing facilities to university campuses and multi-site retail stores. Collectively, they achieved 358 GWhs in savings for which Save on Energy incentives were provided.

Furthermore, these energy managers helped generate 47 GWh in operational savings for which no incentive is paid. The IESO's 2015 commitment to energy manager funding and support is one of the largest of its kind in North America.

The IESO also provides significant support for the embedded energy managers to build their capabilities to deliver savings. This support comes in many forms, from training incentives, such as for accreditation as a "Certified Energy Manager" or as a "Certified Measurement and Verification Professional", to the hosting of an energy manager network and online hub which enables IESO-funded energy managers to share best practices.

In 2015, the IESO developed a plan to provide additional support tools for funded energy managers in the form of helpdesk and coaching support for complex projects. These additional supports are intended to support energy managers in achieving ambitious targets under the CFF starting in 2016, as the energy manager program is expanded to include energy managers for transmission connected facilities and multi-site customers. Two types of energy manager were supported in 2015, including embedded energy managers who work with an individual industrial, commercial or institutional customer, and roving energy managers who serve multiple large customers in a defined geographic area.

Building Capability Through Training and Accreditation

The IESO also provided support to eligible electricity customers and channel partners through incentives to achieve various forms of accreditation. Supporting accreditation achieves two key objectives. First, it builds the quality and credibility of trained professionals engaged in energy efficiency related work. Second, accreditation helps to professionalize energy-efficiency-related work. Together, these give customers, their channels, and LDCs added assurance about the energy efficiency services they are provided. From 2011-2015, nearly 6,000 individuals participated in training programs incented or offered by the IESO.

2015

- **Building Operator Certification:**
  67 Individuals trained on connecting operation and maintenance activity to energy consumption
- **HVAC Installation Optimization:**
  172 Contractors and installers trained on increasing the quality of HVAC installations and maintenance
- **Energy Management Training:**
  35 practitioners trained in the building energy management field
- **Certified Measurement & Verification Professional Training:**
  51 individuals trained on the practice of energy efficiency measurement and verification
- **Certified Energy Manager Training:**
  139 Energy Management professionals trained on energy management practices
- **Commissioning Agent Training:**
  15 energy management professionals trained on implementing and managing the whole building commissioning process in new and existing buildings
- **Low-Rise Residential Builder and Construction Trades Training**
- **Compressed Air Challenge – Compressed Air Training**
- **Dollars to $ense Energy Management Workshops**

Extending the Conservation Sales Force Through Channel Engagement

The IESO continued to build the market's capability in 2015 by providing support to the many delivery channels that influence customer decision-making. Contractors, equipment distributors and retailers all play significant roles in influencing the purchasing decisions of their customers. Channels therefore make strong allies when it comes to driving Ontario's adoption of energy efficiency. The capability of delivery channels that provide lighting products and services in Ontario, for example, is very high. They know the value of energy efficiency and are strong promoters of Save on Energy programs.

The IESO's efforts in 2015 focussed on technologies with significant savings potential, such as variable frequency drives, and compressed air, and the channels involved in their manufacture and distribution. Activities included increasing awareness of Save on Energy incentives, training, supporting LDCs in their channel-partner relationships, and speaking at channel-related events.

For example, in April 2015, 27 representatives from compressed air suppliers from across Ontario attended a three-day compressed air certification program which was very well received and enhanced the participants' abilities to conduct compressed air audits eligible for the Audit Funding program.

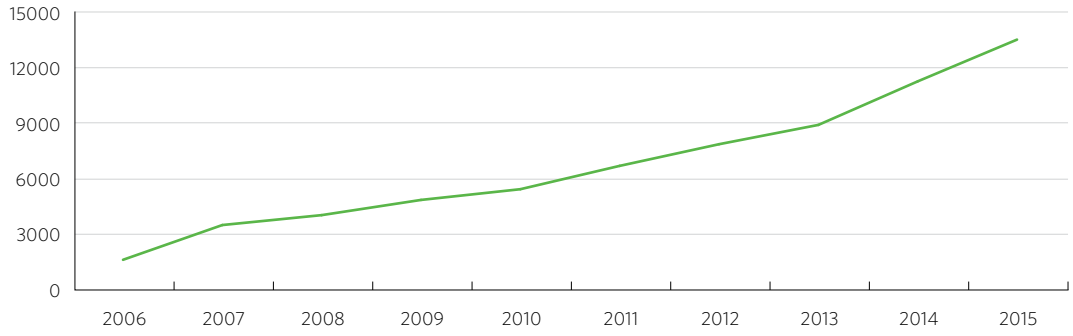
The IESO continued to build the market's capability in 2015 by providing support to the many delivery channels that influence customer decision-making.

Conservation Programs Savings to Long-Term Energy Plan Target

Savings from the CFF contribute to the overall energy and demand savings for the province's energy target set out in the Long-Term Energy Plan (LTEP). The 2013 LTEP includes a conservation target of 30 TWh in reduced electricity consumption by 2032.

Savings Net Persisting Energy Savings at the Generator Level (GWh)

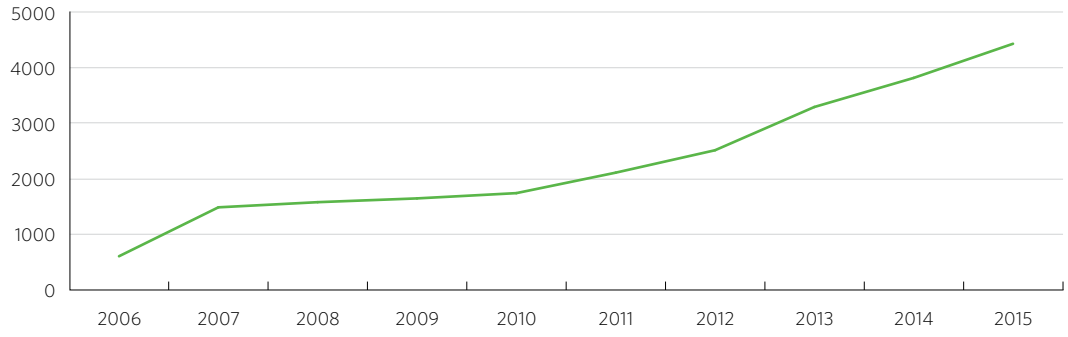
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Energy Efficiency	1,621	3,501	4,037	4,770	5,291	6,631	7,784	8,832	11,271	13,523
Demand Response	0	0	1	89	148	71	88	84	0	7
Total	**1,621**	**3,501**	**4,037**	**4,859**	**5,439**	**6,701**	**7,872**	**8,916**	**11,271**	**13,530**



In addition to program savings delivered by the IESO and LDCs, savings from Codes and Standards and activities undertaken by other organizations in Ontario which result in electricity savings also contribute towards the long-term 30 TWh target.

Savings Net Persisting Peak Demand Savings at the Generator Level (MW)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Energy Efficiency	289	780	905	1,010	1,201	1,569	1,613	1,830	2,292	2,567
Demand Response	319	710	678	641	545	546	906	1,469	1,530	1,872
Total	**608**	**1,490**	**1,583**	**1,651**	**1,746**	**2,115**	**2,519**	**3,299**	**3,823**	**4,439**



Appendix

Codes and Standards

Codes and standards are a powerful, cost-effective tool for achieving energy savings and for building a culture of conservation in Ontario. All savings from codes and standards are allocated towards achievement of the provincial conservation target. Several changes to codes and standards occurred in 2015.

Ontario Energy-Efficiency Regulation

Ontario's Energy-Efficiency Regulation is amended regularly to update efficiency requirements and/or test methods for a wide range of products. In December 2015, following a public review period, the Ontario government amended the province's Energy Efficiency Regulation to include new or enhanced minimum efficiency standards for 18 products, such as commercial refrigeration equipment, commercial gas boilers, water chillers, furnace fans, geothermal heat pumps and air conditioners. Based on available energy data from the United States Department of Energy and a third party study, this amendment is estimated to save 2.2 TWh/year of electricity in 2032, equivalent to taking 226,000 homes off the grid. It is also estimated to save 9.7 petajoule/year of natural gas and oil in 2032, equivalent to the total energy consumption of 118,000 homes. This amendment came into effect on January 1, 2016.

In 2015, the Ministry of Energy proposed legislative amendments to the Green Energy Act, 2009 to enable regulating the water efficiency of products and appliances that consume both energy and water.

In 2015, the IESO, in collaboration with the Ministry of Energy, commissioned a study to assess electricity savings from product standards (according to the Energy-Efficiency Regulation) in Ontario. The study was completed in January 2016 and included:

- Best-practice recommendations to update the IESO's 2013 standards analysis methodology, and;
- Electricity savings estimates for selected 40 products (35 residential and 5 commercial) regulated in Ontario with compliance dates between January 1, 2013 and January 1, 2018 as well as for potential future standards for these products beyond 2018 to 2035.

Ontario Building Code 2012

While there were no changes in 2015, Ontario's 2012 Building Code came into effect on January 1, 2014, with certain energy efficiency related provisions becoming effective on January 1, 2014, 2015 and 2017. A brief overview of the over 700 changes is available online. The building code is a forward-looking document, updated approximately every five years, and an important policy tool in implementing key priorities of the Ontario government.

By January 1, 2017, the new building code will require commercial buildings to be 13 percent more energy efficient and houses to be 15 percent more energy efficient than if built to the standards in the 2006 building code. Taking a longer-term perspective, by adhering to the new edition of the building code, new houses will consume only 50 percent of the energy consumed by houses built according to pre-2006 building codes, and large buildings will consume only 65 percent of pre-2006 level buildings.

Ontario is the first jurisdiction in Canada to include limiting greenhouse gas emissions and peak demand on the energy infrastructure as formal sub-objectives in its building code. Together with the increased energy-efficiency requirements of the code, these changes demonstrate Ontario's continuing leadership among its North American peers in making efficient energy performance integral to its building code.

National Energy Code of Canada for Buildings 2015

In 2015, National Research Council Canada published the National Energy Code of Canada for Buildings 2015 (NECB 2015). The NECB 2015 was developed by the Canadian Commission on Building and Fire Codes in collaboration with Natural Resources Canada, which sets out technical requirements for the energy efficient design and construction of new buildings. The NECB 2015 includes over ninety changes improving the overall energy performance of buildings over the NECB 2011 edition.

Other Influenced Conservation

Other-Influenced conservation is the result of conservation activity by organizations and programs not funded through the IESO that result in electricity savings. The IESO has not performed a formal evaluation of this data. The numbers and level of accuracy will vary with each organization's evaluation methodology.

2015 Other Influenced Conservation

	Energy Savings (GWh)	Demand Savings (MW)
Federal Government*	84	25
Gas Utilities	35	11
Industrial Conservation Initiative**	6	1,103
Capacity Based Demand Response Program	0	526

* Includes the estimated impacts in Ontario in 2015 of activities such as energy-efficiency training in the buildings sector (Dollars to $ense training), ENERGY STAR Portfolio Manager Benchmarking tool; impacts from programming in the industrial sector, including training and the Canadian Industry Program for Energy Conservation; ENERGY STAR and R-2000 home labelling. It does not include code impacts.

** Formerly referred to the Global Adjustment Mechanism (GAM) High-5, the components of the Global Adjustment and the allocation methodology are set out in Ontario Regulation 429/04 (Adjustments under Section 25.33 of the Act) made under the Electricity Act, 1998.

Cost-Effectiveness Tests

Component	Program Administrator Cost (PAC) Test	Total Resource Cost (TRC) Test
Energy Avoided Costs	Benefit	Benefit
Additional Resource Savings	–	Benefit
Incremental Participant Costs	–	Cost
Program Administration Costs	Cost	Cost
Incentive Payments	Cost	–
Bill Savings	–	–

Total Resource Cost Test Calculation

TRC Test Net Benefit ($) = PV avoided supply cost – (PV incremental equipment cost + PV program cost)

Or (to determine net benefit as a ratio):
TRC test (ratio) = PV avoided supply cost / (PV incremental equipment cost + PV program cost)

Incentive costs are not included in the determination of the total resource cost test net benefit because incentives are a transfer of funds from the program-sponsoring organization to participating customers and, consequently, do not directly enhance the aggregate net benefit from a societal perspective.

Program Administrator Cost Test Calculation

PAC test net benefit ($) = PV avoided supply cost – (PV incentive cost + PV program cost)

Or (to determine net benefit as a ratio):
PAC test (ratio) = PV avoided supply cost / (PV incentive cost + PV program cost)

Levelized Unit Electricity Cost

LUEC ($/MWh) = PV (incentive cost + program cost) / PV lifetime MWh savings

2015 Cost Effectiveness Ratio

	TRC	PAC	LUEC
Residential Sector Programs	**3.59**	**2.20**	**36.27**
Coupons Program	11.21	2.39	23.48
Heating & Cooling Incentive	1.80	2.17	63.17
New Home Construction Program	1.26	1.88	42.12
Fridge & Freezer Pick-up Program	0.52	0.49	109.36
Business Sector & Industrial Programs	**1.00**	**1.95**	**33.56**
Retrofit Program	1.04	2.68	24.30
Small Business Lighting Program	0.77	0.70	106.45
High Performance New C onstruction Program	2.27	2.51	36.73
Existing Building Commissioning Program	0.21	0.18	360.40
Process and Systems Upgrade Program	0.85	1.20	52.51
Industrial Accelerator Program	0.80	1.26	47.14
Educational, Aboriginal, & Low-Income Programs	**0.81**	**1.07**	**69.70**
Home Assistance Program	1.01	0.88	88.71
Aboriginal Conservation Program	0.86	0.75	105.28
Audit Funding Program	1.07	1.50	37.23
Energy Manager Program	0.72	1.52	47.01
Monitoring & Targeting Program	0.08	0.08	482.49

Province-wide Programs

SAVE ON ENERGY

Province-wide programs are delivered through LDCs under the Save on Energy banner and span across all sectors. These programs offer a variety of incentives for energy-efficient upgrades and purchases. More information on Save on Energy and these programs can be found at saveonenergy.ca.

Residential Sector Programs

Coupons: Offers in-store and online coupons to help customers save on a wide range of energy-efficient products

- The Coupon program has been enhanced to include more energy-efficient products and with new more cost-effective coupon values introduced in 2016

Heating and Cooling Program: Offers incentives for homeowners to improve the overall efficiency of their HVAC systems

New Home Construction: Encourages new home builders to build energy-efficient homes that provide home buyers with the benefits of increased comfort and energy-efficient features

Fridge and Freezer Pick-up Program: Facilitates the removal of older, inefficient appliances including secondary refrigerators, freezers, window AC units and portable dehumidifiers.

- This program was discontinued on December 31, 2015

Business Sector Programs

Retrofit: Offers commercial businesses incentives to help with upfront costs of purchasing energy-efficient equipment to improve the overall efficiency of buildings

- The Retrofit program was enhanced by offering new incentive rates and simplifying the application process

Small Business Lighting: Qualifying businesses receive incentives for energy-efficient lighting upgrades.

- The Small Business Lighting program was re-designed to broaden participation by enhancing the participation criteria

High Performance New Construction: Provides design assistance and incentives for building owners and planners who design and implement energy-efficient equipment in their new spaces

Existing Building Commissioning: Funding is available for hiring an expert to analyze the chilled water system in buildings and to make recommendations for increasing its energy efficiency

Process and Systems: Helps organizations with complex systems and processes to identify, implement and validate energy-efficiency projects from start to finish

Educational, Low-Income, and Pilot Programs

Home Assistance Program (Low-Income): Helps qualified homeowners, tenants and social and/or assisted housing providers improve the energy efficiency of their homes

- Program has been updated to include new measures and a strengthened customer education component was introduced for 2016

Aboriginal Conservation Program

- This program was completed in 2015 after providing energy conservation measures to 45 First Nations communities. LDCs are now delivering local programs to help meet the needs of First Nation and Métis communities

Audit Funding: Offers customers incentives to complete energy audits that assess the potential for energy savings through equipment replacement, operational practices, or participation in demand response initiatives

Energy Managers: Energy managers help companies take control of their energy usage by identifying various options for saving energy in facilities

- The Energy Managers Program introduced two new streams for participation and was opened up to multi-site industrial customers

Monitoring and Targeting: Provides facilities with historical energy consumption performance data to analyze and set energy targets

LDC Local Programs – Approved in 2015

LDC Program Name	Description
Horizon Utilities Home Energy Report	Behavioural program to stimulate residential customers to reduce their electricity use by providing them with insights on the current electrical usage in their home.
Hydro One Home Energy Report	Behavioural program to stimulate residential customers to reduce their electricity use by providing them with insights on the current electrical usage in their home.
PowerStream Home Energy Report	Behavioural program to stimulate residential customers to reduce their electricity use by providing them with insights on the current electrical usage at their home.
PowerStream and Collus Business Refrigeration	Funding provided for free facility audits and refrigeration equipment upgrades to non-residential customers that have commercial product refrigeration.
Hydro One First Nation Conservation Program	Helps qualified on-reserve First Nation customers improve the energy efficiency of their homes and manage their energy use more effectively. In-home energy assessment where participants are also provided with education on home energy management, electricity and natural gas conservation behaviour, time-of-use rates and the new energy-efficiency equipment they receive.

LDC Pilot Programs – Approved in 2015

LDC Pilot Name	Description
Niagara Peninsula Energy Inc. Hotel/Motel	Engagement with hotel/motel sector; to present case for conservation and energy efficiency to drive program uptake in sector.
Canadian Niagara Power/Algoma Power Residential Direct Mail	Provide residential customers with customized Energy Savings Kits to help reduce energy consumption and lower utility bills.
Westario Residential Direct Install	Provide residential customers with free home energy audit, recommendations and direct installation to increase awareness of and help reduce household energy consumption
Toronto Hydro Electric System Limited Joint Low-Income	Toronto Hydro and Enbridge Gas to deliver low-income Home Assistance Program and low-income Home Winterization Program in order to validate cost savings and feasibility of joint procurement of programs.
Horizon Utilities ECM Furnace Fan Residential Upstream	Test upstream sales points and incentive levels required to encourage electronically commutated motors (ECM) fan retrofits as end-of-life replacements and retrofit upgrades for permanent split capacitor (PSC) fans on existing home furnaces.
Hydro One Smart Thermostat Dynamic Electricity Pricing (Residential)	Measure the impact of Energate thermostats with various dynamic rate structures using instantaneous kWh feedback to reduce energy consumption and costs.
Hydro One Heat Pump	Piloting incentives for residential customers to install air source heat pumps to remove need for residential electric space heating.
Hydro One Heat Pump Water Heater	Promoting the use of air-source heat pump water heaters in residential homes in order to provide savings on electricity consumption.
CustomerFirst Home Energy Assessment and Retrofit	Piloting assessor to visit customers to provide a report outlining different options to conserve energy in electrically heated homes.
EnWin Utilities Ltd. Residential Ductless Heat Pump Pilot	EnWin to pilot incentives and financing options for supply and installation of ductless heat pump (DHP) as air source.


ieso
Connecting Today.
Powering Tomorrow.


SAVE ON ENERGY
POWER WHAT'S NEXT

BOMA INTERROGATORY 8

Issues 1.1, 5.1

INTERROGATORY

Reference: CPM, Business Plan #10

What are the "priority change initiatives"? Please describe each one in reasonable detail. When will each one of these initiatives be achieved and at what costs? What are the milestones?

RESPONSE

The IESO's capital expenditure budget for fiscal year 2017 provides an envelope to complete the 2017 "prioritized projects". The IESO continues to have an ongoing need for reprioritization of initiatives it undertakes and, accordingly, the business planning process is not used as a mechanism for capital project approval. Rather, through business planning, an appropriate capital envelope is established for future years, with capital commitments approved individually on an ongoing basis. The IESO project team is working towards priority project completion and anticipates that milestones for priority projects will be met.

Please refer to pages 29 to 31 of Exhibit A-2-2 for descriptions of each of the priority initiatives. The following table provides timing and cost information on priority projects.

Prioritized Projects Title	2017 Plan Original Budget ($ millions)	Completion timeline	Does project extend beyond 2017
Market Information System (MIS) Refresh Project	2.0	Q1-2018	Yes
Identity Access Management Program	2.1	Q4-2018	Yes
FIT & micro-FIT Tool Redevelopment and Integration Project	1.0	Q4-2019	Yes
Enterprise Cyber Security Management Refresh Project (Advanced Malware Technology)	2.0	Q4-2017	No
Conservation Demand Management Information System (CDM IS)	1.0	Q3-2019	Yes
Corporate Website including consolidation* and enhancement to Save on Energy	1.5	Q2-2019	Yes
Wallboard Refresh Project	1.0	Q3-2018	Yes
Operations Readiness Initiatives	2.5	Q4-2018	Yes

Consolidation of website project is in-service and closed successfully.

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BOMA INTERROGATORY 9

Issue 1.1

INTERROGATORY

Reference: Application Letter/Business Plan

Please provide:

a) The original IESO letter to the Minister of Energy, requesting approval of the Business Plan.

b) The initial response of the Minister to the letter, including any requests to modify the Business Plan. A copy of the Minister's letter to the IESO of December 8, 2016.

c) Any revisions to the Business Plan made as a result of feedback from the Minister in his letter of December 8, 2016.

d) What does IESO plan to do to establish a sensible schedule for timely review of its Business Plans by the Minister and the OEB review of its expenditure and revenue requirement? Please discuss fully.

RESPONSE

(a) through (c) The original IESO letter to the Minister of Energy, requesting approval of the Business Plan, the Minister's response to the letter, and any revisions to business plan submitted to the Minister are not relevant to this proceeding as the IESO's 2017 revenue requirement submission, currently before the Board, is based on the business plan approved by the Minister on March 21, 2017.

(d) Section 24 and 25 of the *Electricity Act, 1998* sets out that the schedule for the IESO to submit a business plan to the Minister and, if approved by the Minister, to submit its proposed expenditure and revenue requirements for the fiscal year and the fees to the OEB. The *Electricity Act, 1998* also sets out that the IESO can only submit its proposed expenditure and revenue requirements for the fiscal year and the fees it proposes to the OEB after the Minister has approved the Business Plan. The IESO has been, is and will continue to be compliant with the requirements of the *Electricity Act, 1998*.

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BOMA INTERROGATORY 17

Issues 1.1, 1.3, 5.1

INTERROGATORY

Reference: Business Plan, p22

a) Please provide the basis, using 2016 as an example, for the calculation of the CDM portfolio costs target of under four cents per kwh. Where does the target originate, and what is the rationale for that number? Please show the actual calculation to determine whether the four cents per kwh is met. Please provide the three-year target for the average costs of the CDM portfolio.

b) Please provide a copy of the Elenchus Proposal to the IESO, and the IESO Terms of Reference.

RESPONSE

a) Within $0.04 / kWh is not a target, rather it is the performance level that has been consistently achieved by the conservation portfolio over a number of years. Within $0.04 / kWh is the levelized cost of delivery, which reflects the acquisition costs of conservation investments divided by lifetime savings of the conservation measures. This calculation is described on page 38 the IESO's CDM Cost Effectiveness Guide and is shown below:

PTC = Participant Costs

5.6 Levelized Delivery Cost (LC)

Components	
Benefits (B)	**Costs (C)**
• NPV of impacts (peak demand or energy savings) (net, generator level)	• Incentive Costs (gross) • Program Costs (gross)

The LC metric is calculated differently than the other metrics. The equation and components used to calculate the LC metric is specified below:

$$LC\ Metric = \frac{(IC + PRC)}{NI}$$

Where:

IC = Incentive costs

PRC = Program costs

NI = NPV of impacts (peak demand or energy savings)

The 2016 average cost per kW of the demand savings achieved are currently not available. These figures will be made available in the 2016 IESO Annual Conservation Report that will be published by 2016 Q3.

b) The Elenchus proposal and the IESO Terms of Reference are provided as Attachments 1 and 2, respectively.

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IESO Scorecard Development

IESO RFP 104

Technical Submission

A Proposal Prepared by
Elenchus Research Associates Inc.

21 December 2016

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Table of Contents

Appendices (provided as separate PDF files):

1 KEY FEATURES OF PROPOSAL

Elenchus Research Associates is submitting this proposal in response to IESO RFP #104 seeking expertise in respect of a scorecard tool that the IESO can use to assist the Board, intervenors and interested parties with evaluating the IESO's proposed expenditures and revenue requirement as set out in future fees applications.

Elenchus is proposing a project plan that is designed to realize the core objectives of the project in a focused and cost-effective manner. An important element of cost-effectiveness in this case is that the recommended IESO Regulatory Scorecard must not only reflect the priorities of management but it must also address the mandate, concerns and objectives of the Ontario Energy Board (OEB) with respect to the IESO, while also reflecting the concerns of other stakeholders.

John Todd will serve as project lead and the primary consultant, with Chris Hatley and Ian Innis providing focused support in areas where they have complementary expertise. Supporting research will be provided by Shuo Zhang. John combines a solid understanding of the corporate structure and functions of the IESO with comprehensive experience with all aspects of the Ontario electricity market, OEB regulation and the diverse stakeholders who will have an interest in the performance measures that will be included in the recommended IESO Regulatory Scorecard. Chris has specific expertise in the development and use of scorecards; Ian brings significant experience in the technical implementation of OEB scorecard performance measures, including the approach the OEB has taken to auditing the scorecards of distributors.

Elenchus notes that the IESO's Regulatory Scorecard will be related to, but distinct from, its existing internal scorecard. Developing a scorecard specifically for regulatory purposes has implications for both the process used in developing it and for the actual performance measures that it will contain. In particular, IESO's Regulatory Scorecard should include measures that are relevant not only to the IESO's roles and responsibilities, but also to the OEB's mandate with respect to the IESO.

The following sections contain the experience, skills and qualifications of the project team, Elenchus' understanding of the deliverables and the proposed project plan.

2 EXPERIENCE, SKILLS AND QUALIFICATIONS

2.1 ELENCHUS ORGANIZATIONAL STRUCTURE AND HISTORY

Elenchus provides comprehensive policy and regulatory support to many gas and electric distributors, other industry players, customer groups and regulators across Canada. In the past years, Elenchus has assisted distributors in approximately 40 rate applications and provided over 50 special studies ranging from load forecasts to cost allocation studies in Ontario alone. John has been engaged to advise and/or provide expert evidence in more than 250 proceedings, the majority being natural gas and electricity rate setting processes.

Elenchus' client list includes major electric utilities across Canada and a majority of the Ontario electricity distributors. In addition, several regulators have retained the Elenchus team with John Todd as the project lead. Recent retainers have been with the Régie de l'énergie, the Manitoba Public Utilities Board, the Alberta Utilities Commission and the Ontario Energy Board (OEB).

Elenchus has also been retained by regulatory and industry associations, including the Canadian Association of Members of Public Utility Tribunals (CAMPUT), the Ontario Energy Association (OEA), the Electricity Distributors Association (EDA), the Association of Power Producers of Ontario (APPrO). The firm's non-utility clients for regulatory proceedings include several Ontario generators, as well as intervenors such as the Power Workers Union (PWU), the Newfoundland Consumer Advocate, municipalities and the Low-Income Energy Network (LIEN). Members of the Elenchus team also have extensive experience acting as advisors and experts for public interest intervenors. As a result, Elenchus is uniquely positioned to appreciate the concerns of the many diverse stakeholders that are engaged in regulatory proceedings.

A division of Elenchus, Canadian Facilitation Service (currently John Todd and Marie Rounding) facilitates Alternate Dispute Resolution processes for the Ontario Energy Board. Another division of Elenchus, the Canadian Energy Regulation Information Service (CERISE) monitors regulatory events across Canada and internationally (Ofgem and FERC) and produces daily coverage of these developments.

The structure of Elenchus reflects a unique approach that combines diversity and depth in one organization by bringing together individuals with extensive expertise developed through working with stakeholders on all sides of the industry. As a result, Elenchus is uniquely qualified to provide balance in understanding the interests of stakeholders.

Additional information on Elenchus and the Elenchus team is available at www.elenchus.ca.

2.2 CONSULTANTS ON THE ELENCHUS TEAM FOR THIS PROJECT

2.2.1 JOHN TODD

John Todd, who founded Elenchus in 1980, has specialized in the theory and practice of regulation for 40 years.

As detailed in John's full curriculum vitae (Appendix 1), he has served as an expert advisor and/or witness in over 250 regulatory proceedings before the provincial energy regulators in British Columbia, Alberta, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia and Newfoundland, other federal tribunals and the courts in several jurisdictions. He prepared expert evidence for roughly one-half of these proceedings.

John has advised and prepared evidence on behalf of a wide range of stakeholders. While the focus has been on supporting utilities since 2000, his clients were primarily customer groups throughout the 1990's. John has also been retained by four regulators (OEB, Régie de l'énergie, Manitoba Public Utilities Board and the Alberta Utilities Commission), as well as the IESO and numerous commercial interests.

John has worked with senior managers and the boards of directors of Ontario LDCs in helping them appreciate the expectations of the OEB with respect to the scorecard that has evolved as part of the OEB's Renewed Regulatory Framework.

2.2.2 IAN INNIS

Ian has over 35 years' experience in the electricity industry in Ontario. He has been at Elenchus since August 2012 after a career that started in 1980, when he joined Ontario Hydro. His curriculum vitae is provided in Appendix 2.

Ian is a professional accountant with extensive experience in electrical utility regulation, business planning, budgeting, reporting, internal control and project management. Ian has solid interpersonal, organizational and analytical skills and is a proven team player. Ian has been involved throughout the development of electricity regulation in Ontario since the establishment of OPG, Hydro One and the IESO. He understands regulatory requirements and teaches regulatory courses to industry professionals. Ian has prepared extensive evidence and has successfully defended such evidence through testimony before the OEB. Recently he has helped clients in meeting regulatory filing requirements and developing processes that support Scorecard measures and meet OEB audit requirements.

2.2.3 CHRIS HATLEY

Chris joined Elenchus as a Principal in 2011. His curriculum vitae is provided in Appendix 3. With over 30 years as a Chartered Professional Accountant and Certified HR Leader, he advises leaders on strategic change. Chris works with company boards and management to understand and strategically plan for the changing business and regulatory environment. That includes the OEB's Renewed Regulatory Framework, with a focus on the OEB mandated Scorecard and how it defines and measures performance of regulated entities. His projects with electricity utilities of various sizes have included integrated regulatory and business strategic planning to address OEB Scorecard expectations, corporate scorecards, strategies for productivity and continuous improvement, performance management, succession planning, knowledge transfer and variable incentive pay. Chris has also worked with a provincial regulator to review its regulatory performance measures and benchmarking.

Previously, as the PwC Canada National Leader of Talent Management, Learning and Development, Chris gained significant leadership experience with many successful performance improvement implementations, including the development and implementation of a firm-wide scorecard to communicate, measure, and drive change and goal achievement at the individual, service line, and firm-wide level.

2.3 SPECIFIC KNOWLEDGE, SKILLS, EXPERTISE AND EXPERIENCE

This section provides a detailed description of the qualifications of each member of the proposed project team in relation to each of the areas of experience listed under the second bullet in section 3.1 of the RFP.

2.3.1 EXPERIENCE IN DEVELOPMENT OF SCORECARDS

This section highlights the relevant experience of the Elenchus team members related to the development of scorecards. Chris, John and Ian have each dealt extensively with the existing OEB Scorecard for electricity distributors through:

- Development and delivery of the MEARIE Regulatory Specialist Certificate Course which includes training related to the OEB's filing requirements related to the OEB Scorecard;
- Assisting distributors in the preparation of their regulatory filings;
- In-house training of LDC management on OEB regulatory requirements;
- Strategic planning sessions for boards of directors and senior management of distributors that includes discussion of strategic issues related to OEB Scorecard preparation; and
- Assisting the staff of LDCs during OEB audits of their OEB Scorecard input data.

Prior to joining Elenchus, Chris Hatley was involved in the development of PwC Canada's firm-wide scorecard.

CHRIS HATLEY

Since the OEB's implementation of the Renewed Regulatory Framework, Chris has helped numerous Ontario electricity utilities to understand and strategically plan for the OEB mandated Scorecard and the broader implications of the OEB's changing approach to defining and measuring the performance of electricity utilities. For example, within the last year, he has been the Elenchus leader on the significant strategic planning assignments for Niagara Peninsula Energy Inc. ("NPEI") and the EnWin group of companies ("EnWin"). In both of those assignments, Chris led the facilitation of the strategic planning process with the client Senior Management and Board Members.

That process directly integrated the OEB Scorecard measures and expectations into the business strategy and development of corporate measures to support both the regulatory and business strategic goals.

Previously, in Chris' leadership role within PwC Canada, he was part of the team that developed and implemented the firm-wide scorecard. That included the design of the scorecard approach, measures, communications, ongoing enhancements and integration of the scorecard into a broader change management plan to support goal achievement at the individual, management, service line, and firm-wide level.

Chris' combination of decades of experience as a CPA and Certified HR Leader allows him to provide his clients with expertise on both the technical and change management challenges of successfully designing and implementing meaningful performance measures and scorecards.

IAN INNIS

Ian has extensive knowledge of OEB Reporting and Recordkeeping Requirements (RRR) which form the basis of many of the Scorecard measures. Ian has been involved in establishing and documenting processes to capture required information and in the submission of such information to the OEB. He has been requested by clients to provide advice with respect to the interpretation of Scorecard measures and has developed controls and process documentation to support the audit of reported measures. Ian understands the challenges in coordinating, consolidating and documenting scorecard results that accurately reflect the operation of the business and that meet OEB definitions and requirements. He has successfully worked with clients to address such issues.

JOHN TODD

John has collaborated with Chris, Ian and other Elenchus consultants and associates in developing and delivering the OEB scorecard related material for MEARIE training courses and for in-house strategic and training sessions for senior management teams and boards of directors of electricity distributors.

2.3.2 EXPERIENCE IN FACILITATING GROUP MEETINGS WITH PARTIES WITH POTENTIALLY CONFLICTING PRIORITIES OR INTERESTS

This section highlights the relevant experience of the Elenchus team members related to the facilitation of stakeholder processes. John, in particular, has significant experience in facilitating stakeholder processes with parties that have conflicting interests, including formal OEB settlement processes and informal processes for regulated utilities (i.e., processes undertaken before filing an application in order to build consensus around the final proposals and to streamline the regulatory process). John, Chris and Ian have also been engaged to facilitate corporate strategic planning processes, working groups and other processes that involve parties or individuals with aligned interests but conflicting priorities.

JOHN TODD

John has been retained as an expert facilitator (i.e., offering a combination of relevant subject matter expertise as well as facilitation expertise) by several organizations including the Ontario Energy Board, Ontario Power Generation, New Brunswick Power and several Ontario LDCs. John is a member of the latest Elenchus team (offering services under the style name Canadian Facilitation Services) that has been included in the Vendor of Record list for providing facilitation services to the OEB for its Alternate Dispute Resolution Processes commencing in 2017.

For New Brunswick Power, John has worked with the company to establish a Stakeholder Engagement Process that he facilitates. The process was used to streamline the regulatory process for a major review of the company's Class Cost Allocation Study methodology, the first phase of which addressed five studies that the NB Energy and Utilities Board had directed the company to undertake. The hearing on these issues efficiently addressed the studies by enabling parties to fully understand the complex cost allocation issues through informal technical discussions. The hearing before the Board focussed on the few issues where the interests of parties were inherently incompatible. The legislative constraints on the Public Intervenor in NB, precludes negotiated settlements; hence, the final resolution of these issues could not be addressed by trading-offs involving the multiple disputed issues.

John's facilitation work includes many assignments that have not encompassed parties with conflicting interests, although their priorities have often differed, such as board of directors and management strategic retreats, regulatory team planning processes, the development of collaborative or integrated operational activities (e.g., the formation of Cornerstone Hydro Electric Concepts, CHEC, as a corporate entity and preparation of collaborative submissions for the Coalition of Large Distributors).

CHRIS HATLEY

Facilitating group meetings is a major part of Chris' consulting services to Ontario utilities. As noted above, he was the lead facilitator for the recent corporate-wide strategic planning processes for NPEI and EnWin. In addition, Chris' HR leadership roles with PwC provided him with a broad range and depth of group facilitation and conflict management experience and skills.

IAN INNIS

Throughout his career at Ontario Hydro/Hydro One, Ian led projects and worked collaboratively on cross-functional teams. Ian brought a Finance and Regulatory perspective to the discussion while also having a broad understanding of operational factors and other opinions. He is known as a team player and worked as part of a witness team that had financial and operational objectives. This involved working with colleagues to strategically present issues and defend the Company position.

2.3.3 EXPERIENCE IN PREPARING CLEAR, CONCISE REPORTS TO CLIENTS, ALONG WITH PRESENTATIONS OF RECOMMENDATIONS TO MANAGEMENT

This section highlights the relevant experience of the Elenchus team members related to preparing clear, concise reports to clients, along with presentations of recommendations to management. John, Chris and Ian have each had careers that have been built on their report writing skills. John's work for over 25 years has included extensive experience in preparing expert evidence for regulatory hearings, arbitrations and lawsuits (over 125 appearances). All three proposed consultants have decades of experience in preparing reports and briefing material for senior management of their companies and/or clients that were focused on presenting and explaining the rationale for recommendations to management.

JOHN TODD

Starting in the 1970's when he was a research officer at the Ontario Economic Council (responsible for research on issues related to economic regulation) and continuing throughout his consulting career since establishing Elenchus in 1980, John's primary role has been preparing and/or overseeing the preparation of analytic reports for publication, for filing in hearing processes, and for recommending strategic positions to clients. He was retained as the Research Director for the Commission of Inquiry into Residential Tenancies in the 1980's, was the primary consultant to consumer advocates for telecom and energy regulatory proceedings through the 1990's, and has been retained as a strategic advisor and expert witness for regulated utilities across the country. He has also been retained by four of Canada's provincial regulators to prepare policy reports for generic processes and for internal administrative purposes (e.g., OEB regulatory cost measures). John was the lead consultant for preparing the expert report for the IESO's cost allocation methodology for its 2016 fees filing.

CHRIS HATLEY

Many of Chris' assignments, including NPEI and EnWin as referenced in this proposal, culminate in the presentation of clear, concise reports with recommendations that successfully assist our clients to achieve their project goals. Much of Chris' senior management career over the last 25 years has involved that same process, both with external clients and successfully influencing the decisions of several leadership teams of the PwC National Executive and Partnership Board.

IAN INNIS

Ian has prepared and presented many reports to management of a financial and business operational nature. Recent examples include a report on the implementation of an IT system, a report on business processes and a report in response to an audit of scorecard measures. All these reports were presented to senior company management and recommendations accepted.

2.3.4 Experience in Preparing Written Submissions to Regulators

This section highlights the relevant experience of the Elenchus team members related to preparing written submissions to regulators. As noted above, John has been retained to prepare expert evidence for over 125 proceeding, most of which were before energy regulators. John has appeared before the energy regulators in eight provinces, as well as the Saskatchewan Rate Review Panel and the Canadian Radio-television and Telecommunications Commission (CRTC). He has also appeared as an expert witness before several other regulatory tribunals as well as in a number of arbitrations and court proceedings. Ian has experience in preparing written submissions for the OEB and was a subject matter expert during his years with Hydro One.

John Todd

Most of John's 125 appearances as an expert have been before regulators and have involved evidence on regulatory methodology. He has appeared before the energy regulator in every province, except PEI. He was retained in 2015 by the IESO to prepare evidence on cost allocation for the IESO's 2016 fees filing.

Ian Innis

Ian has written many regulatory exhibits that have been filed with the OEB in a number of Transmission and Distribution cost of service proceedings for Hydro One and for a number of Elenchus clients. Filed written evidence also includes interrogatory responses, responses to undertakings, settlement agreements and written final argument. In addition, he has prepared written evidence for Incentive Regulation Mechanism, Smart Meter recovery and Lost Revenue Adjustment Mechanism submissions to the OEB.

2.3.5 Experience in Appearing Before Regulators as a Witness

This section highlights the relevant experience of the Elenchus team members related to appearing before regulators as a witness. As noted above, John has been retained to prepare expert evidence for over 125 proceeding. He has appeared for cross-examination in virtually all of those cases. Ian primary experience in appearing before regulators was as a subject matter expert during his years with Hydro One.

JOHN TODD

In addition to his 100+ appearances as a witness before regulators, John provides witness training services, including issues identification and strategic preparation as well as traditional witness training on the process, cross-examination techniques, etc. John has developed an extensive Witness Training Manual that he uses in his witness training sessions.

IAN INNIS

Ian has successfully testified as a Company witness for Hydro One in five proceedings before the OEB. The specific proceedings are listed in his curriculum vitae which is in Appendix 2. Ian has also trained Hydro One witnesses and witnesses for Elenchus clients for appearance before the OEB.

2.4 SPECIFIED PRE-EXISTING COMPETENCIES

This section provides a detailed description of the pre-existing competencies of each member of the proposed project team in relation to each of the areas of expert knowledge listed under the third bullet in section 3.1 of the RFP.

2.4.1 EXPERT KNOWLEDGE OF INDEPENDENT SYSTEM OPERATORS/REGIONAL TRANSMISSION OPERATORS OR COMPARABLE ENTITIES

This section highlights the relevant expert knowledge of Independent System Operators /Regional Transmission Operators or Comparable Entities. The most direct knowledge for this project is the insight John gained in developing the cost allocation model for the Elenchus evidence on the IESO's cost allocation methodology. This development of this model required working with the IESO regulatory team and selected managers to gain an understanding of the function of each IESO department. The focus of this work was to determine the extent to which each department's costs could be considered to be "caused" by domestic, export, or both activities. In the final analysis, Elenchus determined that the role of the IESO within the industry is akin to functions of distributors and transmitters that are allocated as Administrative and General (A&G) costs, for which there is a weak causal link to classes of customers.

JOHN TODD

In addition to the specific knowledge of the IESO's departmental structure noted above, John is familiar with regulatory aspects of transmission and system operations as a result of his regulatory work related to integrated electricity utilities. In particular, he has addressed these issues on behalf of intervenors in Hydro Quebec hearings and in his work with NB Power has dealt with issues related to the restructuring of the company in several nuclear and non-nuclear generation entities, as well as separate distribution and system operator entities. John also worked with the NB Government and the company on issues related to the roles and responsibilities of these different entities and appropriate regulatory structures in the context of the propose purchase of NB Power by Hydro Quebec. These issues were again addressed in the regulatory context as a result of the recent re-integration of NB Power.

IAN INNIS

Ian has broad industry knowledge through his work at Ontario Hydro and at one of the successor companies, Hydro One. While at Ontario Hydro he worked in the financial unit that supported and integrated Power System Operation Division financial results. Ian teaches industry courses through the Electricity Distributors Association and provides training on sources of generation, market operations, electricity pricing and settlement processes (including the global adjustment).

2.4.2 EXPERT KNOWLEDGE OF ONTARIO'S ELECTRICITY REGULATORY FRAMEWORK AND THE ROLE OF KEY ENTITIES WITHIN THE SECTOR

This section highlights the relevant expert knowledge of Ontario's electricity regulatory framework and the role of key entities within the sector. All members of the proposed project team have been deeply involved in the evolution of the OEB's Renewed Regulatory Framework for Electricity (RRFE). Relevant activities of the Elenchus team include:

- Assisting numerous distributors in preparing their cost of service (COS) and incentive regulation mechanism (IRM) applications every year since 2006 when formal filing requirements were introduced (before the Renewed Regulatory Framework was introduced);

- The development of software tools (RateMaker and RateFiling) that capture the OEB's filing requirements, including those introduced as part of the RRFE that many Elenchus clients use to assist in preparing their COS filings;
- Developing and delivering several regulatory training courses on behalf of MEARIE (Regulatory Specialist Certificate Course, Regulatory Essentials for LDC Executives and Boards of Directors, Regulatory accounting, etc.);
- Preparing expert evidence addressing specific methodological issues that have arisen under the RRFE;
- Development of an OEB Scorecard Survey to help our clients appreciate their comparative scorecard results and prepare the required Management Discussion and Analysis; and
- Providing in-house training and strategic sessions on the regulatory requirements of the RRFE and implications for their various filing requirements.

CHRIS HATLEY

Since the release of the OEB's Renewed Regulatory Framework in 2012, Chris has led many seminars and courses, and presented at industry conferences, about the changing regulatory and business environment for Ontario utilities. His content is often focused on insights about how the OEB defines and measures the performance of regulated utilities, and practical approaches to address those expectations. For example, Chris co-developed and co-leads the annual MEARIE course: Regulatory Essentials for LDC Executives and Directors. The CEO's of both NPEI and EnWin attended this course and then engaged Elenchus, with Chris as the project leader, to provide significant strategic services relating to the Renewed Regulatory Framework.

IAN INNIS

Through direct involvement in preparing regulatory submissions, meeting filing requirements, advising clients on submissions and teaching regulatory courses, Ian is recognized in the industry as a regulatory expert. He consistently receives the highest evaluation rank in courses taught and clients seek and appreciate his advice with respect to strategically positioning regulatory issues. Ian keeps current with all significant regulatory developments and key OEB decisions in order to appropriately

advise clients. As a result of his extensive industry experience, Ian understands the roles, responsibilities and relationships between electricity industry entities and can clearly articulate such to clients and students in the courses he teaches.

JOHN TODD

John has worked with numerous LDCs through both formal and informal processes to assist them in developing appropriate strategies for addressing regulatory requirements, including those imposed by the RRFE. The primary objective is to develop short-term and long-term regulatory strategies that enhance each client's credibility with the OEB and stakeholders through both formal and informal process, thereby maximizing receptivity to realistic proposals that are made in applications to the OEB.

2.4.3 EXPERT KNOWLEDGE OF GOOD PRACTICES IN DEVELOPING AND IMPLEMENTING SCORECARDS

This section highlights the relevant expert knowledge of good practices in developing and implementing scorecards. All members of the proposed project team have been involved in working with OEB-regulated distributors in the development of their scorecards. Chris Hatley also brings significant experience in the development of scorecards outside of the sector where best practices were developed and implemented long before the OEB Scorecard.

CHRIS HATLEY

As noted above in Experience in Development of Scorecards, Chris has significant scorecard experience, both as a consultant to the regulated energy sector and as senior management within the professional services sector. That includes many years of experience as a leader within PwC responsible for implementing, using and continuously improving the internal scorecard that he helped to develop. As PwC National Leader of Talent, Learning & Development, Chris was responsible for his national department scorecard and for the continuous improvement in the measurement of human capital metrics across all lines of business firm-wide. He brings many years of hands-on experience using and improving scorecards.

IAN INNIS

Ian understands the OEB Reporting and Recordkeeping Requirements and has been involved in the development and evolution of Scorecard measures. He understands the need to clearly document definitions and to have measures that indeed measure the appropriate outcome and drive intended behaviour. While at Hydro One, Ian was responsible for coordinating and submitting performance information to the OEB, and while at Elenchus he has been involved in addressing scorecard audit findings and developing processes, accountabilities and controls that meet OEB audit expectations with respect to the accurate reporting of performance measures.

JOHN TODD

John has been involved with the development and use of performance measures within the electricity and natural gas industries regulatory environment across Canada since first becoming heavily involved in price regulation in the 1990's. Performance measures were important long before the development of the OEB Scorecard. For example, John was the Elenchus lead for a project undertaken in collaboration with First Quartile Consulting (a US based firm specializing in benchmarking studies) for the Canadian Association of Members of Public Utilities Tribunals (CAMPUT) on Benchmarking for Regulatory Purposes. Performance measures have also been a typical component of cost of service filings in jurisdictions across the country that John has been involved in. John has also been retained by two Canadian regulators to assist them in developing their own internal cost of regulation measures, as well as preparing reports on the cost of regulation for both the Ontario Energy Association and the Electricity Distributors Association.

3 UNDERSTANDING THE DELIVERABLES

This section addresses to points identified in section 3.2 of the RFP under the heading Understanding the Deliverables.

3.1 OVERALL APPROACH

The purpose of IESO's Scorecard Development project is to develop a scorecard that is appropriate for purposes of the IESO's Fees Applications to the OEB. This purpose is related to, but distinct from, the purpose of the IESO existing internal scorecard.[1] The specific OEB-related purpose of this IESO regulatory scorecard is important both to the process that is most appropriate to use in developing it and to the actual performance measures that it will contain.

Unlike an internal scorecard that is primarily a management tool, a regulatory scorecard must be considered appropriate by the OEB and ideally is endorsed by stakeholders. As a result, supporting research on best practices is an important step that complements stakeholder engagement in the development of the measures to be included. In addition, it will be important to use the principles and priorities that underpin the OEB's distributor Scorecard as a reference point that can be used in designing the IESO's Scorecard. For example, to the extent feasible, it will be desirable to mirror the four pillars of the OEB Scorecard with relevant pillars for the IESO's regulatory Scorecard.

In addition, IESO's regulatory Scorecard should consist of measures that are relevant not only to the IESO's roles and responsibilities, but also to the OEB's mandate with respect to the IESO. It is notable that the OEB's distributor Scorecard does not include employee safety. While this factor is a very important performance measure for all distributors, the issue of worker safety is the responsibility of other regulatory authorities and is therefore not an OEB regulatory issue. There may be analogous issues that may be important elements of the IESO's internal scorecard that are not relevant for the IESO's regulatory Scorecard to be included in OEB filings.

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[1] IESO 2014 Corporate Performance Measures; November 2013
http://www.ieso.ca/Documents/2014%20Corporate%20Performance%20Measures.pdf

3.2 DESCRIPTION OF SCOPE, SIZE AND COMPLEXITY OF THE DELIVERABLES

Elenchus does not view this project as having a scope, size and complexity that is inconsistent with the aggressive time frame for completing the project. There are three important reference points for developing a scorecard, two of which are already clearly defined: the IESO's existing internal scorecard and the OEB's existing Scorecard.

The third reference point is established best practice for the general development of corporate scorecards, tailored to be relevant to the IESO in its capacity as an OEB regulated government agency. General best practice for scorecards involves well-established principles that have been used by Chris Hatley during his career with PwC. The primary challenge involved in this process will be to tailor general best practice to the specific requirements for the regulation of the IESO's fees. This challenge will be met with a three-pronged approach:

- Analysis conducted by the Elenchus team based on its extensive experience with the OEB's Renewed Regulatory Framework;
- Working closely with the IESO to gain a thorough understanding of the availability of data and business processes to produce meaningful measures of the IESO's performance with respect to clearly defined performance objectives; and
- Facilitated consultation with stakeholders to ensure that the performance measures included in the recommended scorecard encompass performance indicators that reflect the performance issues that are critical to stakeholders.

Elenchus anticipates that the greatest effort, measured in terms of the consulting hours required, will be in relation to the stakeholder consultation process. Working with IESO to ensure that the performance measures included in the recommended scorecard are both relevant and practical will involve the second greatest level of effort. The background research on best practices and the scorecards used by comparable entities will require the least effort.

This project will require the active involvement of IESO management and staff to participate in meetings with Elenchus and to provide supporting information and materials requested. In addition, Elenchus requests that IESO provide a Project Coordinator resource to coordinate the meetings with IESO management and staff and

the meetings with intervenors and interested parties. The proposed project plan time table is dependent on the availability of IESO management and staff to participate within the agreed timelines.

Elenchus understands that it may also be required to assist with additional services, not included in the scope of this proposal, with the IESO's 2017 proposed expenditure and revenue requirement application to the OEB, including advising or assisting the IESO to prepare responses to intervenor comments and/or appearing as a witness representing the IESO before the OEB. Elenchus hourly rates for such incidental additional services are noted in the separate attachment "Pricing for IESO RFP 104 21Dec2016 Elenchus".

3.3 APPROPRIATE EXPERTS ARE PROVIDED AND ENGAGED FOR THIS PROJECT

Elenchus believes that the proposed team has the expertise required to develop appropriate and practical scorecard recommendations that will be supported by the IESO's stakeholders and accepted by the OEB. The team's expertise is set out in detail in Section 2 of this proposal. Each member of the Elenchus team is fully committed to completing this project in a manner that achieves all of its objectives.

As set out in the project plan, as detailed in the following section, it is proposed that the project will be initiated with a kick-off meeting during which the details of the work plan can be modified as considered appropriate by the IESO and Elenchus.

4 PROJECT PLAN

Elenchus is proposing to approach the project through the following tasks:

1. Project kick-off meeting with IESO
2. Develop initial scorecard straw model
3. Facilitate "Feedback Process" meetings with interested parties
4. Draft recommendations
5. Final report to IESO

The following Gantt chart indicates the range of timing by week for each major task throughout the project:

	Process Description	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
		Jan 9 - Jan 13	Jan 16 - Jan 20	Jan 23 - Jan 27	Jan 30 - Feb 3	Feb 6 - Feb 10	Feb 13 - Feb 17	Feb 20 - Feb 24	Feb 27 - Mar 3
1	**Project Kick-Off Meeting with IESO**								
2	**Develop Initial Scorecard Straw**								
2.1	Research								
2.2	Interview IESO Management and Staff								
2.3	Draft Initial Scorecard Straw Model								
2.4	Review Initial Scorecard Straw Model with IESO Management								
3	**Facilitate "Feedback Process" Meetings with Interested Parties**								
4	**Draft Recommendations**								
5	**Present Final Report to IESO**								

This section briefly describes each of these tasks.

4.1 PROJECT KICK-OFF MEETING WITH IESO

Before commencing work on the project, if selected, Elenchus proposes that an in-person kick-off meeting be held with the following objectives.

- Review the project plan in detail and revise it, as appropriate, to ensure that the finalized plan will result in a report that meets the IESO's requirements comprehensively and efficiently.
- Establish details of the external meetings, such as the number of meetings, method to establishing an appropriate approach to grouping stakeholders, and the number and purpose of meetings with each group of stakeholders (e.g., a first meeting to present and discuss the initial scorecard straw model and a second meeting to obtain and discuss further "upon reflection" feedback).

Primary Elenchus resource: John Todd

4.2 DEVELOP INITIAL SCORECARD STRAW MODEL

The task of developing the initial scorecard straw model will involve four sub-tasks, as noted in the Gantt chart above:

- Research
- Interview IESO management and staff
- Draft initial scorecard straw model
- Review initial scorecard straw model with IESO management

4.2.1 RESEARCH

Elenchus will build on its pre-existing knowledge of scorecard best practices by researching the practices in other jurisdictions and in relevant analogous industries to identify relevant insights for developing a scorecard for use by IESO in its regulatory context. This research will emphasize scorecard practices of other system operators.

This research on scorecard best practices will be assessed in the context of the OEB's current scorecard for distributors and relevant comments of stakeholders and the OEB in past submissions and decisions that provide insights into their expectations that should be addressed in developing a proposed IESO scorecard for regulatory purposes. In assessing the expectations of the OEB and interested parties, the Elenchus team will draw on its own extensive experience in OEB regulatory processes. The goal is to develop a scorecard proposal that is deemed to be appropriate within the specific context within which the IESO operates.

Elenchus notes that when an Elenchus team (John Todd and Cynthia Chaplin) prepared a cross-jurisdictional review of incentive regulation for the Régie de l'énergie, the conclusion was that it was not appropriate to identify best practices that are independent of the specific industry structure and regulatory environment within which the regime was to be implemented. For example, different regimes were appropriate in jurisdictions with a single integrated electric utility and in jurisdictions with numerous distribution and transmission entities. Given the different industry structures and different roles and responsibilities of system operators, consideration of the unique circumstances of the IESO is likely to be important in adapting generic best practices to

its circumstances. Equally important will be consideration of consistency with the pre-conceptions that are likely to exist due to the scorecard that the OEB has established under the RRFE for distributors. Similarities and differences with the existing OEB scorecard should be explicitly addressed.

Primary Elenchus resources: Shuo Zhang, with supervision by John Todd (regulatory and system operator issues) and Chris Hatley (best practices).

4.2.2 Interview IESO Management and Staff

Elenchus (John Todd) will conduct interview meetings of IESO management and staff in order to gain full appreciation of the IESO's regulatory and business needs and requirements of the proposed scorecard. In addition, as noted earlier in this proposal, Elenchus (Ian Innis) will work closely with the IESO to gain a thorough understanding of the availability of data and business processes to produce meaningful measures of the IESO's performance with respect to clearly defined performance objectives.

Elenchus will prepare a PowerPoint summary to brief IESO management and staff on the insights gained from this process. This material will be used as the basis for a wrap-up meeting that will be held to discuss further "upon reflection" feedback from the IESO management and staff and ensure that the input is appropriately integrated.

Primary Elenchus resources: John Todd and Ian Innis

4.2.3 Draft Initial Scorecard Straw Model

Elenchus will draft an initial scorecard straw model to be shared with participants in the subsequent feedback process meetings with other interested parties. The straw model will be based on the Elenchus analysis of the research and input provided from IESO management and staff. It will summarize the initial Elenchus recommendations and rationale and form the foundation for the discussion in the feedback process with the other interested parties.

Primary Elenchus resources: John Todd (with all other team members)

4.2.4 REVIEW INITIAL SCORECARD STRAW MODEL WITH IESO MANAGEMENT

The draft initial scorecard straw model will be reviewed with IESO management in advance of it being shared with other interested parties. Elenchus will send the draft straw model in a pre-reading package to IESO management and then Elenchus will facilitate a meeting to seek IESO feedback on the draft. Elenchus will then update the draft straw model, as appropriate, for subsequent sharing in the feedback process meetings with interested parties.

Primary Elenchus resource: John Todd

4.3 FACILITATE "FEEDBACK PROCESS" MEETINGS WITH INTERESTED PARTIES

Elenchus will facilitate “feedback process” meetings with interested parties, including groups of intervenors, to ensure that the performance measures included in the recommended scorecard encompass performance indicators that reflect the performance issues that are critical to stakeholders. The approach taken will be aligned to the “feedback process” outlined in the IESO “Stakeholder Engagement Principles” [2].

The RFP requests the facilitation of “…up to four (4) meetings with groups of intervenors and interested parties…” As noted earlier in this proposal, Elenchus will use the Project Kick-Off Meeting with IESO to establish details of the external meetings, such as the number of meetings, method to establishing an appropriate approach to grouping stakeholders, and the number and purpose of meetings with each group of stakeholders (e.g., a first meeting to present and discuss the initial scorecard straw model and a second meeting to obtain and discuss further “upon reflection” feedback).

During those external meetings, Elenchus will seek the input of the participants on the Elenchus recommendations and rationale included in the draft initial scorecard straw model. Elenchus will then consult with IESO management on the feedback obtained. If necessary, Elenchus will then seek further “upon reflection” feedback from interested parties, as appropriate.

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[2] IESO Stakeholder Engagement Principles, http://www.ieso.ca/imoweb/pubs/consult/se/Stakeholder-Engagement-Principles.pdf

Elenchus will prepare a summary of the key findings from those meetings and incorporate it into the subsequent recommendations to IESO management.

Primary Elenchus resource: John Todd (assisted by other team members)

4.4 DRAFT RECOMMENDATIONS

Elenchus will update the scorecard straw model and materials taking into account the feedback provided by the other interested parties. The ultimate draft recommendations will be based on the Elenchus analysis of the research and input received from all parties throughout the project. That draft will include the recommended scorecard and rationale for the IESO to use to assist the OEB, intervenors and/or interested parties in evaluating the IESO's proposed expenditure and revenue requirements.

Elenchus will facilitate a meeting with IESO staff to review the draft recommendations.

Primary Elenchus resource: John Todd (assisted by other team members)

4.5 FINAL REPORT TO IESO

Elenchus will deliver to the IESO a Final Report, updated as appropriate for the IESO management feedback on the review of the draft recommendations.

Primary Elenchus resource: John Todd (assisted by other team members)

5 ACCEPTANCE OF STANDARD FORM OF AGREEMENT

Elenchus accepts the Standard Form of Agreement attached to the RFP as Appendix E.

Note that the available version of Appendix E was a secured PDF file. It has been included although the words "No changes required" could not be inserted.

6 APPENDICES

Full curriculum vitae of the project team are provided as separate PDF files so that the IESO can easily print the main proposal document on its own, if convenient. The appendix files are labelled as follows:

App 1_CV of John Todd

App 2_ CV of Ian Innis

App 3_CV of Chris Hatley

Additional information on Elenchus and other members of the Elenchus staff that could be made available for this project, at the discretion of the IESO, is available on the Elenchus website: www.elenchus.ca.

REQUEST FOR PROPOSALS

for

IESO Scorecard Development

IESO RFP 104

Date Issued: November 23, 2016

Proposal Submission Deadline: December 21, 2016 ● EDT by 3:00pm

TABLE OF CONTENTS

PART 1– INTRODUCTION

1.1 Invitation to Proponents

This Request for Proposals ("**RFP**") is an invitation by the Independent Electricity System Operator (the "IESO") to prospective Proponents to submit proposals for the provision ofexpertise in respect to the development of a scorecard that will be used as a tool to assist the Ontario Energy Board ("the Board"), intervenors and interested parties to use in evaluating the IESO's proposed expenditure and revenue requirements, as further described in Section 2 of Appendix C - RFP Specifications (the "**Deliverables**"), for a period of [1] year. The IESO may, in its sole discretion, extend the Term of up to one (1) additional one-year period.

1.2 Background - Independent Electricity System Operator (IESO)

The **IESO** works at the heart of Ontario's power system – ensuring there is enough power to meet the province's energy needs in real time while also planning and securing energy for the future. It does this by:

- balancing the supply of and demand for electricity in Ontario and directing its flow across the province's transmission lines;
- planning for the province's medium- and long-term energy needs and securing clean sources of supply to meet those needs;
- overseeing the electricity wholesale market where the market price of electricity is set; and
- fostering the development of a conservation culture in the province through programs such as saveONenergy.

The IESO includes both unionized and non-unionized employees. There are two unions within the IESO, namely, the Power Workers' Union and the Society of Energy Professionals. The Proponent will need to convey their ability to work within this type of environment.

Please see the IESO's website at http://www.ieso.ca for further information.

1.3 RFP Not Binding

This RFP is not intended to create and does not create a formal legally binding bidding process. This RFP does not commit the IESO in any way to select a Successful Proponent, or to proceed to negotiations for an Agreement, or to award any Agreement, and the IESO reserves the complete right to, at any time reject all Proposals, and to terminate this RFP process. This RFP is not intended to create, and should not be construed as creating, contractual relations between the IESO and any Proponent.

1.4 RFP Timetable

The RFP timetable is tentative only and may be changed by the IESO in its sole discretion.

The following is the schedule for this RFP (all times noted in [EDT/EST]):

Issue Date of RFP	November 23, 2016
Proponents' Deadline for Questions	3:00:59 pm on December 5, 2016

Posting of Responses to Questions	December 12, 2016
Deadline for Issuing Addenda	December 12, 2016
Proposal Submission Deadline	3:00:59 pm on December 21, 2016

1.5 IESO Contact

Name : Sheri Bizarro, Procurement Specialist

E-mail : sheri.bizarro@ieso.ca and rfp.info@ieso.ca

1.6 Definitions

Unless otherwise specified in this RFP, capitalized words and phrases have the following meaning in this RFP.

"**Agreement**" means a Standard Form of Agreement between the IESO and a Successful Proponent for the delivery of the Deliverables, as set out in APPENDIX D.

"**Personal Information**" means recorded information about an identifiable individual or that may identify an individual.

"Proponent" means an entity who has submitted a response to this Request for Proposal.

"Proposal" means the entire content of a submission to the IESO by a Proponent in response to this RFP. For clarity, this includes the entirety of the Proponent's Technical Submission, appendices, exhibits or other such content provided for evaluation under this RFP.

"Service Provider" means a Successful Proponent which ultimately executes an Agreement with the IESO.

"**Successful Proponent**" means the Proponent selected by the IESO to enter into negotiations for an Agreement.

"Technical Submission" means the content submitted by a Proponent as outlined in Section 3 of Appendix C, inclusive of all curriculum vitae (if requested), and exclusive of the Rate Form included as Appendix D.

[End of Part 1]

PART 2 –EVALUATION & SELECTION PROCESS

The IESO will conduct the evaluation of the Proposals in the following four stages:

2.1 Stage I – Compliance with Submission Criteria

Stage I of the evaluation process will consist of a review of each Proposal to determine which Proposals comply with the following submission criteria:

i. Registration Form – Each Proposal should include a completed Registration Form (Appendix A) signed by an authorized representative of the Proponent; and
ii. Reference Form – Each Proposal should include a completed Reference Form (Appendix B).
iii. Rate Form – Each Proposal must include a completed Rate Form (Appendix D). Proposals that fail to provide the Rate Form in the format requested may be disqualified from review.
iv. Acceptance of Standard Form of Agreement – Each proposal should include any proposed amendments to the Standard Form of Agreement. If you are unwilling to sign the Agreement in the form attached as Appendix E please include details of any proposed changes in a marked-up version. Proposals that do not contain any proposed amendments will be deemed to have accepted the terms and conditions as provided by the IESO.

Proposals which do not comply with all of the submission criteria, may, subject to the express and implied rights of the IESO, be disqualified and not evaluated further.

2.2 Stage II – General Criteria

Stage II of the evaluation process will consist of evaluating Proposals based on the criteria set out in Section 3 of Appendix C – RFP Specifications.

2.3 Stage III – Short List and Further Evaluation

The IESO may, in its sole and absolute discretion, short list one or more Proponents for further evaluation, including by way of interview, presentation and/or demonstration, and/or request for references. At the conclusion of Stage III, a Successful Proponent or Successful Proponents will, subject to the express and implied rights of the IESO, be selected.

2.4 Stage IV – Negotiation of Agreement(s) and Award

If the IESO selects a Successful Proponent or Successful Proponents, then it may:

(a) enter into an Agreement with the Successful Proponent(s); or

(b) enter into discussions with the Successful Proponent(s) to clarify any outstanding issues and attempt to finalize the terms of the Agreement(s), including financial terms. If discussions are successful, the IESO and the Successful Proponent(s) will finalize the Agreement(s); or

(c) if at any time the IESO reasonably forms the opinion that a mutually acceptable Agreement is not likely to be reached within a reasonable time, give the Successful Proponent(s) written notice to terminate discussions, in which event the IESO may then either open discussions with another Proponent or terminate the RFP and retain or obtain the Deliverables in some other manner.

[End of Part 2]

PART 3- TERMS AND CONDITIONS OF THE RFP PROCESS

3.1 IESO's Information in RFP Only an Estimate

The IESO and its advisors make no representation, warranty or guarantee as to the accuracy of the information contained in this RFP or issued by way of addenda. Any quantities shown or data contained in this RFP or provided by way of addenda are estimates only and are for the sole purpose of indicating to Proponents the general size of the work.

It is the Proponent's responsibility to avail itself of all the necessary information to prepare a Proposal in response to this RFP.

3.2 Proponents Shall Bear Their Own Costs

The Proponent shall bear all costs associated with or incurred in the preparation and presentation of its Proposal including, if applicable, costs incurred for interviews, presentations or demonstrations.

3.3 Communication during the Procurement Process

3.3.1 Proponents to Review RFP

Proponents are advised to examine all of the documents comprising this RFP and:

(a) are requested to report any errors, omissions or ambiguities; and

(b) may direct questions or seek additional information,

in writing by e-mail on or before the Proponents' Deadline for Questions to the IESO Contact. All questions submitted by Proponents by e-mail to the IESO Contact shall be deemed to be received once the e-mail has entered into the IESO Contact's e-mail inbox. No such communications should be directed to anyone other than the IESO Contact.

It is the responsibility of the Proponent to seek clarification from the IESO Contact on any matter it considers to be unclear. The IESO will not be responsible for any misunderstanding on the part of the Proponent concerning this RFP or its process.

The IESO is under no obligation to provide additional information but may do so at its sole discretion.

To ensure consistency and quality of information provided to Proponents, the IESO will collect all enquiries and respond to all enquiries by way of a written response which will be communicated to all

Proponents, either by (a) posting on the IESO website and on any other site on which this RFP was posted, or (b) email or facsimile if the RFP was not posted, on the date specified in the RFP Timetable, without revealing the sources of the inquiries.

3.3.2 All New Information to Proponents by way of Addenda

This RFP will only be amended by an addendum in accordance with this section. If the IESO, for any reason, determines that it is necessary to provide additional information (including responses to questions) relating to this RFP, such information will be communicated to all Proponents by addenda either (a) posted on the IESO website and on any other site on which this RFP was posted, or (b) emailed or transmitted by facsimile if the RFP was not posted, by the date specified in the RFP Timetable.

Each addendum shall form an integral part of this RFP.

Such addenda may contain important information including significant changes to this RFP. Proponents are responsible for obtaining all addenda issued by the IESO.

3.3.3 Post-Deadline Addenda and Extension of Proposal Submission Deadline

If any addendum is issued after the Deadline for Issuing Addenda, the IESO may at its discretion extend the Proposal Submission Deadline for a reasonable amount of time.

3.3.4 Prohibited Proponent Communications

The Proponents shall not engage in any communication which would constitute or create a Conflict of Interest (as defined in Appendix A – Registration Form) and should take note of the Conflict of Interest declaration set out in the Registration Form.

Communication by a Proponent with any IESO representative other than the IESO Contact may result in disqualification of the Proponent's Proposal.

3.3.5 Proponent Not to Communicate With Media

A Proponent should not at any time directly or indirectly communicate with the media in relation to this RFP or any contract awarded pursuant to this RFP without first obtaining the written permission of the IESO Contact.

3.3.6 IESO May Contact Proponent for Clarification

The IESO may contact the Proponent to request clarification (or the submission of supplementary written information in relation thereto) with respect to the Proposal and incorporate a Proponent's response to the request for clarification into the Proponent's Proposal.

3.4 Notification of Outcome and Debriefing

3.4.1 Notification to Proponents of Outcome of Procurement Process

Once the Successful Proponent(s) and the IESO execute the Agreement, the other Proponents will be notified by the IESO in writing of the outcome of the procurement process, including the name(s) of the successful Proponent(s).

3.4.2 Debriefing

Proponents may request a debriefing after receipt of a notification of award. All requests should be in writing to the IESO Contact and should be made within 30 days of receipt by the Proponent of notification of the award of the contract. The intent of the debriefing information session is to aid the Proponent in presenting a better Proposal in subsequent procurement opportunities. Any debriefing provided is not for the purpose of providing an opportunity to challenge the procurement process.'

3.5 Freedom of Information and Protection of Privacy Act

The *Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, c.F.31, as amended, applies to information provided to the IESO by a Proponent. Subject to Section 5.5.4, a Proponent should identify any information in its Proposal or any accompanying documentation which is supplied in confidence and for which confidentiality is to be maintained by the IESO. The confidentiality of such information will be maintained by the IESO, except as otherwise required by law or by order of a court or tribunal. Proponents are advised that their Proposals will, as necessary, be disclosed on a confidential basis, to the IESO's advisers retained for the purpose of evaluating or participating in the evaluation of their Proposals.

By submitting any Personal Information requested in this RFP, Proponents are agreeing to the use of such information as part of the evaluation process, for any audit of this procurement process and for contract management purposes.

3.6 Make Public Proponent Names

The IESO may make public the names of any or all Proponents.

3.7 Acceptance of Non-Compliant Proposals

The IESO may accept Proposals which do not comply with the requirements of this RFP.

3.8 No Incorporation by Reference by Proponent

The entire content of the Proponent's Proposal should be submitted in a fixed form and the content of web sites or other external documents referred to in the Proponent's Proposal will not be considered to form part of its Proposal.

3.9 Proposal to be Retained by the IESO

The IESO will not return the Proposal or any accompanying documentation submitted by a Proponent.

3.10 No Contract

By submitting a Proposal and participating in the process as outlined in this RFP, Proponents expressly agree that no contract or agreement of any kind is formed under, or arises from, this RFP, prior to the signing of a formal written Agreement.

3.11 IESO's Right to Select One or more Successful Proponent(s)

The IESO reserves the right and discretion to divide up the Deliverables, either by scope, geographic area, or other basis as the IESO may decide, and to select one or more Successful Proponents to enter into discussion with the IESO for one or more Agreements to perform a portion or portions of the Deliverables. If the IESO exercises its discretion to divide up the Deliverables, the IESO will do so reasonably having regard for the RFP and the basis of Proposals.

3.12 Governing Law of RFP Process

This RFP process shall be governed by and construed in accordance with the laws of the Province of Ontario and the federal laws of Canada applicable therein.

3.13 No Claims

Neither party shall have the right to make claims against the other (including any application or other proceeding for a review by any court or other body) with respect to this RFP process, the selection of any Proponent, the failure to be selected to enter into a formal written agreement, or the failure to honour submissions prior to the execution of a formal written agreement.

[End of Part 3]

PART 4 – PROPOSAL SUBMISSION INSTRUCTIONS

4.1 Proponents to Follow Instructions

Proponents should structure their Proposals in accordance with the instructions in this RFP. Where information is requested in this RFP, any response made in a Proposal should reference the applicable section numbers of this RFP where that request was made.

4.2 Proposals in English

All Proposals should be in English only. Any Proposals received by the IESO that are not entirely in the English language may be disqualified.

4.3 Proposals Submitted Only in Prescribed Manner

Proposals should be submitted by the following method:

A Proponent should submit **one (1) original** of the Proposal in either .DOC or searchable .PDF format **by email** to the IESO Contact email address listed in Part 1.5 above. Proponents must submit separate electronic files for:

i) the Technical Submission as outlined in Section 3 of Appendix C (Proposal Content);
ii) any documentation outlined in PART 2.1 – Compliance with Submission Criteria, including Appendix A and B and E; and
iii) your pricing submission as outlined in Section 4 of Appendix C (Pricing).

Proponents who fail to submit their responses in the manner outlined may be deemed to be non-compliant and may be disqualified at the sole discretion of the IESO.

Proponents should note that the **total file size** (including all attachments and appendixes) may not exceed 10 MB. Submission emails should reference the following in the subject line:

IESO Scorecard Development RFP_104

4.4 Proposals Should Be Submitted On Time at Prescribed Location

Proposals should be submitted only in the Prescribed Manner on or before the Proposal Submission Deadline. Proposals submitted to another location or after the Proposal Submission Deadline will be deemed late and will be disqualified. IESO is not responsible for any technical difficulties experienced by the Proponent in submitting its proposal. Proposals submitted after the Proposal Submission Deadline as a result of technical difficulties will be deemed late and will be disqualified.

For the purpose of calculating time, if the prescribed manner is by delivery to the IESO Offices, the time the submission was received by the IESO clock will be used. If the prescribed manner is electronic delivery, the time of receipt noted by IESO's e-mail inbox will be used.

4.5 Amending or Withdrawing Proposals Prior to Proposal Submission Deadline

At any time prior to the Proposal Submission Deadline, a Proponent may amend or withdraw a submitted Proposal. The right of Proponents to amend or withdraw includes amendments or

withdrawals wholly initiated by Proponents and amendments or withdrawals in response to subsequent information provided by addenda.

Any amendment should clearly indicate what part of the Proposal the amendment is intending to replace.

A notice of amendment or withdrawal should be sent to the IESO Contact prior to the Proposal Submission Deadline and should be signed by an authorized representative.

The IESO is under no obligation to return amended or withdrawn Proposals.

4.6 Proposal Not to be Amended after Proposal Submission Deadline

Proposals may not be amended following the Proposal Submission Deadline.

[End of Part 4]

APPENDIX A – REGISTRATION FORM

TO : Independent Electricity System Operator

FROM : [Insert Name of Proponent]

RE : RFP for IESO Scorecard Development – RFP_104

1. PROPONENT INFORMATION

(a) The full legal name of the Proponent is:

(b) Any other relevant name under which the Proponent carries on business is:

(c) The jurisdiction under which the Proponent is governed is:

(d) The name, address, telephone, facsimile number and e-mail address of the contact person for the Proponent is:

(e) Whether the Proponent is an individual, a sole proprietorship, a corporation, a partnership, a joint venture, an incorporated consortium or a consortium that is a partnership or other legally recognized entity:

2. RFP NOT A BINDING PROCUREMENT PROCESS

The Proponent has carefully examined the RFP documents and has a clear and comprehensive knowledge of the Deliverables required under the RFP. By submitting the Proposal, the Proponent and confirms its understanding that the RFP is not a binding procurement process and that no contractual relations are created between the IESO and the Proponent as a result of the RFP or the submission of the Proposal.

3. ADDENDA

The Proponent confirms that it has read and accepted all addenda issued by the IESO prior to the Deadline for Issuing Addenda. The onus remains on the Proponent to make any necessary amendments to its Proposal based on the addenda.

4. CONFLICT OF INTEREST

Prior to completing this portion of the Registration Form, Proponents should refer to the definition of Conflict of Interest set out below.

"**Conflict of Interest**" includes, but is not limited to, any situation or circumstance where:

(a) in relation to the RFP process, the Proponent has an unfair advantage or engages in conduct, directly or indirectly, that may give it an unfair advantage, including but not limited to (i) having or having access to information in the preparation of its Proposal that is confidential to the IESO and not available to other Proponents; (ii) communicating with any person with a view to influencing preferred treatment in the RFP process; or (iii) engaging in conduct that compromises or could be seen to compromise the integrity of the open and competitive RFP process and render that process non-competitive and unfair; or

(b) in relation to the performance of its contractual obligations in an IESO contract, the Proponent's other commitments, relationships or financial interests (i) could or could be seen to exercise an improper influence over the objective, unbiased and impartial exercise of its independent judgement; or (ii) could or could be seen to compromise, impair or be incompatible with the effective performance of its contractual obligations.

If the box below is left blank, the Proponent will be deemed to declare that: (1) there was no Conflict of Interest in preparing its Proposal; and (2) there is no foreseeable Conflict of Interest in performing the contractual obligations contemplated in the RFP. Otherwise, if the statement below applies, check the box.

☐ The Proponent declares that there is an actual or potential Conflict of Interest relating to the preparation of its Proposal, and/or the Proponent foresees an actual or potential Conflict of Interest in performing the contractual obligations contemplated in the RFP.

If the Proponent declares an actual or potential Conflict of Interest by marking the box above, the Proponent must set out below details of the actual or potential Conflict of Interest:

5. DISCLOSURE OF INFORMATION

The Proponent hereby agrees that any information provided in this Proposal, even if it is identified as being supplied in confidence, may be disclosed where required by law or if required by order of a court or tribunal. The Proponent hereby consents to the disclosure, on a confidential basis, of this Proposal by the IESO to the IESO's advisers retained for the purpose of evaluating or participating in the evaluation of this Proposal.

6. TAX REPRESENTATION

Please select one:

☐ The Proponent represents and warrants that the Proponent is a resident of Canada.

☐ The Proponent represents and warrants that the Proponent is a non-resident of Canada.

[Insert Name of Proponent Representative]

_____

Signature of Proponent's Authorized Representative

Name and Title : _____

Date : _____

APPENDIX B – REFERENCE FORM

Each Proponent is requested to provide three (3) references from clients who have obtained similar goods or services from the Proponent in the last five (5) years as those requested in this RFP.

Reference #1

Company Name	**:**	
Company Address	**:**	
Contact Name	**:**	
Contact Telephone Number	**:**	
Date Work Undertaken	**:**	
Nature of Assignment	**:**	

Reference #2

Company Name	**:**	
Company Address	**:**	
Contact Name	**:**	
Contact Telephone Number	**:**	
Date Work Undertaken	**:**	
Nature of Assignment	**:**	

Reference #3

Company Name	**:**	
Company Address	**:**	
Contact Name	**:**	
Contact Telephone Number	**:**	
Date Work Undertaken	**:**	
Nature of Assignment	**:**	

SECTION 1 – OVERVIEW

APPENDIX C – IESO INFORMATION & REQUIREMENTS

1.1 Context

A Request for Proposal is required to procure a highly qualified Proponent to provide expertise in respect to the development a scorecard tool to assist the Board, intervenors and interested parties when evaluating the IESO's proposed expenditure and revenue requirements.

The successful Proponent will perform the duties, in full, described in Section 2 – Deliverables as outlined in the RFP document.

1.2 Material Information

To be considered prior to submittal of a proposal, the Respondent must possess all of the following pre-existing competencies:

- Expert knowledge of Independent System Operators/Regional Transmission Operators or similar comparable entities in Ontario and other jurisdictions;
- Expert knowledge of Ontario's electricity regulatory framework and the role of key entities within the sector; and
- Expert knowledge of good practices in developing and implementing scorecards.

1.3 Term

The term of the Agreement is expected to be from the effective date up to, and including December 31, 2017, with the option to extend for up to an additional one (1) year period.

[End of Section 1]

SECTION 2 – DELIVERABLES

2.1 Objective(s)

As part of the development of the IESO Scorecard, the successful Proponent is expected to:

1. Produce a final report to the IESO, including recommended scorecard and rationale, for the IESO to use to assist intervenors and/or interested parties in evaluating the IESO's proposed expenditure and revenue requirements; and

2. Prepare and present recommendations to IESO Management.

The Proponent may also be required to assist with the IESO's 2017 proposed expenditure and revenue requirement application to the Board, including advising or assisting the IESO to prepare responses to intervenor comments and/or appearing as a witness representing the IESO before the Board.

2.2 Tasks

The successful Proponent will be expected to provide full services, in regard to the development of the IESO Scorecard such as:

- Research into other jurisdictional good practices for scorecards with a focus on comparable entities;

- Meeting with selected IESO management and staff to ensure excellent understanding of the IESO and needs related to the Deliverable sufficient to develop expectations for and requirements of the Deliverable; and
- Facilitation of up to four (4) meetings with groups of intervenors and interested parties to develop expectations for and requirements of the Deliverables. This includes planning, scope, facilitation and summarization of the results of these meetings, aligned with IESO Stakeholder Engagement Principles[1].

The successful Proponent may also be expected to provide services to:

- Assist IESO management to prepare its 2017 proposed expenditure and revenue requirement application to the Board;
- Advise or assist the IESO to prepare responses to intervenor comments; and/or
- Appear as a witness representing the IESO before the Board.

2.3 Timelines

The services contained within this RFP will be required on an ongoing basis throughout the Agreement term. The successful Proponent will be expected to adhere to project timelines as set by the IESO.

The following Table outlines the proposed Project timelines. The timelines are subject to change based on the needs and requirements of the IESO and the decision by the Board on the IESO Settlement Proposal, September 7, 2016, Section 6.2.

Detailed Schedule	Date
Selection Notice and Enter into Agreement	Early January 2017
Meet with IESO	Mid-January 2017
Project Commencement Date	Mid-January 2017
Development of Scorecard / Facilitation of Meetings	January - February 2017
Draft of Recommendations Report	February 2017
Final Report to IESO	March 2017

The estimated timing of services related to the IESO 2017 proposed expenditure and revenue requirement application to the Board will take place from February 2017 to November 2017.

[End of Section 2]

SECTION 3 – PROPOSAL CONTENT

In addition to the requirements outlined in Section 2.1 of Part 2 of the RFP – Compliance with Submission Criteria, Proponents are encouraged to submit Proposals that conform to the following section headings and requirements. Failure to conform may impair the Proposal review process, possibly to the detriment of the Proponent.

3.1 Experience, Skills and Qualifications (35%)

[1] http://www.ieso.ca/imoweb/pubs/consult/se/Stakeholder-Engagement-Principles.pdf

Each Proponent should possess the following experience and be able to demonstrate it by providing:

- Brief description of the Proponent's organizational structure and history, including personnel and any subcontractors it intends to use for provision of the Deliverable; (5%)
- A brief description of the knowledge, skills, expertise and experience in providing the required Deliverables by the personnel and subcontractors the Proponent proposes to assign for the provision of the Deliverables; demonstrated knowledge and experience within the electricity sector is an asset. (15%)
    - Experience in the development of scorecards;
    - Experience in facilitating group meetings with parties with potentially conflicting priorities or interests;
    - Experience in preparing clear, concise, reports to clients, along with presentations of recommendations to management;
    - Experience in preparing written submissions to regulators; and
    - Experience in appearing before regulators as a witness.
- A description adequate to demonstrate that the personnel and subcontractors the Proponent proposes to assign for the provision of the Deliverables have the following pre-existing competencies: (15%)
    - Expert knowledge of Independent System Operators/Regional Transmission Operators or similar comparable entities in Ontario and other jurisdictions
    - Expert knowledge of Ontario's electricity regulatory framework and the role of key entities within the sector
    - Expert knowledge of good practices in developing and implementing scorecards

  The form of this description may include, but may not be limited to curriculum vitae for each proposed resource.

3.2 Understanding of the Deliverables (20%)

Each Proponent should provide:

- A brief description of the Proponent's overall approach to the Deliverables; (5%)
- A description that indicates an understanding of the scope, size and complexity of the Deliverables; and (5%)
- A brief description of how the Respondent will ensure expert staff with sufficient demonstrated capability necessary for executing the Deliverable without use of third parties unless authorized by the IESO will be provided and engaged. (10%)

3.3 Project Plan (15%)

Each Proponent should provide:

- A project plan that describes how the Proponent will provide the required Deliverables including: (10%)
    - Development of the scorecard;
    - Lead Facilitation Meetings;
    - Produce a final report to the IESO, including recommended scorecard and rationale; and
    - Presentation of recommendations to IESO Management.
- The proposed schedule for delivery of the Deliverables (Gantt chart), management of the work, delegation of responsibility (tasks and assigned persons), work plans, cost control, reporting and quality assurance and subcontracting arrangements. (5%)

3.4 Pricing (30%)

Each Proponent should provide:

- The Proponent's proposed fees and costs. Include a breakdown of fees and costs for each of the Deliverables as shown below. Hourly rates and number of hours attributed to each Initiative need to be shown; and
- Any added-value services to be proposed to the IESO at no additional cost.

The IESO will not pay or reimburse any hospitality, incidental or food expenses; such items should not be included in pricing submissions. The IESO will not responsible for any travel or accommodation expenses incurred by the Service Provider that are not pre-approved in writing by the IESO and charged in accordance with *Management Board of Cabinet's Travel, Meal and Hospitality Expenses Directive*, as may be amended or replaced from time to time. Accommodation arrangements may only be made with those facilities listed in the *Ontario government's Travel, Meal and Hospitality Expenses Directive*, as may be amended or replaced from time to time.

3.4.1 Proponents should review and provide the pricing using the following format:

FIXED PRICE BASIS FOR WORK DEFINED IN SECTION 2 AND 3 OF THIS RFP

Resource Name & Title	Estimated Effort (hours)	
Fixed Price		**$**

HOURLY RATE BASIS FOR INCIDENTAL WORK

Resource Name & Title	$ Rate/Hr.
	$
	$
	$
Fixed Price	

- Proponent should also include other costs associated with providing the services, such as reimbursement for other expenses not previously listed.

[End of Section 3]

SECTION 4 – SUBMISSION EVALUATION CRITERIA

4.1 Proponent Submissions will be evaluated in the following manner:

	EVALUATION CRITERIA CATEGORY	WEIGHTED SCORE
1	**Experience, Skills and Qualifications as described in Section 3.1.**	**35%**
2	**Understanding of the Deliverables as described in Section 3.2.**	**20%**
3	**Project Plan as described in Section 3.3.**	**15%**
4	**Pricing as described in Section 3.4.**	**30%**
	TOTAL POINTS	**100%**

4.2 Pricing Evaluation Methodology

Pricing will be scored in the following manner:

Each Proponent will receive a percentage of the total possible points allocated to price for the particular category, as calculated by the following formula:

lowest bid price/proponent bid price = %

For example, if the lowest bid from a Proponent in a particular category is $120, it receives 100% of the points (120/120 = 100%); a Proponent who bids $150.00 receives 80% of the possible points for that category (120/150 = 80%) and a Proponent who bids $240.00 receives 50% of the possible points for that category (120/240 = 50%).

[END OF APPENDIX C]

BOMA INTERROGATORY 18

Issues 5.1

INTERROGATORY

Ref: Transmission Lines

Given the recent changes to the Ontario Energy Board Act and the Electricity Act, please confirm that in some circumstances, the IESO may be directed to procure transmission services, and in other cases, the government itself will delegate transmitters to build a particular project.

RESPONSE

Confirmed.

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BOMA INTERROGATORY 20

Issues 1.1, 1.3, 5.1

INTERROGATORY

Reference: Preamble

In its Business Plan, p14, IESO states that:

> *A need has been identified for up to 300 megawatts (MW) of flexible resources by the end of 2017 and up to an additional 700 MW by the end of 2018.*

a) Please define what the IESO means by flexible resources, and specify what types of resources are included in the "flexible resources" category, eg. gas peakers, combined cycle, hydro, pumped storage, Demand Response, various types of reserves, regulation, others, and provide examples of how such resources are being used now, and how they would be used to achieve the desired results. Also, please provide an explanation of why these "flexible resources" are needed in such quantities by the end of 2017 and 2018, respectively.

b) Will the scorecard contain a measure to reflect the IESO's progress in procuring these required resources?

c) Has the IESO provided further comments to Elenchus and/or the taskforce in response to Elenchus' June report.

RESPONSE

a) Flexible resources are resources that are already online or are able to synchronize to the grid and ramp to desired output within 30 minutes. Flexibility can be provided by a range of resource types.

As the output from our variable generation fleet continues to rise, so does the need for flexible resources to manage forecast variability. In the absence of these flexible resources, we are increasingly initiating control actions such as, but not limited to, manually adjusting the variable generation forecast, committing/constraining on dispatchable resources, and curtailing export transactions mid-hour.

Challenges related to fleet flexibility in the coming years were identified in an Operability Study conducted by the IESO in 2016 (please refer to Attachment 1). A summary of the issues, along with examples of current practices for managing forecast variability, was also presented as part of the ongoing stakeholder engagement "Enabling System

Flexibility"[1].The assessment identified a number of factors related to the increasing challenges of balancing supply and demand. Among the factors identified:

- The quantity and timing of variable generation output is less predictable than that of conventional generation, which makes it difficult to efficiently commit non-quick start resources or schedule transactions on the interties.
- Over-forecasting the output of the variable generation fleet ahead of real-time may create a reliability issue if there are insufficient resources available to make up for the lower variable generation output in real-time.

Given the projections of variable generation to be connected to the grid, an additional 740 MW of flexibility is required by the end of 2018. Through the Enabling System Flexibility stakeholder engagement, the IESO is looking at options to increase system flexibility for the near-term. The options include enhancing existing market processes to enable existing resources to increase flexibility capability.

b) The draft scorecard filed by the IESO does not contain such a measure.

c) No, the IESO did not provide further comments to Elenchus or the taskforce after Elenchus shared the final report with the parties that participated in its development.

[1] http://www.ieso.ca/en/sector-participants/engagement-initiatives/engagements/enabling-system-flexibility

2016 IESO Operability Assessment - Summary

Review of the Operability of the IESO-Controlled Grid to 2020

June 2016

ieso
Connecting Today.
Powering Tomorrow.

Introduction

This report summarizes the results of an operability assessment, which considered the changes expected on the system in the next few years and identified operating challenges. The changes expected on the power system that were considered in this assessment include:

- Continued integration of variable generation (VG)
- Increased combined cycle natural gas generation capacity
- Refurbishments of nuclear generators
- Transmission enhancements
- Changes to load behaviour

This assessment identified operating challenges due to a number of factors including the operating characteristics of Ontario supply resources. More specifically:

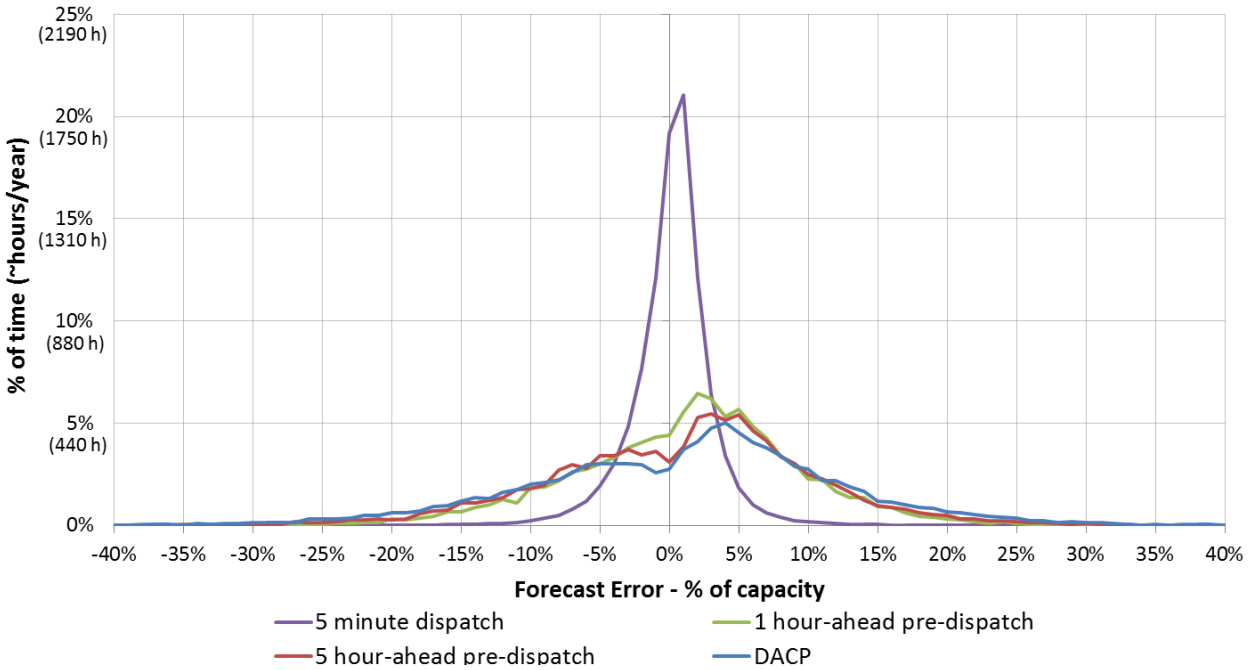
- The quantity and timing of variable generation output is less predictable than that of conventional generation, which makes it difficult to efficiently commit non-quick start resources or schedule transactions on the interties. Over-forecasting the output of the variable generation fleet ahead of real time may create a reliability issue, as insufficient resources may be available in real-time to satisfy Ontario demand.
- Most supply resources in Ontario are not very responsive (e.g. slow to come online or subject to environmental restrictions), which makes it challenging in the hour ahead of real-time to manage a situation where the output of the variable generation fleet was over-forecasted.
- The uncertainty in the output of the variable generation also increases the need for more regulation services; that is, resources capable of balancing the power system on a second-by-second basis.
- Challenges to manage voltage on the transmission system are increasing due to reduced power transfers resulting from increased quantities of supply resources connecting to the distribution system and increased energy conservation.

In addition to identifying these operating challenges, the operability assessment also determined that Ontario will have sufficient load following capability in the next few years, that the supply variability introduced by connecting additional wind and solar generation will not increase the operating reserve requirements in Ontario, and that the frequency and magnitude of surplus baseload generation (SBG) in Ontario over the next few years can be managed by existing IESO mitigation approaches.

This report will describe these findings in more detail.

Generation Commitment and Intertie Scheduling

Chart 1: Variable Generation Uncertainty



What is it? Chart 1 presents a historical distribution of the difference between actual variable generator output and the variable generation forecast used in the 5 minute-dispatch, hour-ahead pre-dispatch, 5 hour-ahead pre-dispatch and day-ahead (DACP) scheduling sequences; expressed as a percentage of the variable generation fleet capacity[1].

Why do we need to know? Variable generation forecasts are inputs into IESO market scheduling tools. Forecast inaccuracies impact IESO's ability to effectively commit gas generation in the day-ahead (DACP) and day-at-hand (5 hour-ahead pre-dispatch) timeframes, and to schedule imports and exports in the hour-ahead pre-dispatch timeframe.

What is it telling us? The variable generation forecast accuracy is roughly the same from day-ahead through to hour-ahead timeframes. The forecast prepared for and used by the IESO's 5-minute dispatch scheduling algorithm is substantially more accurate.

[1] The accuracy of the VG forecast we receive from our forecast vendor is consistent with industry norms.

Operability considerations? Forecasting future system conditions is becoming increasingly challenging, with increasing uncertainty introduced the VG forecast, the evolution of demand side resources and increased conservation participation.

When the VG fleet produces more energy than expected (i.e. VG output is under-forecast), IESO operators can dispatch down transmission-connected variable generation resources (if necessary) to balance supply and demand. On the other hand, when the VG fleet produces less energy than expected (i.e. VG output is over-forecast), the IESO might have under-commit gas generation facilities and/or over-scheduled exports, which is a reliability concern.

Today's supply mix has limited flexibility to effectively compensate within the hour when we the output of the variable generation fleet has been over-forecasted. Hydroelectric generation is being operated in an increasingly steady manner due to restrictions imposed by facility owners, and nuclear generation facilities are generally operated at their full capability. The York Energy Centre (YEC; ~2x200MW simple cycle gas generators) is currently the only gas generating station in Ontario capable of starting[2] in a short period of time. The remaining gas generating stations typically need several hours to start due to their combined-cycle processes.

Knowing that the VG forecast is frequently going to be materially incorrect, but not knowing when or by how much, IESO operators are taking actions to compensate. Ahead of the dispatch hour, they might manually reduce the VG forecast or increase the Ontario demand forecast to overcommit gas generation – and dispatch down VG if, as a result of these actions, we have scheduled too much energy in real-time (increases greenhouse gas emissions, and is costly and inefficient). In the dispatch hour, our operators might curtail exports mid-hour if we have under-committed generation (not a good utility practise). This situation is made worse when YEC is unavailable or its capacity is insufficient to compensate for the variable generation forecast error.

As the quantity of transmission-connected wind and solar generation in Ontario increases towards ~10,000 MW by the end of 2020, we will increasingly witness instances when the magnitude of the VG forecast inaccuracies will be larger than the capacity of YEC generators to efficiently manage the change.

Recommendations? We recommend enhancing the flexibility[3] of Ontario supply resources to ensure that there are increased quantities of resources able to address the hour-ahead VG forecast inaccuracy, 95% of the time[4]. This translates to needing ~1,000 MW of additional

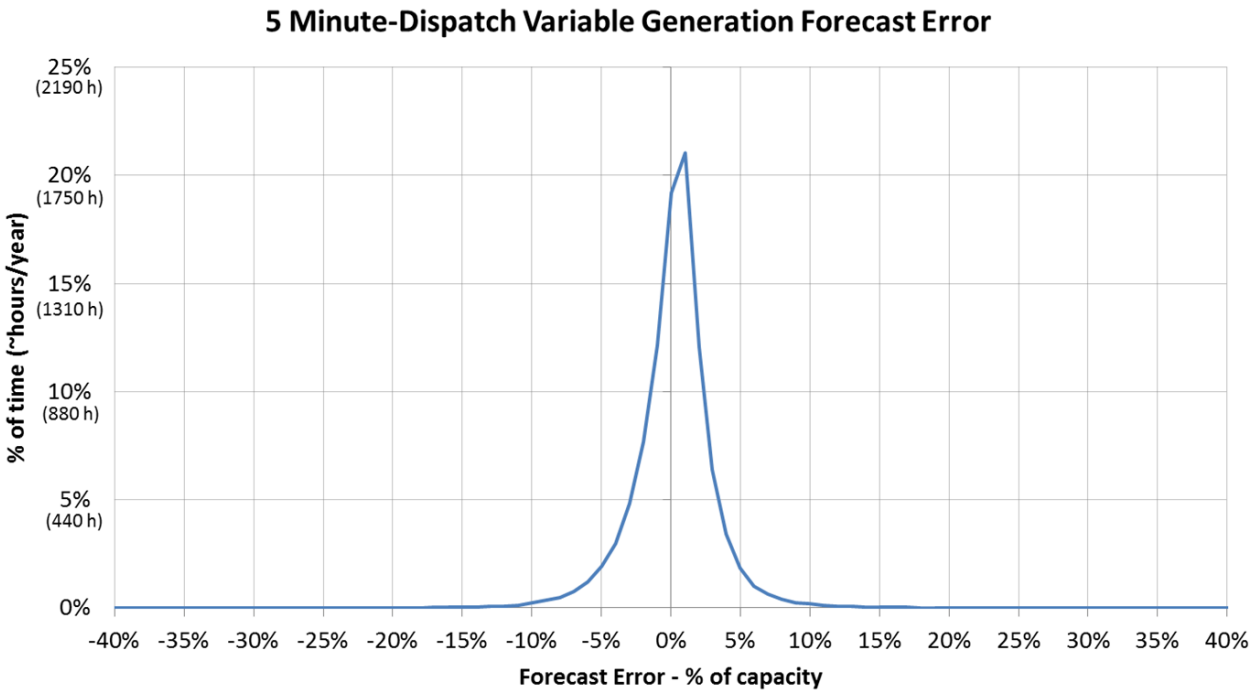
[2] 'Starting' means receiving a dispatch signal from the IESO, synchronizing the generation unit and increasing output to its minimum loading point.
[3] 'Flexibility' in this context means the ability to start within ~30 minutes.
[4] The remaining 5% of the time, the IESO would rely on the limited incremental flexibility provided by the hydroelectric fleet and utilize short term flexibility on Ontario's interties where available.

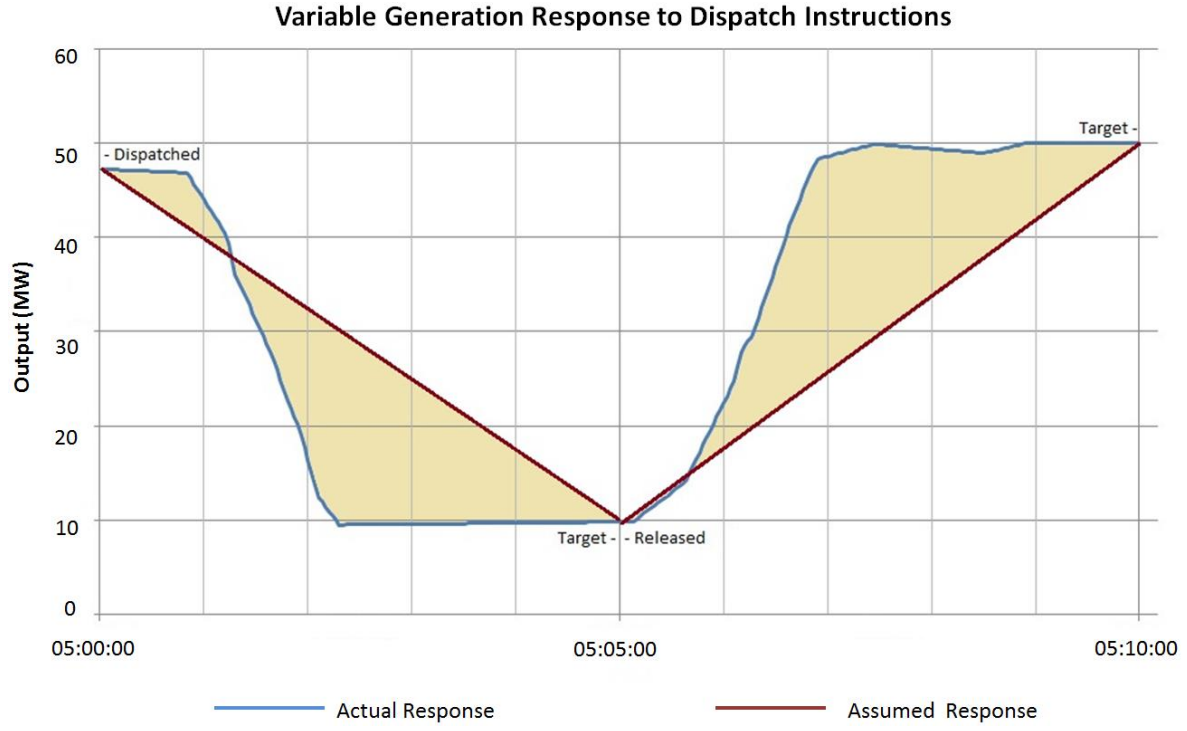
flexibility. The additional flexibility needs to be located in unconstrained parts of the system to ensure they can operate without restriction.

Methods to enhance the flexibility of Ontario resources could include: increased utilization of existing resources, enabling simple cycle operation at combined cycle plants, or adding new peaking generation, grid energy storage or demand response resources. Methods chosen, which are expected to happen through open competitive processes, must ensure that they are cost effective and can meet expected operational duty requirements – given that these resources are required in the near-term to address reliability needs.

Regulation

Chart 2: Regulation Issues





What is it? The first figure is a historical distribution of the difference between actual variable generation output and the forecast used by the IESO's 5 minute-dispatch algorithm, expressed as a percentage of the variable generation fleet capacity.

The second figure shows an example of fast response from a variable generator in response to dispatch instructions[5]. The shaded area represents where regulation resources[6] contracted by the IESO were dispatched to compensate for the fast response of the variable generation resources.

Why do we need to know? The 5-minute variable generation forecast inaccuracies directly affect real-time dispatch decisions. If variable generation output is over-forecast or under-forecast in real-time, there can be a supply-demand imbalance because the IESO's scheduling algorithms would not dispatch the right amount of supply from other resources.

These dispatch inaccuracies are compensated for by resources that the IESO contracts to provide regulation service. If Ontario is under-generated in real-time, a signal will be sent to generators that are providing regulation service to increase their output. Regulation resources are also used to address demand non-linearity between dispatches, compensate for demand forecast errors and for generation/load resources that are not following their dispatch instructions. If the magnitude of the dispatch inaccuracies exceed the amount of regulation resources scheduled, then some of the balance will be made up automatically with energy flowing into, or out of Ontario on the interties, introducing potentially significant deviations from scheduled quantities.

Regulation service is also used to compensate for responses to dispatch signals by the variable generation fleet that are different than our expectations – the IESO's automated dispatch algorithm assumes a linear progression between dispatches.

What is it telling us? The difference between the actual VG output and the variable generation forecast used in the 5-minute dispatch is significant.

The IESO typically schedules +/-100 MW of regulation service each hour[7]. This quantity of regulation service compensated for the variable generation forecast inaccuracies only 53% of the time in 2015; this amount is expected to decrease to 40% of the time by 2020. This shortfall does not account for other operability issues that regulation service also aims to correct.

[5] Variable generators normally generate without restriction and are usually only dispatched for local constraints or SBG. When the condition causing the variable generators to limit their output concludes, they are then released to generate without restriction.
[6] Regulation is also known as Automatic Generation Control (AGC).
[7] The IESO has a market rule requirement to schedule at least +/- 100MW of regulation service each hour.

In addition, the use of regulation service increases when the variable generation fleet responds to dispatch instructions faster than expected. This also reduces the amount available to compensate for other second-by-second supply-demand imbalances.

Operability considerations? Maintaining the current quantity of regulation service scheduled each hour will result in increased reliance on the interties to compensate for real-time supply-demand imbalances.

Recommendations? We recommend improving regulation service, including:

- Increase the amount of regulation scheduled from +/-100MW to +/-150-200 MW in some hours to compensate for VG forecast errors and other dispatch inaccuracies.
- Update the IESO's current methodology for determining the required amount of regulation service scheduled each hour. Ontario's needs for regulation vary during the day – for example, the need for regulation service are typically less during those times of the day when Ontario demand is flat and unchanging.
- Examine the feasibility of accommodating different regulation service characteristics, including those regulation service providers that can:
    - provide only a single direction of regulation, and
    - provide the service with different response times (e.g. "fast" hydroelectric response vs. "very fast" flywheel response).

We also recommend examining the implementation of a ramp rate requirement for variable generators and other fast acting resources, since their very fast response results in increased usage of regulation service.

Grid Voltage Control

Chart 3: Over-Voltages during Low Demand

What is it? Chart 3 highlights areas where over-voltages were observed in IESO simulations of light load conditions in the year 2020.

Why do we need to know? The market rules and reliability standards require that the IESO must maintain voltages within specified levels defined by the transmission asset owner.

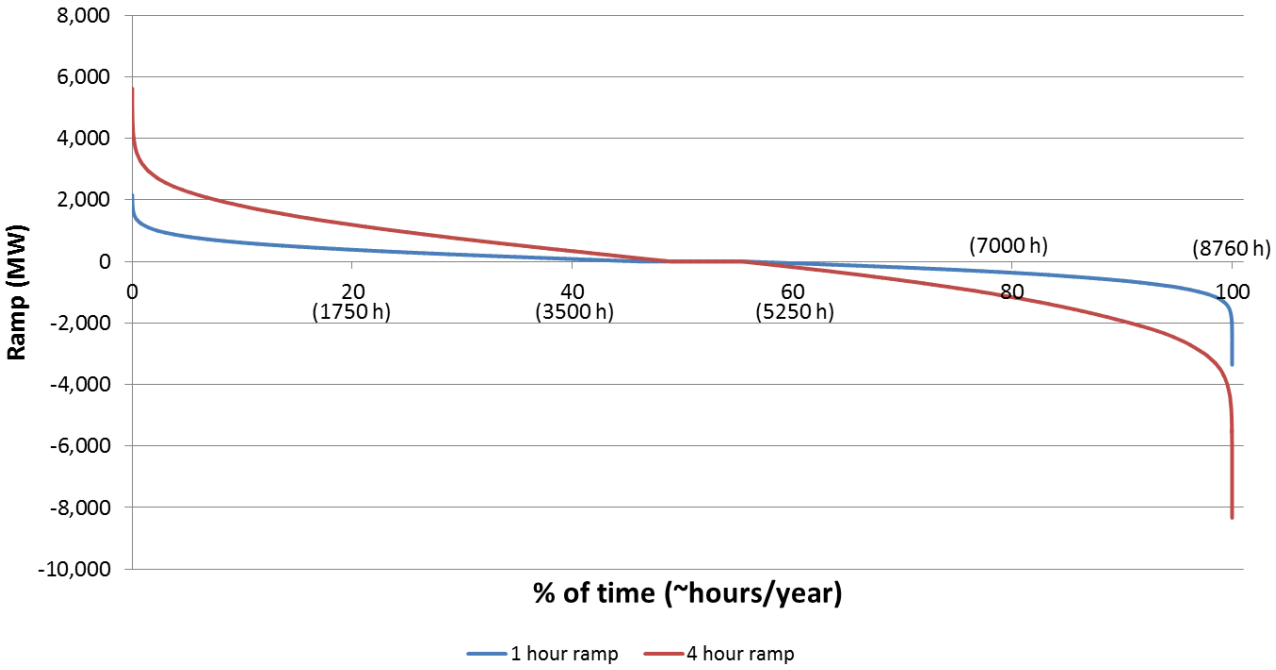
What is it telling us? During low demand scenarios, existing voltage control devices are unable to maintain transmission system voltages within allowable limits in some parts of the system.

Operability considerations? Reductions of demand due to conservation programs and distribution-connected generation has reduced the reliance on centralized generation facilities and the transmission system, at times leaving transmission circuits lightly loaded. This can make it difficult to maintain voltage within acceptable levels (a lightly loaded transmission system leads to high voltages). This is particularly true in areas with existing high voltage control challenges (e.g. downtown Toronto and Eastern Ontario) where exceptional control actions have included removal of lightly loaded transmission circuits from service – sometimes for weeks at a time. There is risk when switching out lightly loaded equipment, as there is no guarantee that the transmission circuits can be brought back online quickly if needed following a power system event, especially if the lines are out-of-service for an extended period of time.

Recommendations? We recommend the installation of additional reactive control devices in downtown Toronto, northwest GTA and Eastern Ontario to manage high voltage situations during low demand periods. Hydro One's evolving (increased) restrictions to manage high voltages will trigger the need for an appropriate mix of static (shunt reactors) and dynamic (static VAR compensators) reactive control devices.

Ramping

Chart 4: 1- and 4-Hour Ramp Duration Curves



What is it? These duration curves show the expected changes over a one-hour and four-hour period ("ramp") in the portion of demand not supplied by baseload generation in 2020.

Why do we need to know? To ensure that the current generation fleet is able to follow changes in Ontario demand during times of large demand increases.

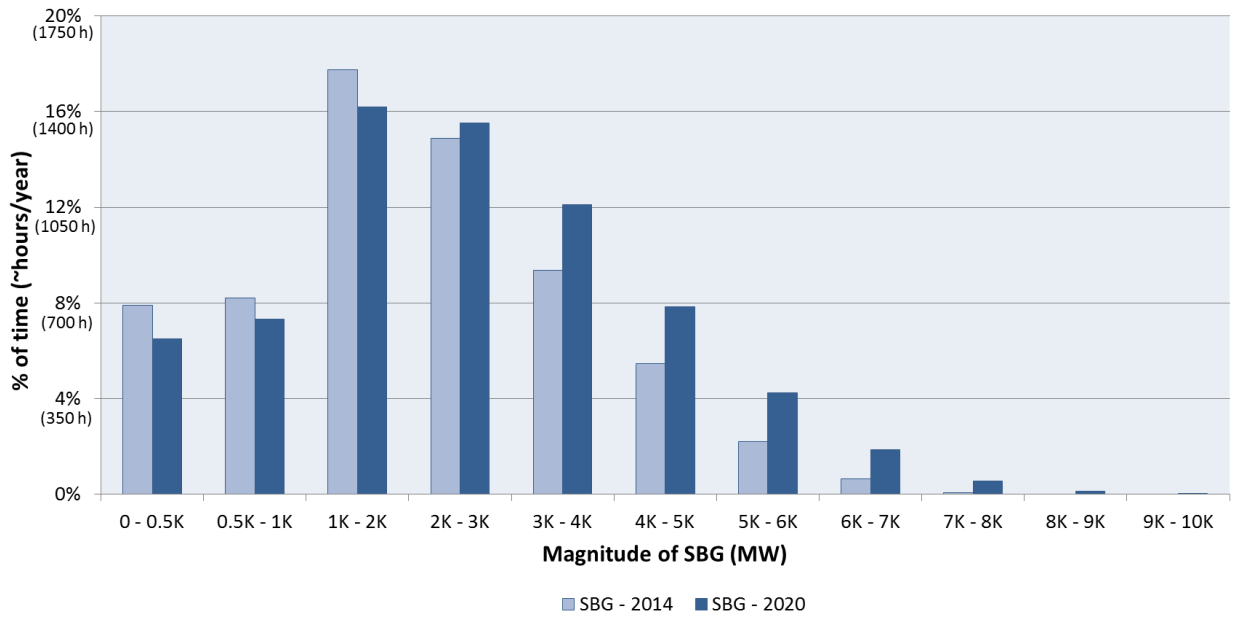
What is it telling us? One-hour ramps in 2020 are expected to be within +/- 1000 MW, 95% of the time. The maximum one-hour ramp-up is expected to be 2,200 MW. Four-hour ramps in 2020 are expected to be within +/- 3000 MW, 95% of the time. The maximum four-hour ramp-up is expected to be 5,600 MW.

Operability considerations? The ramping capability of the gas fleet alone is expected to be sufficient for both timeframes.

Recommendations? None. The ramping capability of the existing generation fleet is expected to be sufficient to meet Ontario needs for ramp during those times of the day when Ontario demand is increasing - provided that the market effectively commits gas generators when needed. Therefore, no ramping enhancements are required.

Surplus Baseload Generation (SBG)

Chart 5: 2014 SBG vs 2020 SBG



What is it? Chart 5 shows the magnitude of surplus baseload generation in the year 2014 in comparison to the results of a simulation for the year 2020.

Why do we need to know? To ensure that our current SBG mitigating measures are sufficient in 2020.

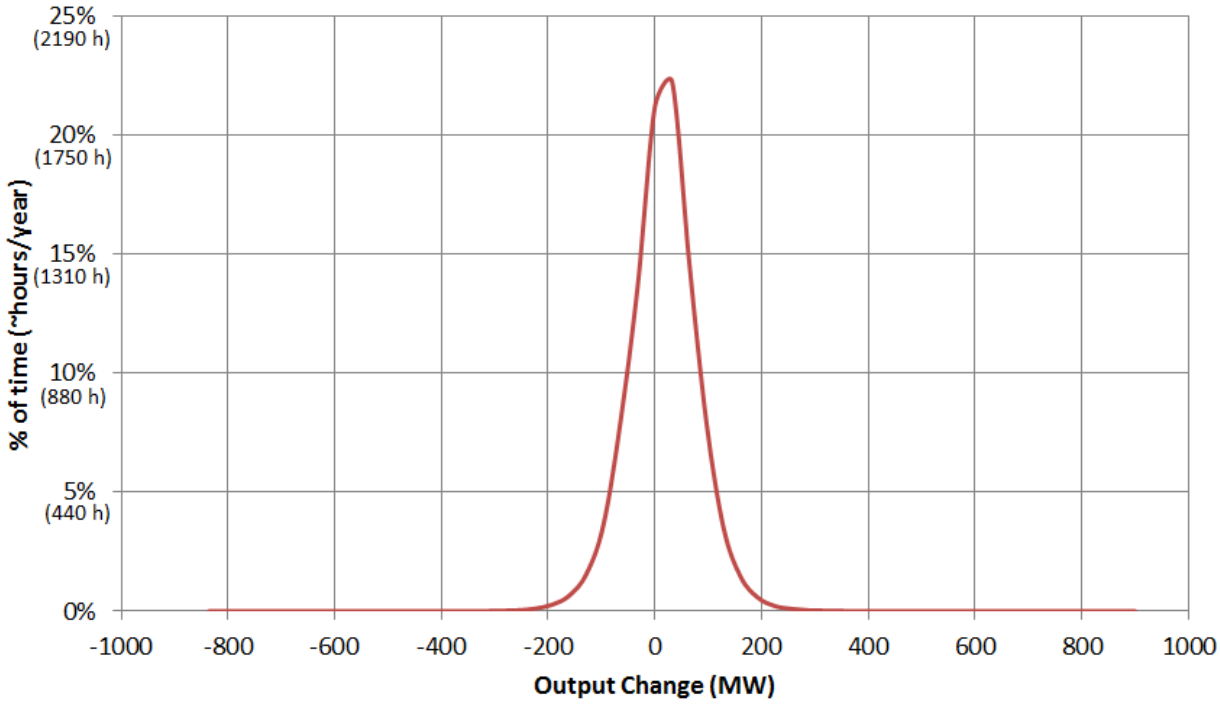
What is it telling us? SBG conditions in 2020 are expected to be comparable in magnitude and frequency to those experienced in 2014. Ontario experienced SBG conditions ~66% of the time in 2014. This is expected to increase to ~72% of the time by 2020.

Operability considerations? The IESO's current SBG mitigating measures are expected to be sufficient to manage SBG in 2020. These mitigating measures include: hydroelectric spill, economic exports, variable generation dispatch and nuclear manoeuvers/shutdowns.

Recommendations? None. We do not anticipate requiring significant changes to our processes to mitigate SBG, as the current measures are expected to be sufficient.

Operating Reserve Requirements

Chart 6: Variable Generation Changes over 10 Minutes



What is it? Chart 6 presents the simulated distribution of the change in output of transmission and distribution-connected variable generation over a 10-minute period for the year 2020.

Why do we need to know? To ensure that the natural changes in variable generation output do not introduce additional operating reserve requirements.

What is it telling us? The curve show that 99% of the time, the output changes will be within +/- 160 MW, with the maximum natural drop in generation being approximately 850 MW.

Operability considerations? Even the outlier, a 1 in 10 year event, is not expected to exceed Ontario's first or second contingency losses, which are both at least equal to a Darlington unit.

Recommendations? None. The single largest generation loss in Ontario is not expected to increase due to natural drops in variable generation production over 10 minutes. Therefore, we do not anticipate increasing the amount of 10-minute or 30-minute operating reserve scheduled to manage drops in VG output over those time periods.

BOMA INTERROGATORY 36

Issue 1.1

INTERROGATORY

Reference: *Ibid,* p6

Please provide a reference in the 2016 Annual Report to each of the accounting policy changes shown on this page, and any other accounting changes that have been made. Please provide an explanation, if necessary, for each referenced item.

RESPONSE

The new accounting policies are detailed in Note 3 of the Audited Financial Statements, page 13 in the IESO's Annual Report (please refer to pages 39 to 41 of Exhibit A-3-1).

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BOMA INTERROGATORY 39

Issues 1.3, 1.1

INTERROGATORY

Reference: Exhibit C, Tab 2, Schedule 1, Attachment 2, p1, Appendix 2-JB

a) Please explain the difference between the proposed increase in Operating Costs of about $9 million, and the "$12 million in forecast 2017 costs", referred to in the text.

b) Where does the IESO get the $3 million it proposes to allocate from its "core business operations"? What expenditures are reduced or eliminated to generate the $3 million?

RESPONSE

a) The proposed net increase in Operating Costs of about $9 million is part of the $12 million budgeted for the Market Renewal Program in 2017.

b) Please refer to the response to OEB Staff Interrogatory 6 part (c) at Exhibit I, Tab 1.6, Schedule 1.06.

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BOMA INTERROGATORY 40

Issues 1.3, 1.1

INTERROGATORY

Reference: *Ibid,* Attachment 3

a) Please explain the composition of the "Corporate Adjustments" item on Appendix 2-JC. What accounts for the reduction of $7.5 million in the item in 2017 budget versus 2016 actual?

b) Please provide a breakdown of the $7.2 million amount of Office of the CEO in the 2017 budget.

c) Please confirm that the Draft Scorecard is not a document which benchmarks IESO costs against costs of AESO, or the six major US RTO/ISOs.

RESPONSE

a) Please find below the composition of the $7.5 million reduction in “Corporate Adjustments”:

Lower Amortization	1.2
Higher Interest	2.4
Changes in Compensation & Benefits	3.9
	7.5

b) Please find below breakdown of the $7.2 million amount of Office of the CEO in the 2017 budget. Operating & Administration costs are primarily due to NERC and NPCC annual membership fees for the IESO.

Office of the CEO (in thousands)	**2017 Budget**
Compensation & Benefits	1,759
Professional & Consulting Fees	887
Operating & Administration	4,612
Total Operating	**7,258**

c) Confirmed.

SEC INTERROGATORY 1

1.0 Revenue Requirement, Operating Costs and Capital Spending

Issue 1.1

Is the IESO's Fiscal Year 2017 net revenue requirement of $190.8 million appropriate?

INTERROGATORY

Please provide a copy of all documents provided to the IESO'S Board of Directors for the purposes of approving the 2017 budget.

RESPONSE

The Board of Directors was provided with the 2017 – 2019 Business Plan, available in the IESO's pre-filed evidence at Exhibit A-2-2.

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SEC INTERROGATORY 2

1.0 Revenue Requirement, Operating Costs and Capital Spending

Issue 1.1

Is the IESO's Fiscal Year 2017 net revenue requirement of $190.8 million appropriate?

INTERROGATORY

Please provide details of all productivity and efficiency measures the IESO undertook in 2016 and plans to undertake in 2017.

RESPONSE

Please refer to the responses to Energy Probe Interrogatory 3 at Exhibit I, Tab 1.3, Schedule 5.03 and BOMA Interrogatory 8 at Exhibit I, Tab 1.1, Exhibit 2.08 for priority change initiatives. This interrogatory details key productivity and efficiency measures undertaken by the IESO along with expected timelines and forecasted costs.

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SEC INTERROGATORY 3

1.0 Revenue Requirement, Operating Costs and Capital Spending

Issue 1.1

Is the IESO's Fiscal Year 2017 net revenue requirement of $190.8 million appropriate?

INTERROGATORY

With respect to the 2016 Corporate Performance Measures:

a) Please provide a copy of the 2016 Corporate Performance Measures and targets.

b) Please provide the actual results of each Corporate Performance Measure.

RESPONSE

a) A copy of the 2016 Corporate Performance Measures and targets are provided as Attachment 1.

b) Please refer to the response to part (a) above for the actual results of each Corporate Performance Measure.

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2016 Corporate Performance Results

January 1 to December 31, 2016

Legend	
	Meets expectations
	Does not meet expectations

Performance Objective	Measure	Target	(Year-to-Date) Update	Result
Sustain reliable performance in real time while integrating new resources, participants and technologies.	Reliable electricity service is provided by the IESO-controlled grid.	• The IESO is able to self-certify, consistent with North American Electricity Reliability Corporation (NERC) requirements (including audit requirements), its compliance with all ~450 NERC high VRF reliability standards. Examples include Interconnection Reliability Operating Limits, system operating limits, voltage and reactive control and load shedding plans.	• The IESO has self-certified that it is fully compliant with all NERC High Violation Risk Factor (VRF) reliability standards.	**Meets**
Lead the promotion and implementation of a culture of conservation in Ontario.	Working with local distribution companies (LDCs) and others, the IESO is on track to achieve the Ministry of Energy's 8.7 TWh of energy savings target by 2020.	• Ontario's conservation portfolio is delivered within 4¢/kWh while achieving energy savings from LDCs (800 GWh) and direct-connect customer programs (524 GWh). • IESO-supported and funded pilots and programs are implemented to support cost-effective achievement of LDC energy-saving targets. • LDCs and gas utilities collaborate to maximize	• Total preliminary portfolio cost-effectiveness in 2016 was 3.4¢/kWh which is within the 4.0 ¢/kWh milestone target. 2016 milestone energy saving targets were met, ensuring Ontario remains on track in achieving our 2020 targets (LDC programs achieved a total of 1.9 TWh of the 7 TWh between 2015 and 2016, while 0.6 TWh of the 1.7 TWh target for the Industrial Accelerator Program is currently under contract)[1]. • The IESO approved a number of new and innovative LDC programs and pilots to better meet needs of their customers: ○ 19 Conservation First Framework (CFF) LDC Local/Regional Program Business Cases; 12 launched by LDCs as of Dec.31, 2016. ○ 20 CFF LDC Innovation Fund Pilot Program Business Cases; eleven in market, eight completed. • Per June 10, 2016 direction from the Minister of Energy, the IESO is continuing to work with natural	**Meets**

[1] Final 2016 cost-effectiveness will be determined in Q2 2017 once 2016 savings have been verified through the evaluation process.

Performance Objective	Measure	Target	(Year-to-Date) Update	Result
		efficiencies and reduce costs.	gas utilities (in consultation with LDCs) to develop and deliver the Whole Home residential pilot program[2]. The IESO continues to work with the gas utilities on joint engagement of IAP customers to support efficiencies and cost reductions in the future.	
Secure cost-efficient renewable supply resources through transparent, consistent and efficient processes, either through posted standard contracts, rules and prices or benchmarked to world-class competitive proposal standards.	The IESO is on track to meet the government's directive of 10,700 MW of wind, solar and bio-energy (in-service) by 2021 and 9,300 MW of hydroelectric (in-service) by 2025.	Up to 900 MW of renewable supply resources are procured in 2016, as directed. This includes: • Up to 242 MW of renewable projects, plus any unallocated capacity from the 2015 micro Feed-In-Tariff (FIT) procurement target, are procured through the FIT 4 procurement process. • Up to 50 MW of renewable projects are procured through the 2016 microFIT procurement or is allocated to the FIT 5 procurement process. • Up to 565 MW of renewable projects are procured through the competitive Large Renewable Procurement process (300 MW of wind, 140 MW of solar, 50 MW of bioenergy and 75 MW of waterpower). • Results of procurement initiatives are posted publically following process conclusion. • Written opinions are received from independent monitors (i.e., FIT Independent Evaluation Monitor, LRP I RFQ/RFP Fairness Commissioner) validating that the processes were executed with consistency and integrity.	The IESO is on track to meet both of the government's overall directives for 2021 and 2025. Results include: • Results of the FIT 4 procurement process were announced on June 29, 2016. 936 new FIT contracts representing 241 MW will be offered. • MicroFIT 2016 resulted in the procurement of 11.2 MW of projects. This lower value reflects the IESO's decision to temporarily suspend the program from April 25, 2016 to June 21, 2016 and successive price reviews have established prices much more closely aligned with actual project costs. • Results of the LRP I competitive procurement were announced on March 10, 2016. The IESO offered 16 contracts representing 455 MW. • FIT 4 and LRP I process results were posted publically following the conclusion of those processes. • The Fairness Advisor letter published in March identified that the LRP I Request for Proposal (RFP) procurement process was conducted in a fair, open and transparent manner and that the IESO took all steps necessary to meet all procurement practices related to fairness, openness and transparency. In addition, the FIT 4 Independent Evaluation Monitor's view was the FIT 4 procurement was administered consistently with the program rules with consistent treatment of all applicants, as well as adherence to the IESO's policies and procedures with respect to conflict of interest and confidentiality requirements.	**Meets**

[2] IESO had targeted Dec. 21, 2016 for contract execution but was asked by Ministry of Energy to hold off on contract execution to allow them time to review pilot for alignment with Green Investment Fund program – IESO completed contracting for the pilot in May 2017 with a soft launch of the pilot expected by end of May.

Performance Objective	Measure	Target	(Year-to-Date) Update	Result
Enhance the electricity market through initiatives that enable market effectiveness and efficiencies.	A Demand Response (DR) auction is implemented that increases DR capacity at competitive market prices while facilitating larger numbers and types of participation.	• DR capacity secured through the December 2015 auction for the 2016 summer commitment period is in place and available for dispatch as at May 1, 2016. • The processes and tools needed to integrate DR into the IESO-administered markets continue to be assessed, and are evolved and implemented as required. • Together with stakeholders, a near-term roadmap to grow, develop and integrate DR cost effectively is established.	A DR auction was successfully implemented in 2016 highlighted by: • Successful proponents from Ontario's first DR auction held in December 2015 were available for dispatch in the real-time energy market on May 1st, 2016. • The IESO, working through the Demand Response Working Group, made significant progress on a number of important DR issues during 2016 to improve the efficiency and effectiveness of the DR Auction. including: • Improvements to the DR optimization engine to generate more accurate prices. • A new process to allow the transfer of capacity obligations. • Implemented new registration and measurement & verification processes. The IESO held the second DR auction beginning on December 7th and posted the results on December 15th, 2016 with a 30% increase in participation relative to the December 2015 auction. • Approximately 810 MW of capacity was qualified for the summer 2017 commitment period and 820 MW was qualified for the winter 2017/2018 commitment. • Established a long term DR growth trajectory that provides the IESO and businesses with greater clarity on the market for DR over the longer term, and that achieves the 2013 Long Term Energy Plan (LTEP) targets for DR.	**Meets**
Respect and value Ontario's stakeholders.	Input from stakeholders, communities and others across the electricity sector is solicited and responded to after establishing principles and processes to do so.	• Stakeholder satisfaction with IESO principles and processes is indicated through survey results to remain consistent or exceed the baseline set in 2015.	The Stakeholder Satisfaction survey reported a satisfaction score of 65/100 of the engagement process.	**Meets**
Effectively plan for the future electricity needs of the province.	Regional plans are completed in accordance with regulatory timelines, and key recommendations in provincial and regional plans are initiated and progressing as required.	Regional plans are completed in accordance with required regulatory timelines. • For the eight Integrated Regional Resource Plans (includes one interim plan), the timelines established in 2015 for progress in 2016 on 30 key recommendations are met.	In 2016, regional plans were completed in accordance with regulatory timelines. This included the completion of six IRRPs in 2016 in addition to the existing eight IRRPs completed in 2015. • Achievements towards completing the milestones established for 2016 associated with the 30 key recommendations are on track.	**Meets**

Performance Objective	Measure	Target	(Year-to-Date) Update	Result
		• Progress and work with remote communities on six priority bulk transmission projects from provincial plan(s) (the 2013 Long Term Energy Plan) are tracked, along with associated milestones with timelines in 2016 (Note: timelines may be amended based on periodic updates to planning assumptions).	• Milestones for the six bulk transmission priority projects were on track in 2016. This involved active ongoing discussions with transmitters, LDC's and the Ontario Energy Board (OEB) to progress implementation of recommendations including discussions with transmitters and LDC's on detailed scope of work, development of evidence in support of approvals and discussions with the OEB on issues associated with cost attribution. In addition the IESO provided support in the implementation and approval of priority projects, including the East-West-Tie line (Bill 112).	
Enhance corporate resilience through change initiatives and meet present and future customer needs.	Priority projects are completed on time and budget and meet their business objectives.	• At least 80 percent of the 10 priority capital projects are completed or are progressing on time and budget, and meet those business objectives that can be measured in 2016.	• 80 percent of the ten priority capital projects, including three closed projects, progressed within their original approved budget and schedule in 2016. Two closed projects met the business objectives. The business objectives measurements of remaining closed projects will continue to take place in the subsequent years.	**Meets**
Deliver public value in a cost-effective manner.	Business plan deliverables are executed within approved budget and headcount.	• Execution of deliverables is consistent with the approved 2016 business plan, while meeting synergy targets and a reduced combined fee.	• 2016 deliverables were executed within the approved budget and headcount. Synergy targets were built into the operating budget and maintained; and the IESO's combined fee was reduced.	**Meets**

SEC INTERROGATORY 4

1.0 Revenue Requirement, Operating Costs and Capital Spending

Issue 1.1

Is the IESO's Fiscal Year 2017 net revenue requirement of $190.8 million appropriate?

INTERROGATORY

Please provide information to demonstrate how the savings from the merger of the IESO and the Ontario Power Authority have, and will continue to be, sustainable.

RESPONSE

Please refer to the response to Energy Probe 3 at Exhibit I, Tab 1.3, Schedule 5.03.

Below are estimates of merger savings that resulted in the IESO's commitment of net $5.3 million merger synergies. The synergy savings realized in 2015 through the merger are sustained over the 2017-2019 planning period and beyond as they are embedded in the reduced budget base for each year.

Description of Synergy Savings , $ millions	**2015**
Compensation & Benefits	3.19
Single Board of Directors	0.60
Office Space Reduction	1.32
Rationalization of systems and services	0.21
	5.32

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SEC INTERROGATORY 5

1.0 Revenue Requirement, Operating Costs and Capital Spending

Issue 1.1

Is the IESO's Fiscal Year 2017 net revenue requirement of $190.8 million appropriate?

INTERROGATORY

Please provide a summary of all internal audit reports issued in the past 2 years, their recommendations and the status of the implementation of those recommendations.

RESPONSE

Internal Audit provides independent and objective services on risk management, controls and governance processes to management and the Audit Committee of the Board of Directors. The IESO Internal Audit function is committed to being a high value, cost-effective contributor to the overall business success of the IESO. Annually, the Internal Audit group develops a three year Audit Services Plan.

The Audit Services Plan typically includes audits covering process control, information technology and policy compliance. The following provides, for the period 2015 to 2017, a listing of the internal audits completed by audit type, a summary of key themes and recommendations, and the current status of management's remediation activities.

Process Control

The objectives of a process control review are to confirm that the IESO's controls are designed appropriately for the task, as well as to verify that they are operating as designed. These reviews may confirm that the organizational or program processes are aligned with leading industry practices.

The Process Control audits completed are:

- Dispatch algorithm (bi-annual)
- Claims adjudication and payment process (annual)
- CEO and Chair expenses (annual)
- CSAE 3416 Market Settlements (external auditor) (bi-annual)
- CSAE 3416 MDMR (external auditor) (annual)
- MMP independence review (annual)

- Detect and investigate non-compliance with market rules
- Market suspension and resumption process
- Internal compliance program
- Employee expense process integration
- Pay Services review
- Demand Response auction review
- Business Continuity
- Effective separation review
- Project portfolio management
- FIT procurement review
- Schedule Interchange transaction review
- Market rules enforcement process
- Meter Market Participant independence
- Network Model Process & Database review
- LDC Conservation Plan and Program review (external)

The following is a summary of key recommendations documented by Internal Audit to address identified findings:

- Internal outreach to increase awareness of departmental services and share information
- Reporting activity is completed according to requirements
- Ensure measures are taken to mitigate perceived conflicts of interest in IESO activities
- Ensure corporate documentation is current, user friendly and appropriately meet the intended use
- Ensure software applications and end user computing tools are appropriate for the task, effective and maintained according to policy
- Develop inventory of all end user computing tools
- Ensure data and records are properly categorised, managed, stored and retained
- Bring physical records into alignment with digital records and
- Ensure alignment with the Electronic Records as Documentary Evidence Standard
- Ensure service level agreements exist within the IESO to allow for timely completion of work tasks and projects, and that the standards are tracked and monitored
- Ensure disaster recovery exercises routinely include scenarios where all critical IT systems are rebuilt

- Ensure policies and procedures are clear, documented and applied consistently across the company
- Ensure decisions are properly documented, communicated and maintained
- Ensure roles, responsibility and reporting relationships are clearly defined, appropriate and implemented
- Identify resource backup for Business Continuity Coordinator role
- Develop stakeholder engagement plan for all significant engagement activities

Information Technology

The objective of an IT review is to confirm that IESO's IT system control and processes are designed appropriately for the purpose, as well as to verify that these controls are operating as intended. These reviews often confirm that the controls and practices are aligned with leading industry practices. IT and end user computing tool reviews are often included within process audits.

The Information Technology audits completed between July 1, 2014 and July 1, 2016 are:

- IT General Controls (part of the CSAE 3416) (bi-annual)
- IT Security (penetration testing) (annual)
- IT Security program review (external)
- Fulfill IT Request

The following is a summary of key recommendations documented by Internal Audit to address identified findings:

- Develop formal mechanisms to establish governance roles and responsibilities
- Ensure service level agreements exist within the IESO to allow for timely completion of work tasks and projects, and that the standards are tracked and monitored
- Ensure access management occurs in a timely and accurate manner
- IT back-up process enhanced
- Update system change process, and ensure that it includes
    - review of business continuity plans
    - guidelines for user acceptance testing

Policy Compliance

The objective of policy compliance reviews is to confirm that the organization is in compliance with documented and approved corporate or government policies. A secondary objective of these reviews is to identify any existing gaps in the policy and procedure (e.g. a new

government administrative directive, such as the Travel, Meal, Hospitality and Expenses Directive) that should be updated by the IESO.

The Policy Compliance audits completed between are:

- MOU compliance (annual)
- Mock audit for NPCC compliance (every 3 years)
- Internal Audit Quality Assurance Review (every 5 years)
- Ethics Line
- Regulated price plan self-certification
- Corporate Performance Metrics review

The following is a summary of key recommendations documented by Internal Audit to address identified findings:

- Ensure that governance and policies necessary to comply with privacy requirements are developed and implemented
- Conduct an IT governance review on a regular basis
- Include consideration of fraud risk in all audits
- Deepen audit staff capacity to conduct data analytics
- Ensure appropriate independence between when necessary to avoid actual or perceived conflict

<u>Management Response and Action Plans</u>

Management has fully participated in the internal audit process, has accepted recommendations presented by Internal Audit and implemented necessary action plans. Examples of management action items include:

- Staff training is delivered
- Reporting protocols and processes are developed and implemented
- Independent audits implemented
- Documents and policies are revised and updated
- Software applications are reviewed and proper maintenance is confirmed
- Records management program is being deployed across the company
- Department strategies are developed and implemented
- Roles and responsibilities are under review in identified areas
- IT governance audit is planned

- Table top exercise conducted for BES critical systems
- EUCT inventory is being created
- Implementation of a new access management tool

As of August, 2017 there were fourteen (14) open action items related to audits completed between 2015-2017. These actions items relate to the following three (3) audits completed in the last two years:

- FIT Procurement Process
- Business Continuity Management Program Review
- Market Rules Enforcement Process Review

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SEC INTERROGATORY 6

1.0 Revenue Requirement, Operating Costs and Capital Spending

Issue 1.1

Is the IESO's Fiscal Year 2017 net revenue requirement of $190.8 million appropriate?

INTERROGATORY

With respect to the budgeting process:

a) Please provide a step-by-step explanation of the IESO' budgeting process.

b) Please provide copies of any budget planning instructions that are circulated within the organization.

RESPONSE

a) The response below is taken from SEC Interrogatory 2, at Exhibit I, Tab 1.0, Schedule 8.02 in EB-2015-0275, the IESO's 2016 Revenue Requirement submission. A revised version is provided below.

Business planning is the process used at the IESO to identify the business needs and resource requirements necessary to support the IESO's business needs and strategic priorities. The IESO leadership team collaborates to prioritize deliverables based on strategic goals and in consideration of risk assessments.

The Business Planning process is conducted annually and starts in early spring with a strategic planning exercise. During this process, the management team is tasked with prioritizing deliverables, identifying risks and determining the required resources. The business plan is comprised of draft three year financial projections, including corresponding resourcing requirements, key enterprise risks and performance measures for the planning period.

The IESO's Board of Directors and senior management solicit initial input from Stakeholder Advisory Committee (SAC) members and further meetings are held with SAC members to discuss IESO priorities and corporate performance measures to develop the business plan. In the late summer, the IESO presents its business plan at a formal SAC meeting (attended by IESO Board members) and solicits further feedback.

The plan is then updated based on SAC input and submitted for approval to the IESO Board of Directors. Once approved by the Board of Directors, the Business Plan is submitted to the Minister of Energy, who must approve it before the IESO's annual fees submission is filed

with the Ontario Energy Board. The Business Plan is filed in support of the IESO's fees submission. It spans three years; however, the OEB approves a fee for only the first year. The OEB-approved fee establishes the IESO's annual budget.

b) The business planning process is led by the Financial Planning and Analysis team, and leverages working groups and collaborative meetings with business units and IESO leadership; no written instructions are circulated.

SEC INTERROGATORY 7

1.0 Revenue Requirement, Operating Costs and Capital Spending

Issue 1.1

Is the IESO's Fiscal Year 2017 net revenue requirement of $190.8 million appropriate?

INTERROGATORY

Please provide a copy of the IESO’s organizational chart.

RESPONSE

Please refer to Attachment 1 for the IESO’s organizational chart.

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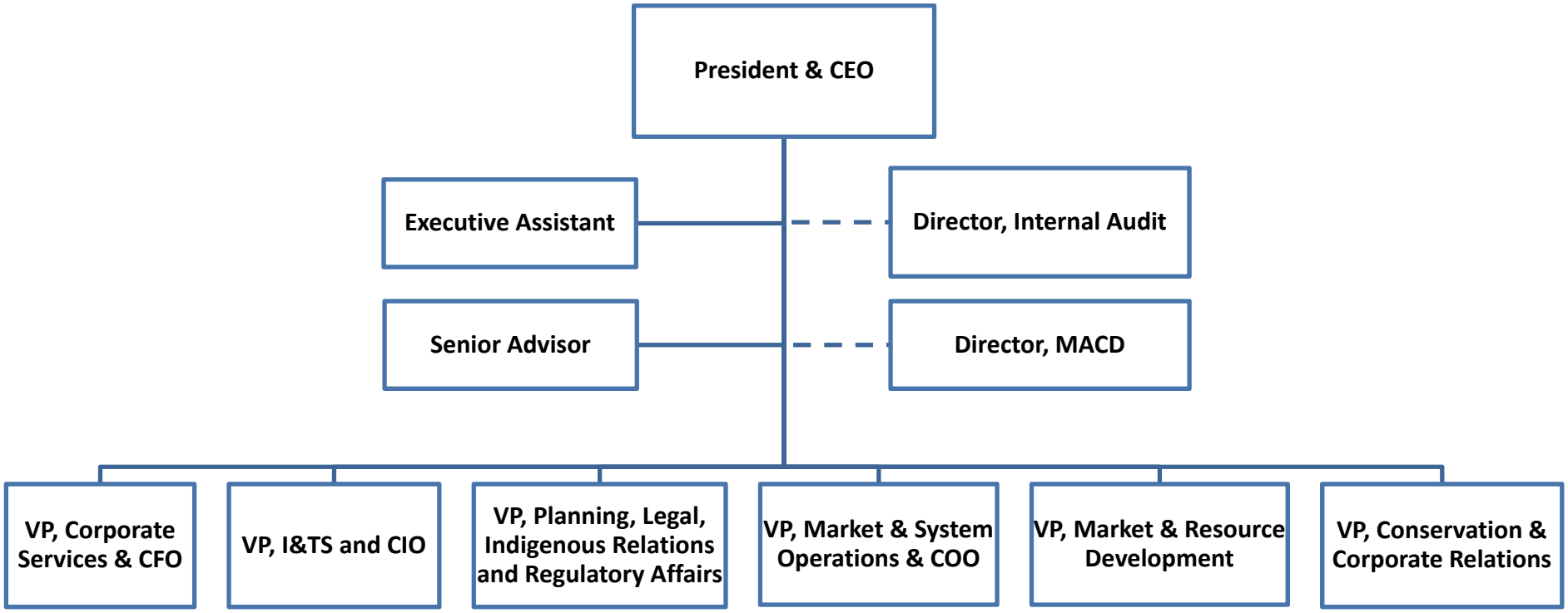
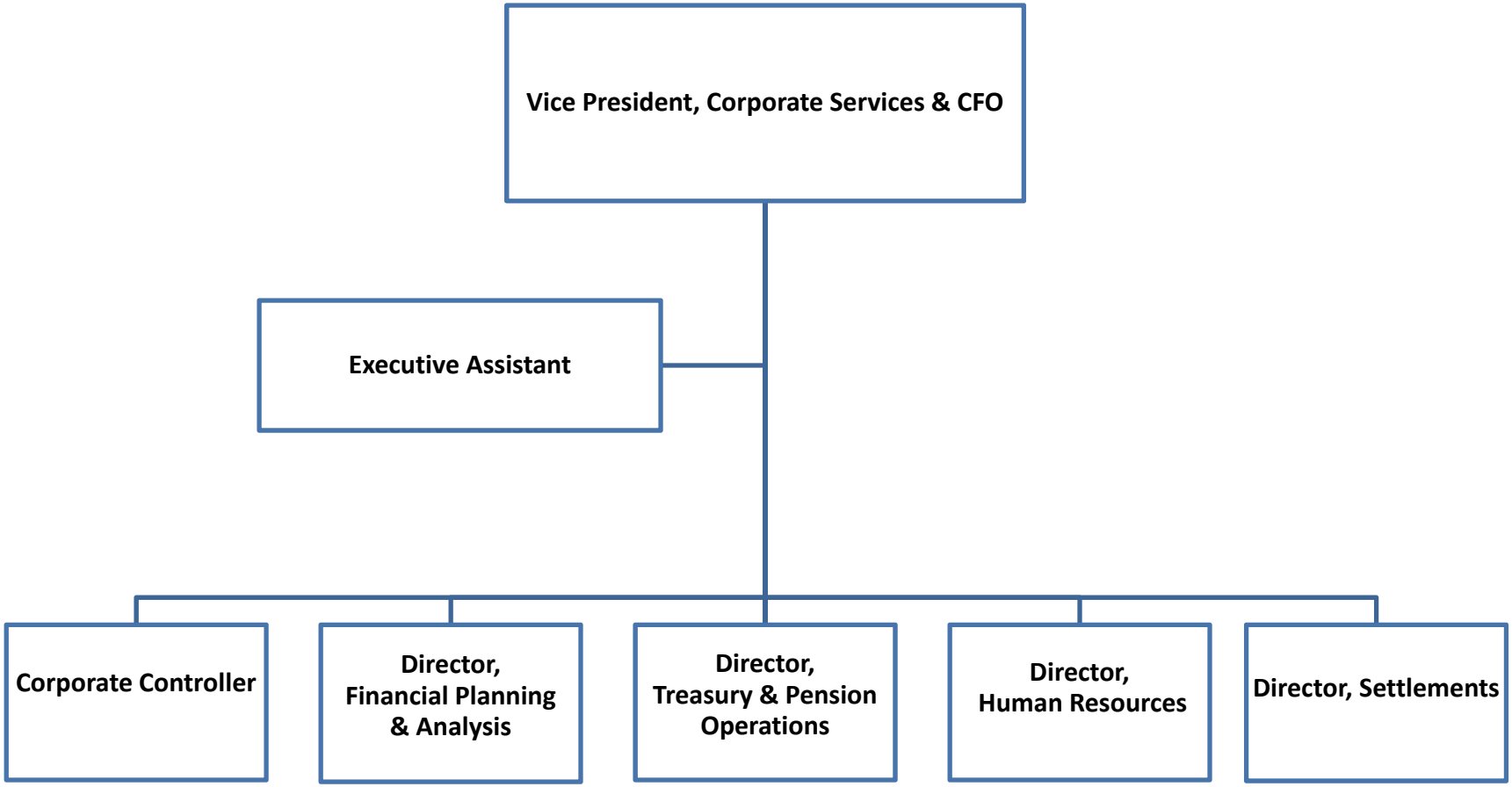
IESO


President & CEO
Executive Assistant
Director, Internal Audit
Senior Advisor
Director, MACD
VP, Corporate Services & CFO
VP, I&TS and CIO
VP, Planning, Legal, Indigenous Relations and Regulatory Affairs
VP, Market & System Operations & COO
VP, Market & Resource Development
VP, Conservation & Corporate Relations

CORPORATE SERVICES



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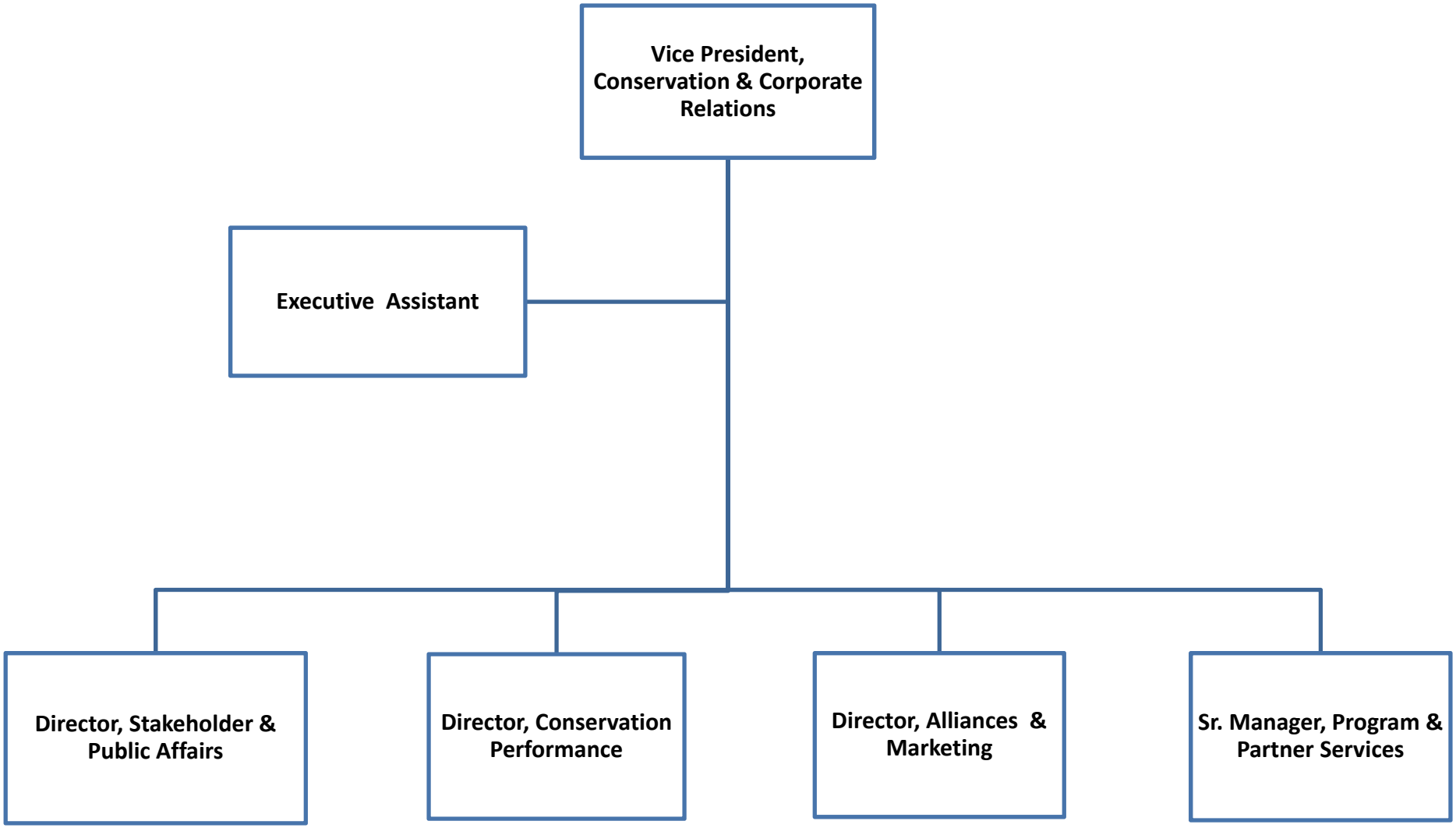

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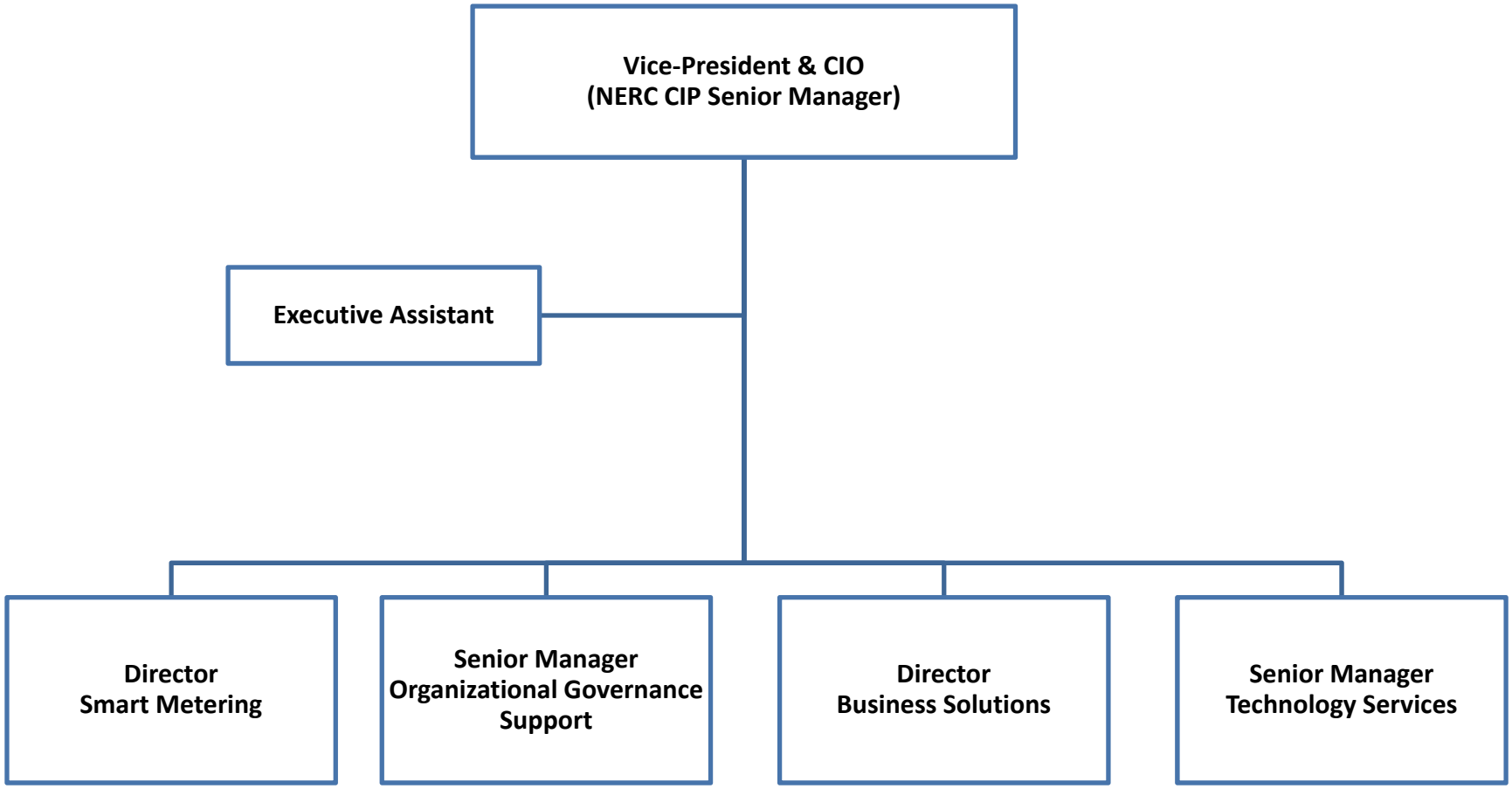

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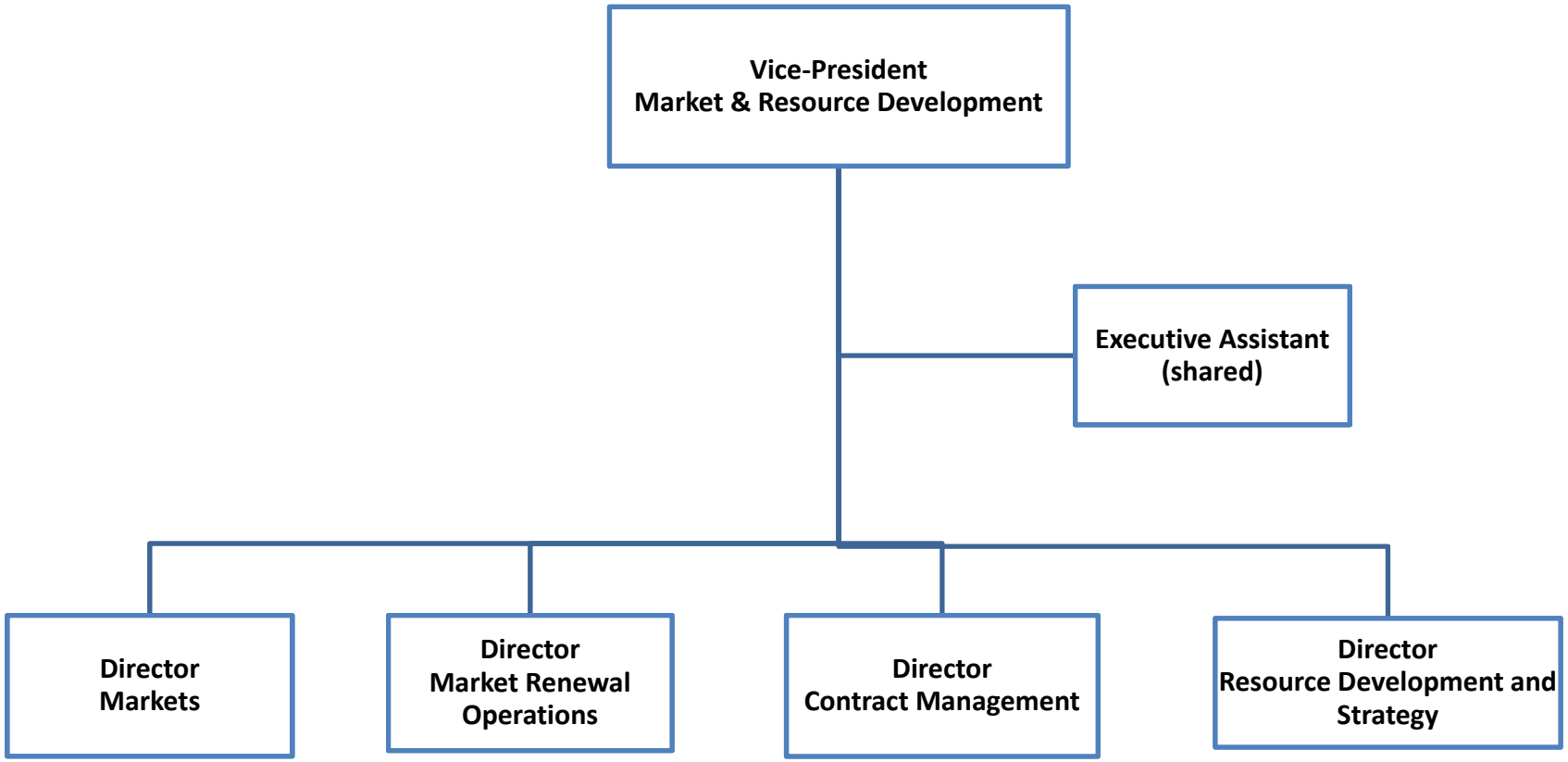
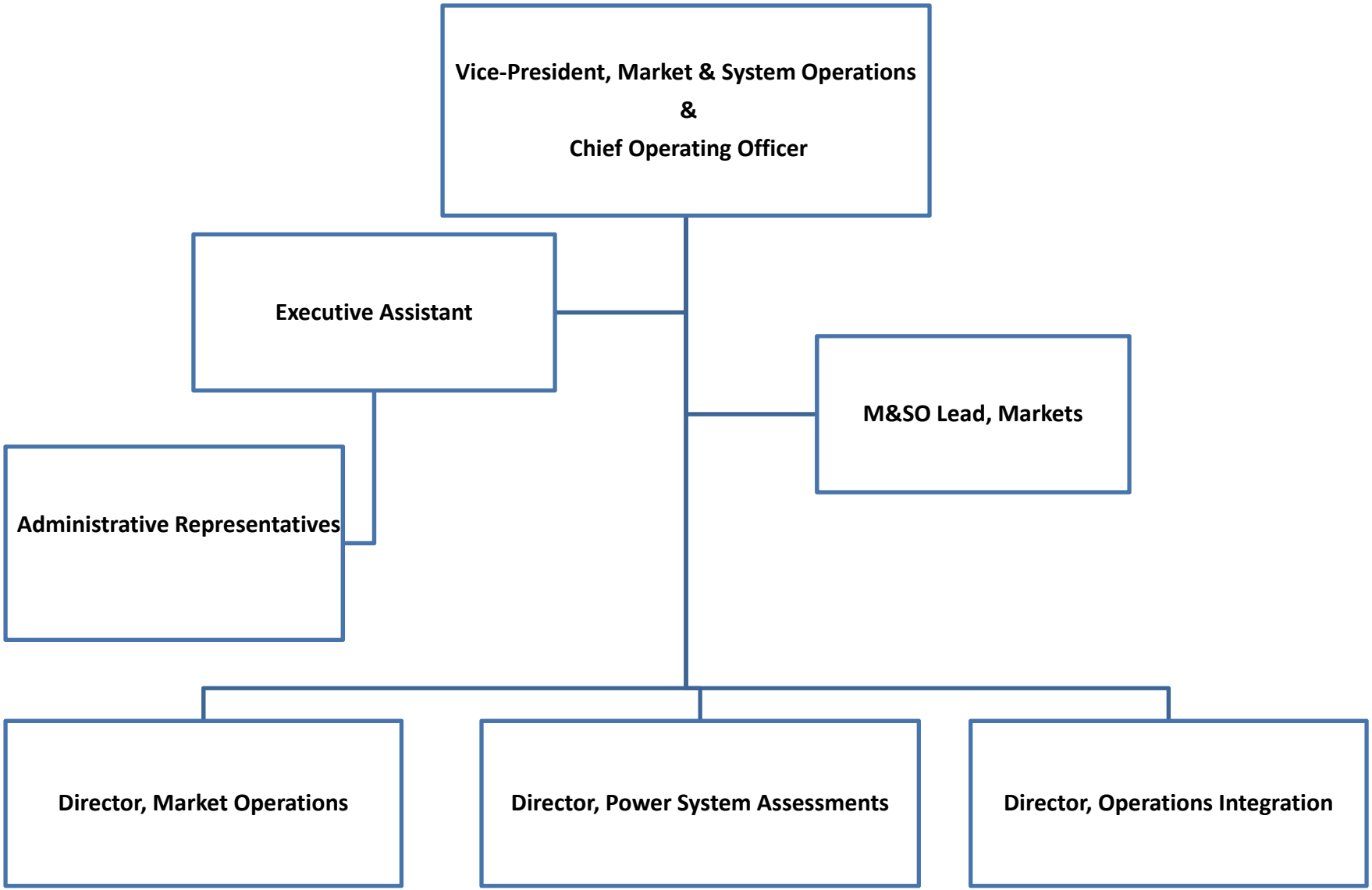
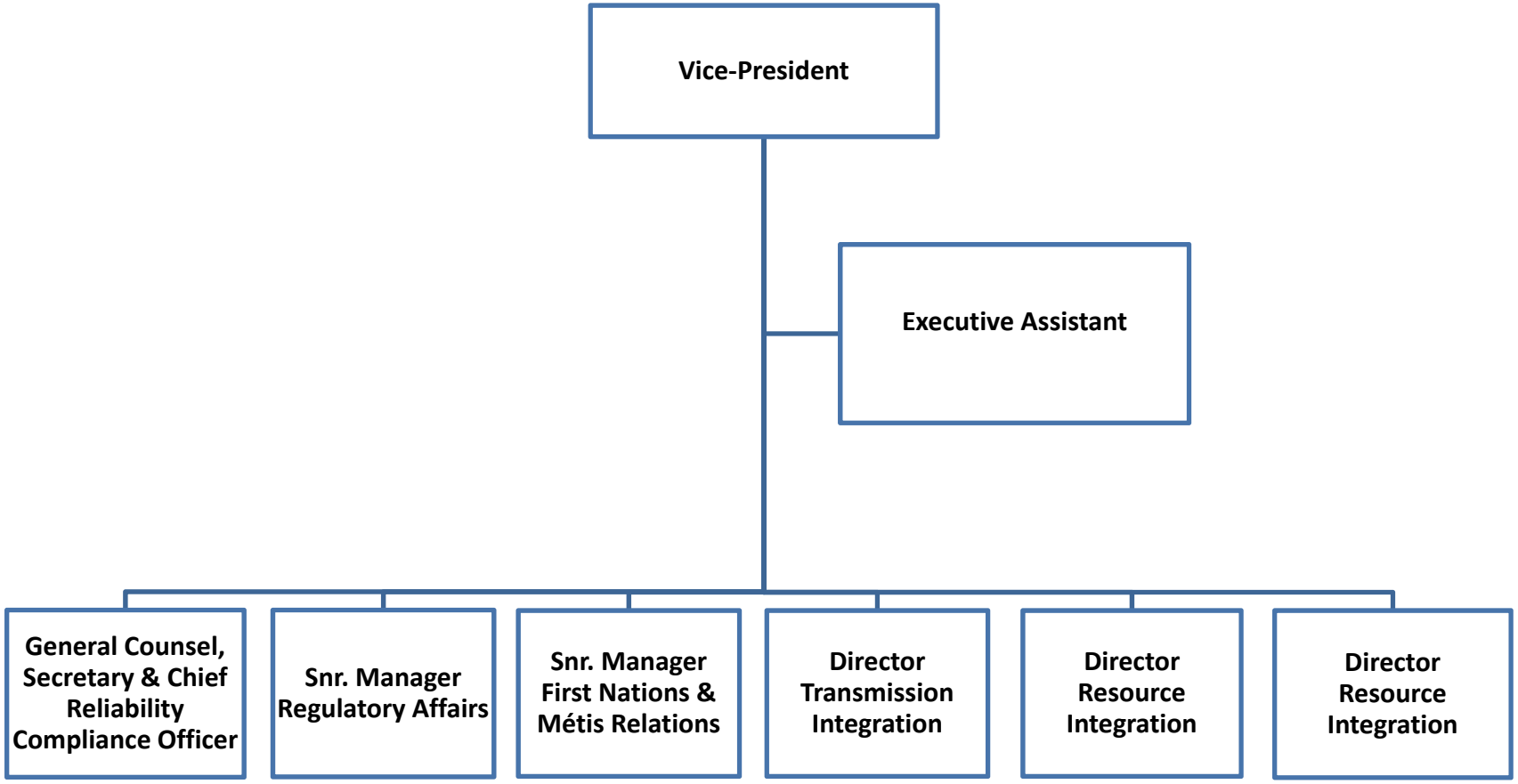


MARKET & SYSTEM OPERATIONS



Planning, Legal, Indigenous Relations and Regulatory Affairs



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