# Experience from Utility Sponsored Conservation Programs

ورشة عمل حول

**الخطة الوطنية لتحسين كفاء استخدام الطاقة فى مصر- تنسيق الجهود**

14 & 15 ابريل 2016

العين السخنة – مصر

# Contents

- Relevant context within the province of Ontario
- **Territorial targets based on achievable potential studies.**
- Top-down approach in setting provincial targets
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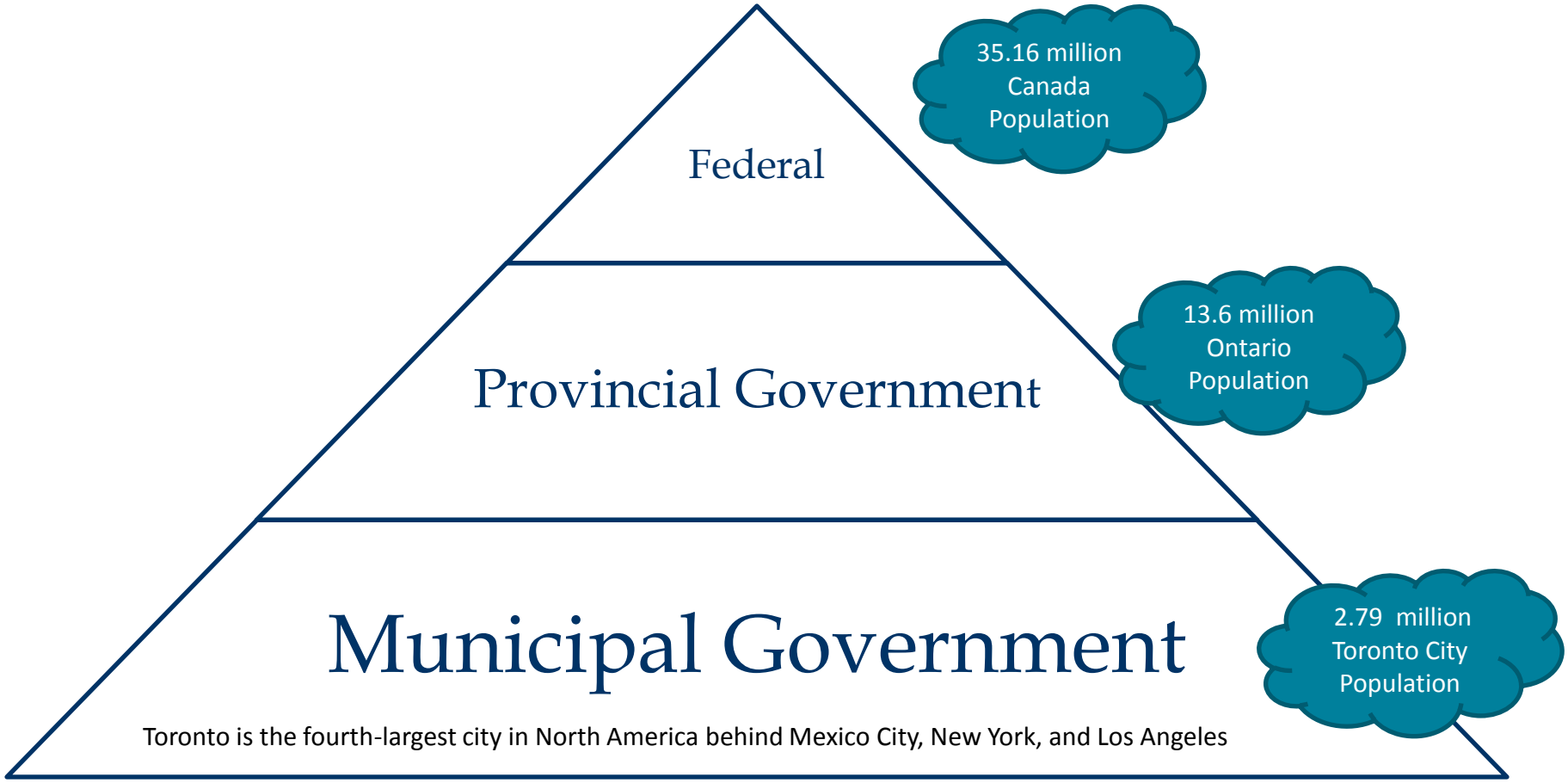
- The Measurement and Verification (M&V) methodologies and assumptions used for the bottom-up verifications of the savings are presented.
- The evaluation and reporting of program results at the utility level and the province levels

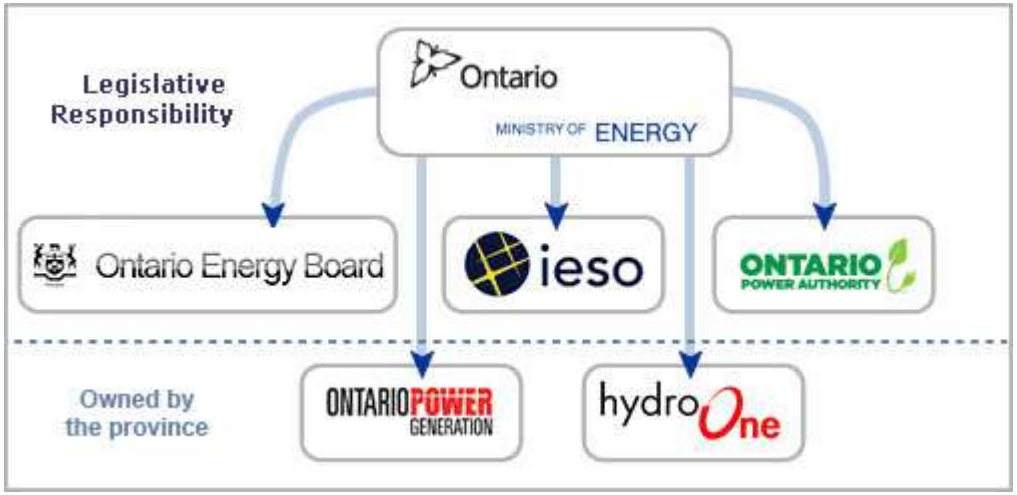
# 3 Levels of Government in Canada



# Electricity within the province of Ontario

Ontario Hydro 1906-1998 vertically integrated government owned utility

79 utilities (City owned LDCs)




Electricity Act, 1998

- Ontario Power Generation
- Hydro One
- Electrical Safety Authority
- Ontario Electricity Financial Corporation
- IESO
- OEB

1999 Board Act

The Ministry creates energy policy to make sure that:

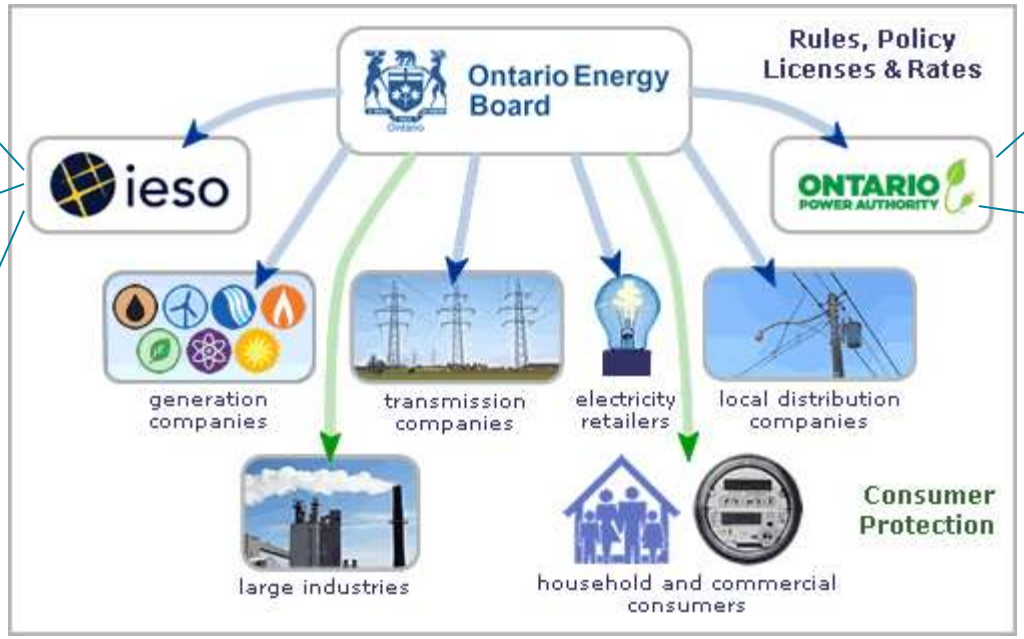
- The energy sector is efficient and competitive.
- The industry is environmentally sustainable.
- There is a safe and reliable energy supply.
- The rights of consumers are protected.

# Rules, Policy Licenses & Rates

Medium & Long Term Planning

Interconnection
Manitoba, Michigan, Minnesota, NY & Quebec

Market Operator




Conservation

Demand Response

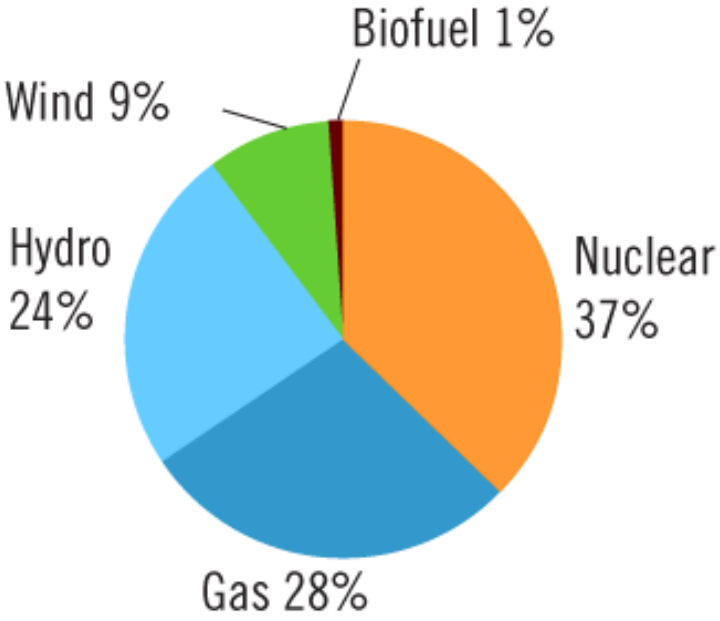
# Current Supply Mix

Ontario's installed generation capacity totals 35,163 MW

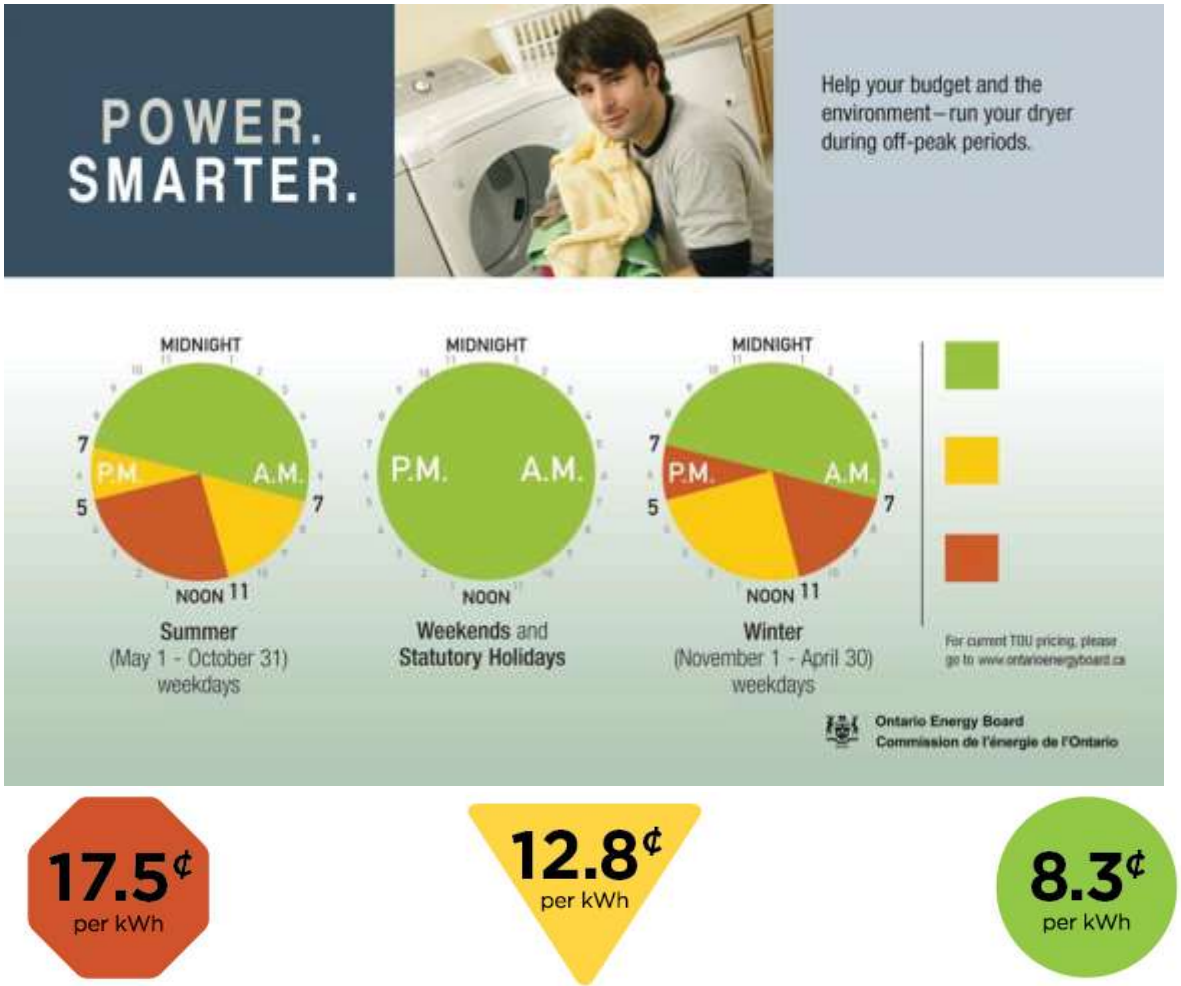
Ontario Power Generation (OPG) and independent power producers.

Long-term PPAs with the IESO or the Ontario Electricity Financial Corporation (OEFC).

The revenues of these generators are paid through the wholesale market and the difference between the wholesale price and the guaranteed payment set in their contracts is settled through the global adjustment.

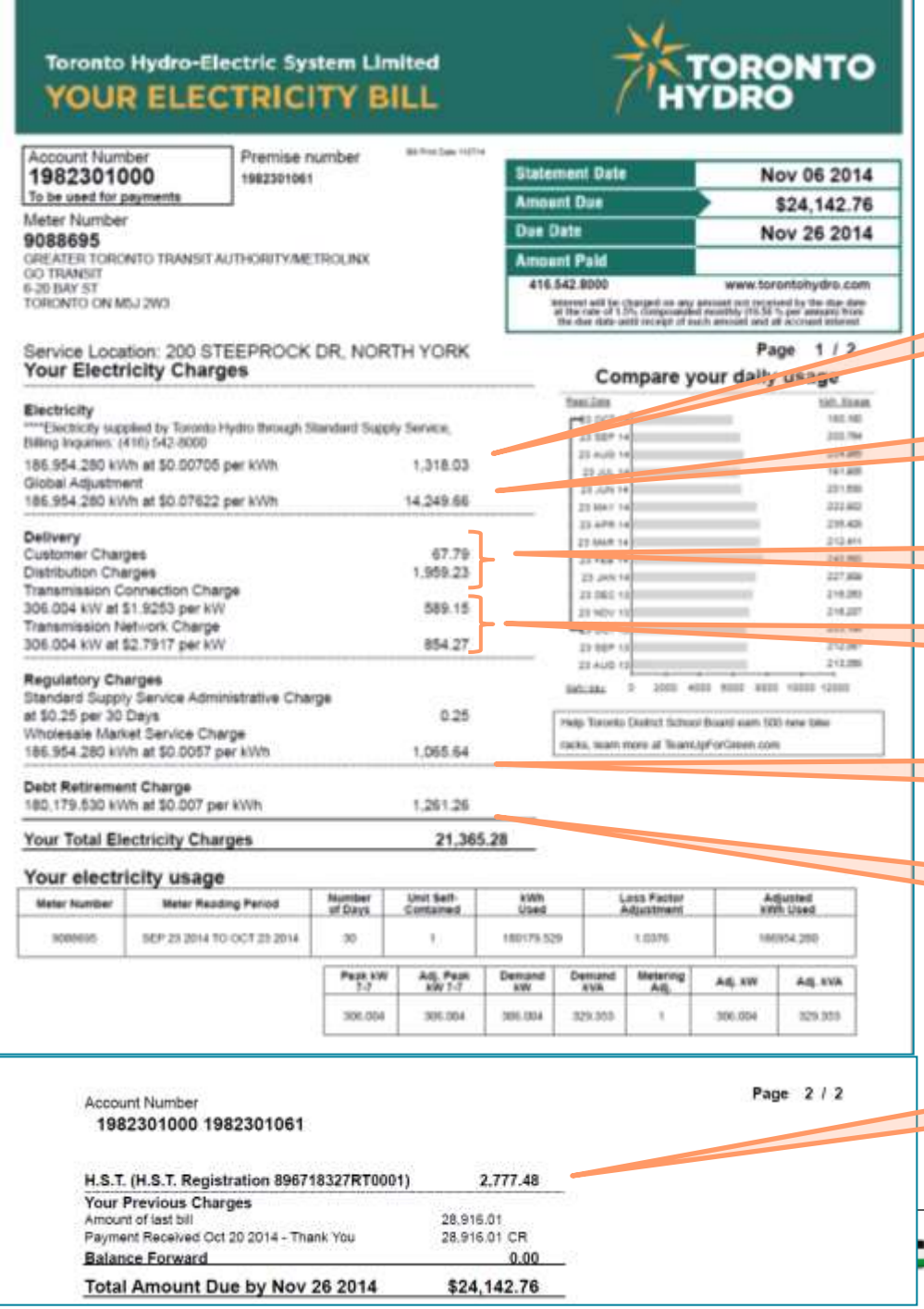


# Residential



## Business Account – Class B Customers

1. General Service: Monthly demand of 50 kW to 999 kW
2. General Service: Monthly demand of 1000 kW to 4999 kW



Toronto Hydro-Electric System Limited

YOUR ELECTRICITY BILL

TORONTO HYDRO

Account Number 1982301000
To be used for payments

Premise number 1982301061

Meter Number 9088695

GREATER TORONTO TRANSIT AUTHORITY/METROLINX
GO TRANSIT
6-20 BAY ST
TORONTO ON M5J 2W3

| | |
|---|---|
| Statement Date | Nov 06 2014 |
| Amount Due | $24,142.76 |
| Due Date | Nov 26 2014 |
| Amount Paid | |

416.542.8000 www.torontohydro.com

Page 1 / 2

Service Location: 200 STEEPROCK DR, NORTH YORK

Your Electricity Charges

Compare your daily usage

Electricity
****Electricity supplied by Toronto Hydro through Standard Supply Service.
Billing Inquiries: (416) 542-8000
186,954.280 kWh at $0.00705 per kWh 1,318.03
Global Adjustment
186,954.280 kWh at $0.07622 per kWh 14,249.66

Delivery
Customer Charges 67.79
Distribution Charges 1,959.23
Transmission Connection Charge
306.004 kW at $1.9253 per kW 589.15
Transmission Network Charge
306.004 kW at $2.7917 per kW 854.27

Regulatory Charges
Standard Supply Service Administrative Charge
at $0.25 per 30 Days 0.25
Wholesale Market Service Charge
186,954.280 kWh at $0.0057 per kWh 1,065.64

Debt Retirement Charge
180,179.530 kWh at $0.007 per kWh 1,261.26

Your Total Electricity Charges 21,365.28

Your electricity usage

| Meter Number | Meter Reading Period | Number of Days | Unit Self-Contained | kWh Used | Loss Factor Adjustment | Adjusted kWh Used |
|---|---|---|---|---|---|---|
| 9088695 | SEP 23 2014 TO OCT 23 2014 | 30 | 1 | 180179.529 | 1.0376 | 186954.280 |

| Peak kW 7-7 | Adj. Peak kW 7-7 | Demand kW | Demand kVA | Metering Adj. | Adj. kW | Adj. kVA |
|---|---|---|---|---|---|---|
| 306.004 | 306.004 | 306.004 | 329.353 | 1 | 306.004 | 329.353 |

Account Number
1982301000 1982301061

Page 2 / 2

H.S.T. (H.S.T. Registration 896718327RT0001) 2,777.48

Your Previous Charges
Amount of last bill 28,916.01
Payment Received Oct 20 2014 - Thank You 28,916.01 CR
Balance Forward 0.00

Total Amount Due by Nov 26 2014 $24,142.76

Electricity 5.46 %

Global Adjustment 59.02 %

Toronto Hydro Distribution 8.40 %

Hydro One Transmission 5.98 %

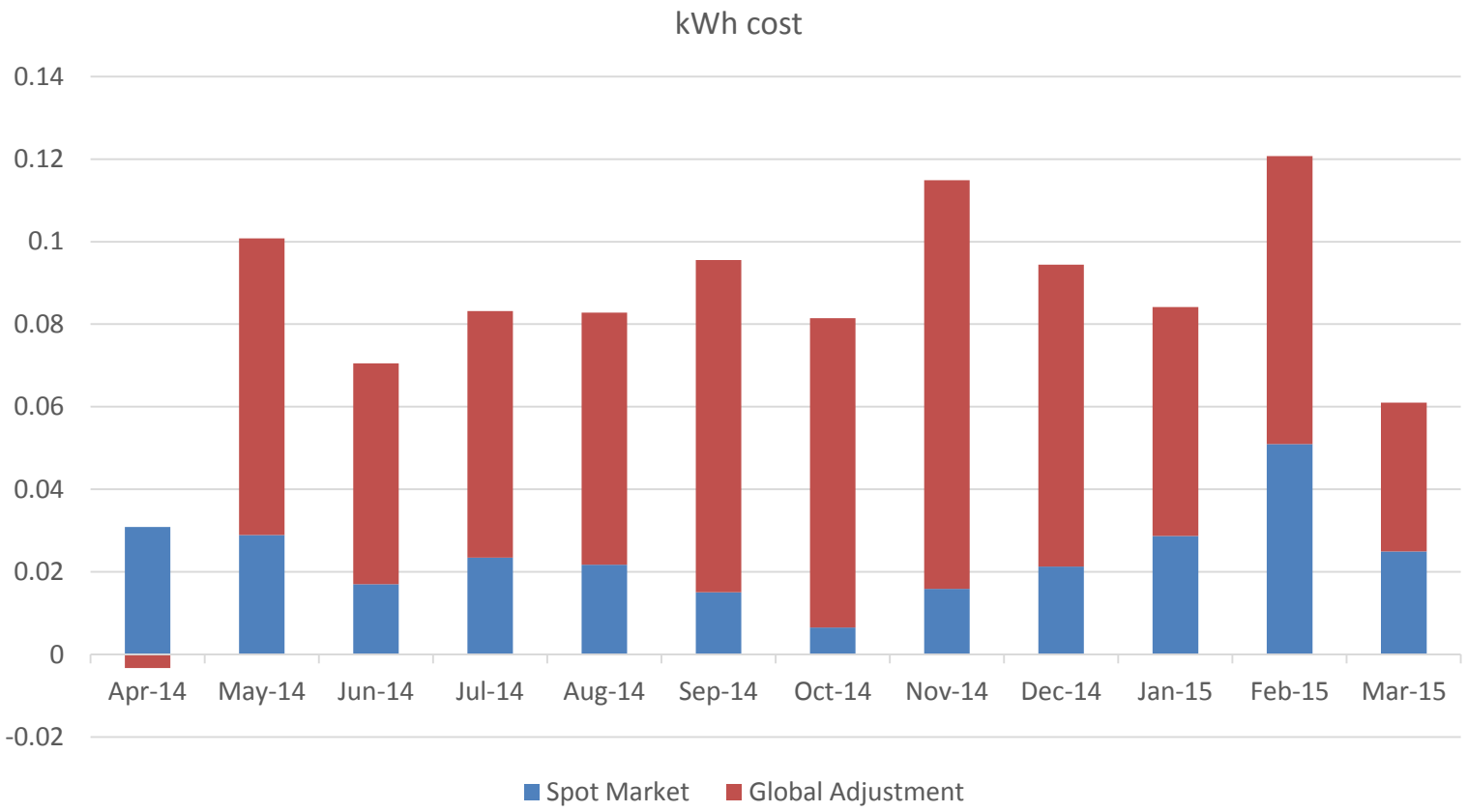
IESO Charges 4.41 %

OEFC 5.22 %

HST 11.50 %

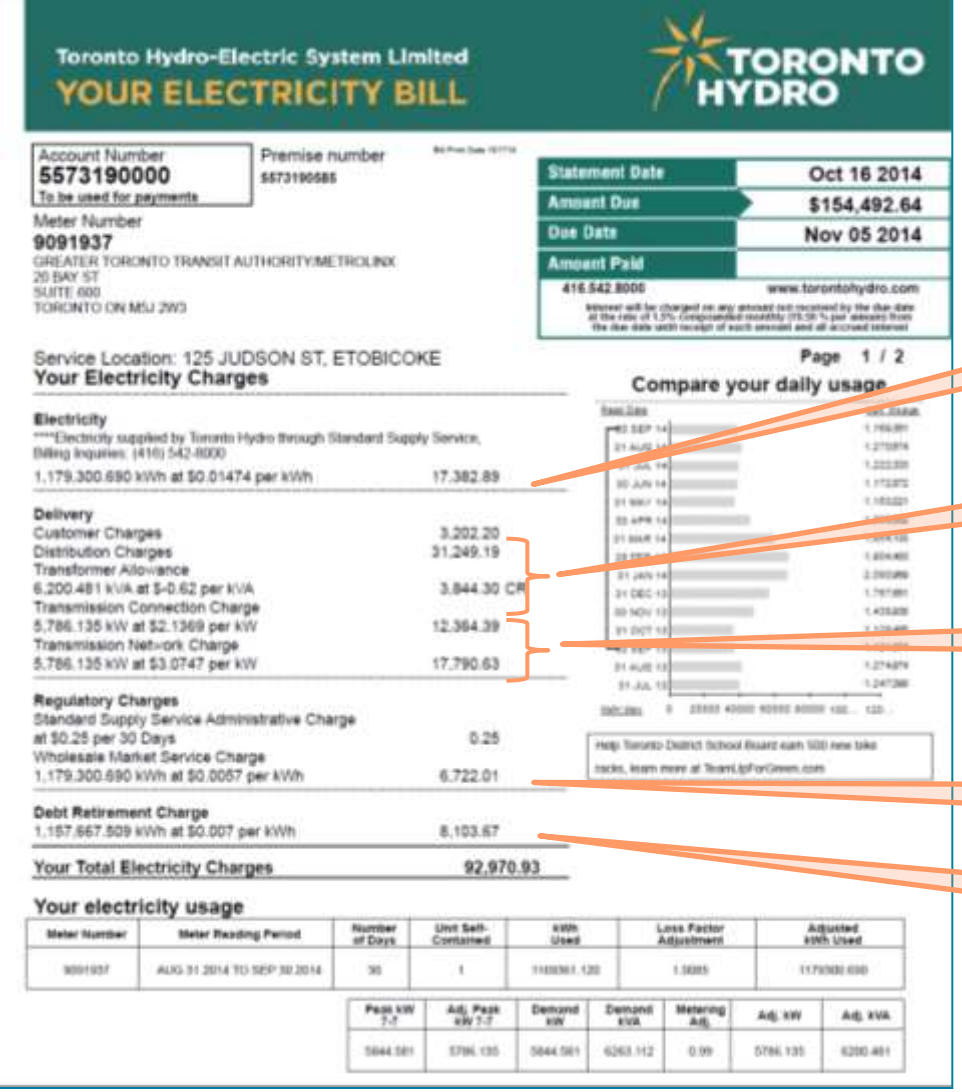
RCREEE

# Electricity kWh cost for Class B customers



# Business Account – Class A Customers

## 1. General Service: Monthly demand of above 5000 kW



Toronto Hydro-Electric System Limited

YOUR ELECTRICITY BILL

TORONTO HYDRO

Account Number
**5573190000**
To be used for payments

Premise number
5573190585

Meter Number
**9091937**
GREATER TORONTO TRANSIT AUTHORITY/METROLINX
20 BAY ST
SUITE 600
TORONTO ON M5J 2W3

| | |
|---|---|
| Statement Date | Oct 16 2014 |
| Amount Due | $154,492.64 |
| Due Date | Nov 05 2014 |
| Amount Paid | |

416.542.8000 www.torontohydro.com

Interest will be charged on any amount not received by the due date at the rate of 1.5% compounded monthly (19.56 % per annum) from the due date until receipt of such amount and all accrued interest

Page 1 / 2

Service Location: 125 JUDSON ST, ETOBICOKE

**Your Electricity Charges**

**Electricity**
*****Electricity supplied by Toronto Hydro through Standard Supply Service.
Billing Inquiries: (416) 542-8000
1,179,300.690 kWh at $0.01474 per kWh 17,382.89

**Delivery**
Customer Charges 3,202.20
Distribution Charges 31,249.19
Transformer Allowance
6,200.481 kVA at $-0.62 per kVA 3,844.30 CR
Transmission Connection Charge
5,786.135 kW at $2.1369 per kW 12,364.39
Transmission Network Charge
5,786.135 kW at $3.0747 per kW 17,790.63

**Regulatory Charges**
Standard Supply Service Administrative Charge
at $0.25 per 30 Days 0.25
Wholesale Market Service Charge
1,179,300.690 kWh at $0.0057 per kWh 6,722.01

**Debt Retirement Charge**
1,157,667.509 kWh at $0.007 per kWh 8,103.67

**Your Total Electricity Charges** 92,970.93

Compare your daily usage

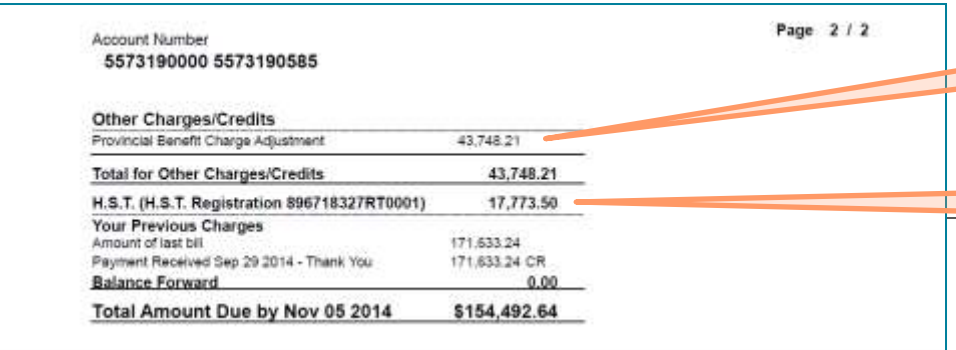


Help Toronto District School Board earn 500 new bike racks, learn more at TeamUpForGreen.com

**Your electricity usage**

| Meter Number | Meter Reading Period | Number of Days | Unit Self-Contained | kWh Used | Loss Factor Adjustment | Adjusted kWh Used |
|---|---|---|---|---|---|---|
| 9091937 | AUG 31 2014 TO SEP 30 2014 | 30 | 1 | 1169361.120 | 1.0085 | 1179300.690 |

| Peak kW T-T | Adj. Peak kW T-T | Demand kW | Demand kVA | Metering Adj. | Adj. kW | Adj. kVA |
|---|---|---|---|---|---|---|
| 5844.561 | 5786.135 | 5844.561 | 6263.112 | 0.99 | 5786.135 | 6200.481 |



Page 2 / 2

Account Number
5573190000 5573190585

**Other Charges/Credits**
Provincial Benefit Charge Adjustment 43,748.21

**Total for Other Charges/Credits** 43,748.21

H.S.T. (H.S.T. Registration 896718327RT0001) 17,773.50

**Your Previous Charges**
Amount of last bill 171,633.24
Payment Received Sep 29 2014 - Thank You 171,633.24 CR
**Balance Forward** 0.00

**Total Amount Due by Nov 05 2014** $154,492.64

Electricity 11.26%

Toronto Hydro Distribution 19.82%

Hydro One Transmission 19.48%

IESO Charges 4.35%

OEFC 5.25%

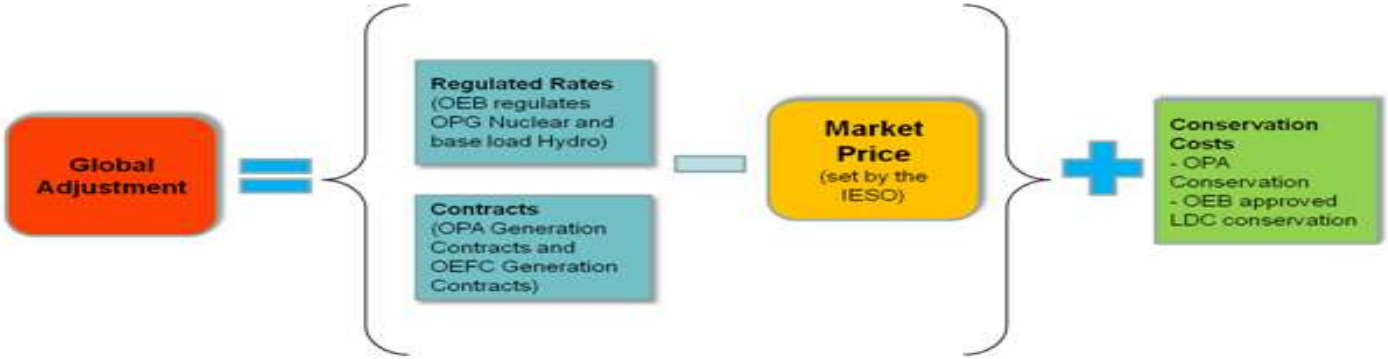
Global Adjustment 28.33%

HST 11.51%

RCREEE

# Global Adjustment

Is the difference between market price and the rates paid to regulated and contracted generators and for conservation and demand management programs…



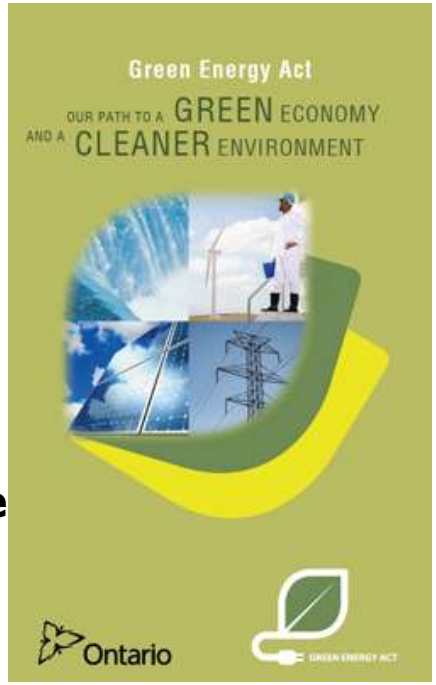

| 2013 | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec | Totoal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GA-OEFC-NUG (M$) - Old Contracts | 100.6 | 93.2 | 113 | 90.1 | 90.7 | 90.5 | 79.4 | 89.2 | 86.1 | 99.1 | 112 | 88.9 | 1133 |
| GA-OPG (M$) – baseload contracts | 127.7 | 106 | 112 | 136 | 155 | 161 | 139 | 180 | 163 | 157 | 197 | 118 | 1753 |
| GA-OPA (M$) for CDM | 380.2 | 328 | 330 | 388 | 411 | 473 | 391 | 431 | 408 | 378 | 538 | 385 | 4842 |
| **Total GA (M$)** | 608.5 | 528 | 555 | 615 | 657 | 725 | 610 | 700 | 657 | 634 | 847 | 592 | 7727 |

Source: Independent Electricity System Operation (IESO), Ontario Power Authority (OPA)

# Ontario CDM policy framework

**In Ontario, the CDM policy framework consists of:**

- legislation, التشريعات
- regulations, اللوائح
- CDM targetsأهداف
- and strategic direction توجهات




watchdog
Environmental Commissioner of Ontario
Your Environment, Your Rights

**Outlined in such documents as:**

- the Ministry of Energy's Long Term Plan,
- and Ministerial directives,
- as well as the OEB's CDM Code,
- and the OPA's Master Agreements and EM&V protocols.

**The CDM policy framework exists to determine**

- who does what,
- how activities are funded,
- how the responsible agencies decide what to do,
- and how they measure their performance.
- The framework also determines the roles of the various stakeholders in designing the framework itself,



RCREEE

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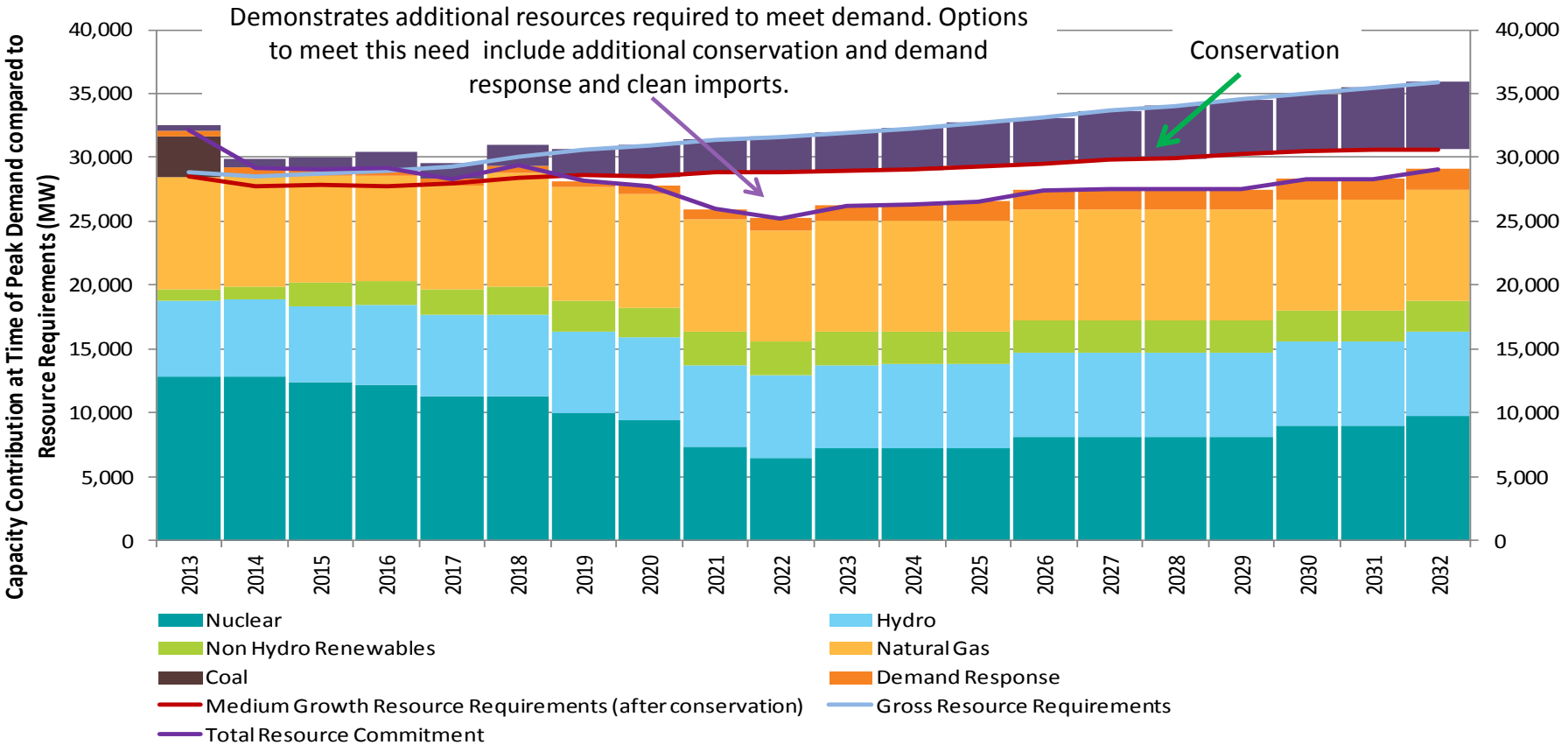
# Conservation in Long Term Energy Plan (LTEP)

- Forecasted conservation through **programs** and **improved standards** is expected to offset almost **all of the growth in electricity demand** and a **substantial portion of peak demand** to 2032.



# Contents

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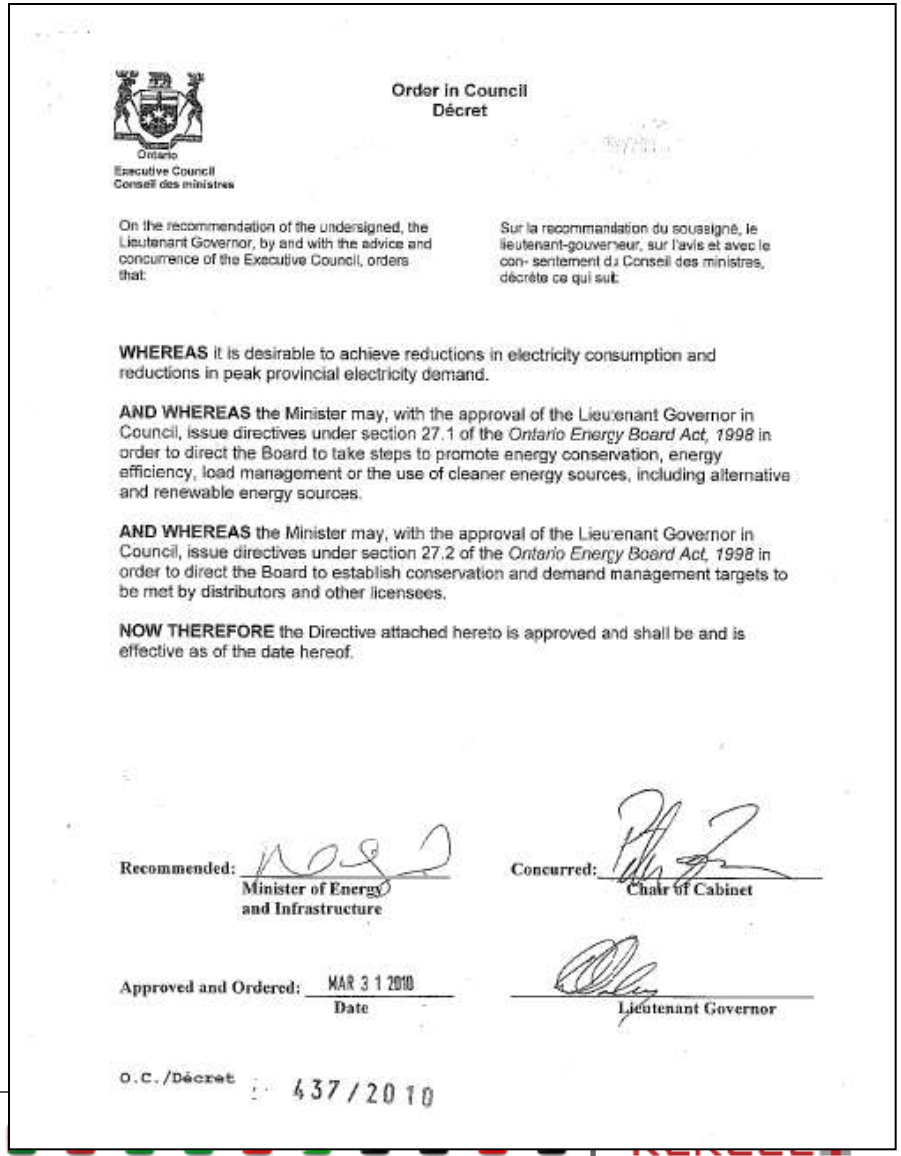
# Top-down approach in setting CDM targets

On March 31, 2010, the Minister issued a directive to the OEB, instructing it to establish:

- mandatory CDM Targets for LDCs to achieve reductions in electricity consumption and reductions in peak provincial electricity demand over a four year period beginning January 1 2011 (the "CDM Targets").
- That directive specified that the total of the CDM Targets established for all LDCs be equal to 1,330 megawatts (MW) of provincial peak electricity demand and 6,000 gigawatt hours (GWh) of electricity consumption over that four-year period ("LDC Provincial Aggregate Targets").



Ontario
Executive Council
Conseil des ministres

**Order in Council**
**Décret**

On the recommendation of the undersigned, the Lieutenant Governor, by and with the advice and concurrence of the Executive Council, orders that:

Sur la recommandation du soussigné, le lieutenant-gouverneur, sur l'avis et avec le con- sentement du Conseil des ministres, décrète ce qui suit:

**WHEREAS** it is desirable to achieve reductions in electricity consumption and reductions in peak provincial electricity demand.

**AND WHEREAS** the Minister may, with the approval of the Lieutenant Governor in Council, issue directives under section 27.1 of the *Ontario Energy Board Act, 1998* in order to direct the Board to take steps to promote energy conservation, energy efficiency, load management or the use of cleaner energy sources, including alternative and renewable energy sources.

**AND WHEREAS** the Minister may, with the approval of the Lieutenant Governor in Council, issue directives under section 27.2 of the *Ontario Energy Board Act, 1998* in order to direct the Board to establish conservation and demand management targets to be met by distributors and other licensees.

**NOW THEREFORE** the Directive attached hereto is approved and shall be and is effective as of the date hereof.

**Recommended:** Minister of Energy and Infrastructure

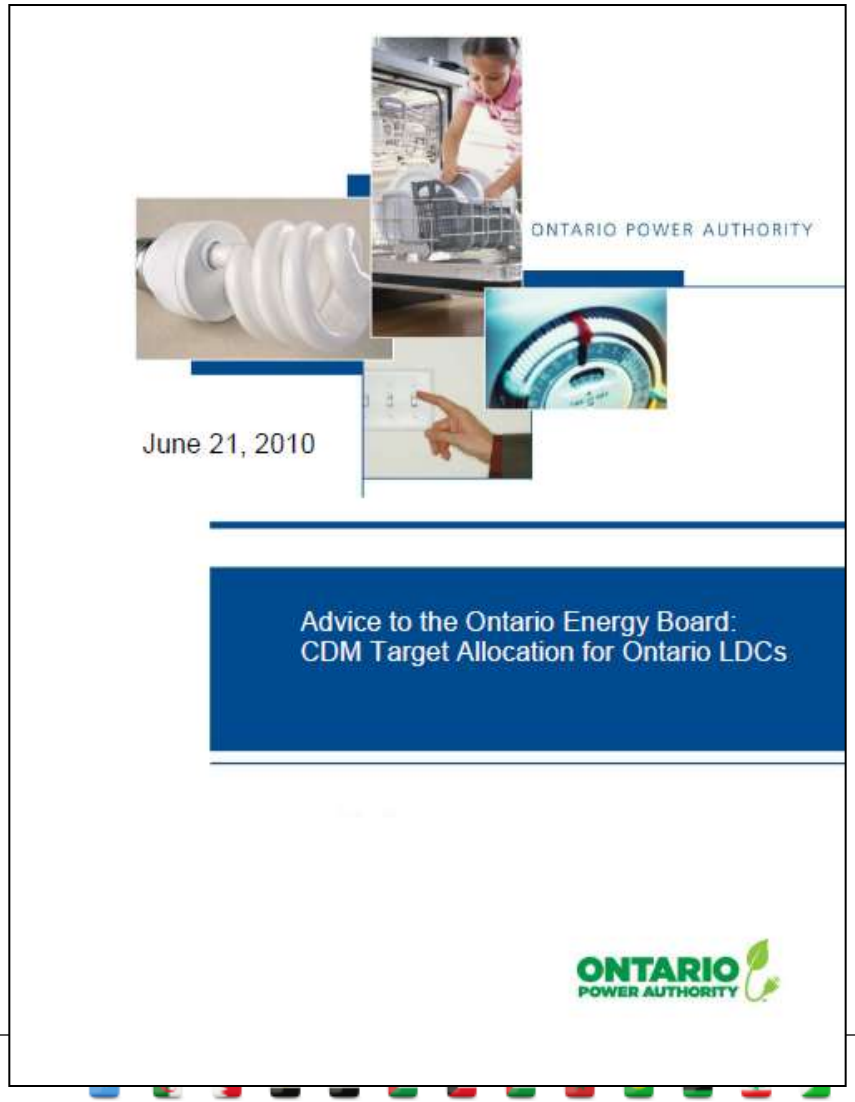
**Concurred:** Chair of Cabinet

**Approved and Ordered:** MAR 31 2010 Date

Lieutenant Governor

O.C./Décret : 437/2010

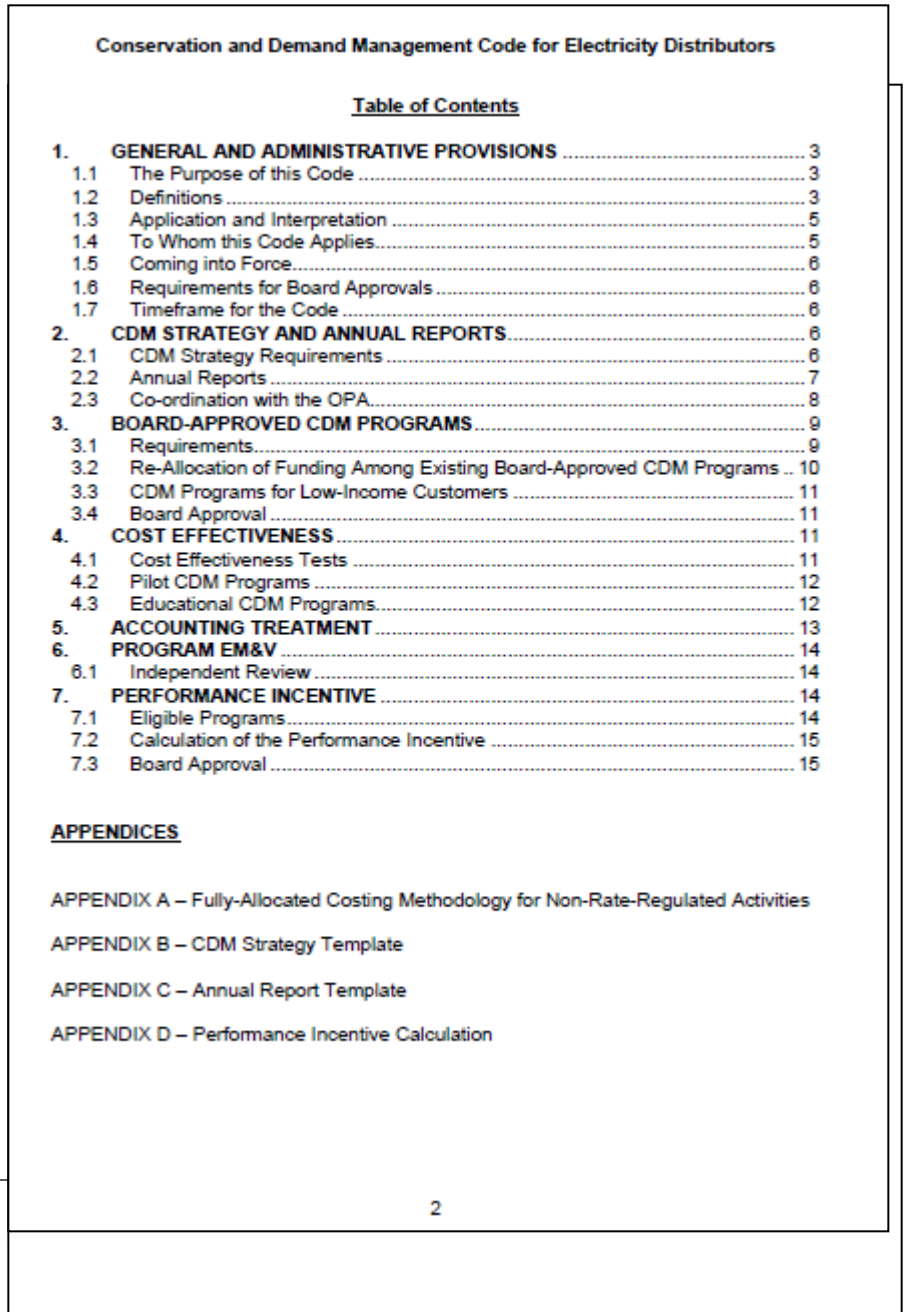
# Advise on assigning CDM Targets to LDCs



# CDM Code by OEB

The purpose of this Code is to set out the obligations and requirements that licensed distributors must comply with in relation to the CDM Targets set out in their licences.

This Code also sets out the conditions and rules that licensed distributors are required to follow



Conservation and Demand Management Code for Electricity Distributors

Table of Contents



APPENDICES



2

# Assignment of CDM Targets to LDC by OEB

Ontario Energy Board | Commission de l'énergie de l'Ontario

**DATED** at Toronto, March 14, 2011
**ONTARIO ENERGY BOARD**

**EB-2010-0215**
**EB-2010-0216**

**IN THE MATTER OF** the *Ontario Energy Board Act, 1998*, S.O. 1998, c.15, (Schedule B);

**AND IN THE MATTER OF** a Minister's Directive issued by the Minister of Energy and Infrastructure, to the Ontario Energy Board, pursuant to sections 27.1 and 27.2 of the *Ontario Energy Board Act, 1998* and approved by the Lieutenant Governor in Council on March 31, 2010 as Order in Council No. 437/2010;

**AND IN THE MATTER OF** a proceeding under section 74 of the *Ontario Energy Board Act, 1998* amending all electricity distributor licences.

**BEFORE:** Marika Hare
Presiding Member

Karen Taylor
Board Member

**DECISION AND ORDER**

**Background**

Section 27.1 of the *Ontario Energy Board Act, 1998* (the "Act") states that the Minister of Energy and Infrastructure (the "Minister") "may issue, and the Board shall implement, directives that have been approved by the Lieutenant Governor in Council that require the Board to take steps specified in the directives to promote energy conservation, energy efficiency, load management or the use of cleaner energy sources, including alternative and renewable energy sources".

| # | License Name | 2014 Net Annual Peak Demand Savings Target (MW) | 2011-2014 Net Cumulative Energy Savings Target (GWh) |
|---|---|---|---|
| 35 | Hydro One Brampton Networks Inc. | 45.610 | 189.540 |
| 36 | Hydro One Networks Inc. | 213.660 | 1,130.210 |
| 37 | Hydro Ottawa Limited | 85.260 | 374.730 |
| 38 | Innisfil Hydro Distribution Systems Limited | 2.500 | 9.200 |
| 39 | Kashechewan Power Corporation | 0.070 | 0.330 |
| 40 | Kenora Hydro Electric Corporation Ltd. | 0.860 | 5.220 |
| 41 | Kingston Hydro Corporation | 6.630 | 37.160 |
| 42 | Kitchener-Wilmot Hydro Inc. | 21.560 | 90.290 |
| 43 | Lakefront Utilities Inc. | 2.770 | 13.590 |
| 44 | Lakeland Power Distribution Ltd. | 2.320 | 10.180 |
| 45 | London Hydro Inc. | 41.440 | 156.640 |
| 46 | Middlesex Power Distribution Corporation | 2.450 | 9.250 |
| 47 | Midland Power Utility Corporation | 2.390 | 10.820 |
| 48 | Milton Hydro Distribution Inc. | 8.050 | 33.500 |
| 49 | Newmarket - Tay Power Distribution Ltd. | 8.760 | 33.050 |
| 50 | Niagara Peninsula Energy Inc. | 15.490 | 58.040 |
| 51 | Niagara-on-the-Lake Hydro Inc. | 2.420 | 8.270 |
| 52 | Norfolk Power Distribution Inc. | 4.250 | 15.680 |
| 53 | North Bay Hydro Distribution Limited | 5.050 | 26.100 |
| 54 | Northern Ontario Wires Inc. | 1.060 | 5.880 |
| 55 | Oakville Hydro Electricity Distribution Inc. | 20.700 | 74.060 |
| 56 | Orangeville Hydro Limited | 2.780 | 11.820 |
| 57 | Orillia Power Distribution Corporation | 3.070 | 15.050 |
| 58 | Oshawa PUC Networks Inc. | 12.520 | 52.240 |
| 59 | Ottawa River Power Corporation | 1.610 | 8.970 |
| 60 | PUC Distribution Inc. | 5.580 | 30.830 |
| 61 | Parry Sound Power Corporation | 0.740 | 4.160 |
| 62 | Peterborough Distribution Incorporated | 8.720 | 38.450 |
| 63 | Port Colborne Hydro Inc. | 0.0 | 0.0 |
| 64 | PowerStream Inc. | 95.570 | 407.340 |
| 65 | Renfrew Hydro Inc. | 1.050 | 4.860 |
| 66 | Rideau St. Lawrence Distribution Inc. | 1.220 | 5.100 |
| 67 | Sioux Lookout Hydro Inc. | 0.510 | 3.320 |
| 68 | St. Thomas Energy Inc. | 3.940 | 14.920 |
| 69 | Thunder Bay Hydro Electricity Distribution Inc. | 8.480 | 47.380 |
| 70 | Tillsonburg Hydro Inc. | 2.290 | 10.250 |
| 71 | Toronto Hydro-Electric System Limited | 286.270 | 1,303.990 |
| 72 | Veridian Connections Inc. | 29.050 | 115.740 |
| 73 | Wasaga Distribution Inc. | 1.340 | 4.010 |
| 74 | Waterloo North Hydro Inc. | 15.790 | 66.490 |
| 75 | Welland Hydro-Electric System Corp. | 5.560 | 20.600 |
| 76 | Wellington North Power Inc. | 0.930 | 4.520 |
| 77 | West Coast Huron Energy Inc. | 0.880 | 8.280 |

- 2 -

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# Cost Effectiveness Tests

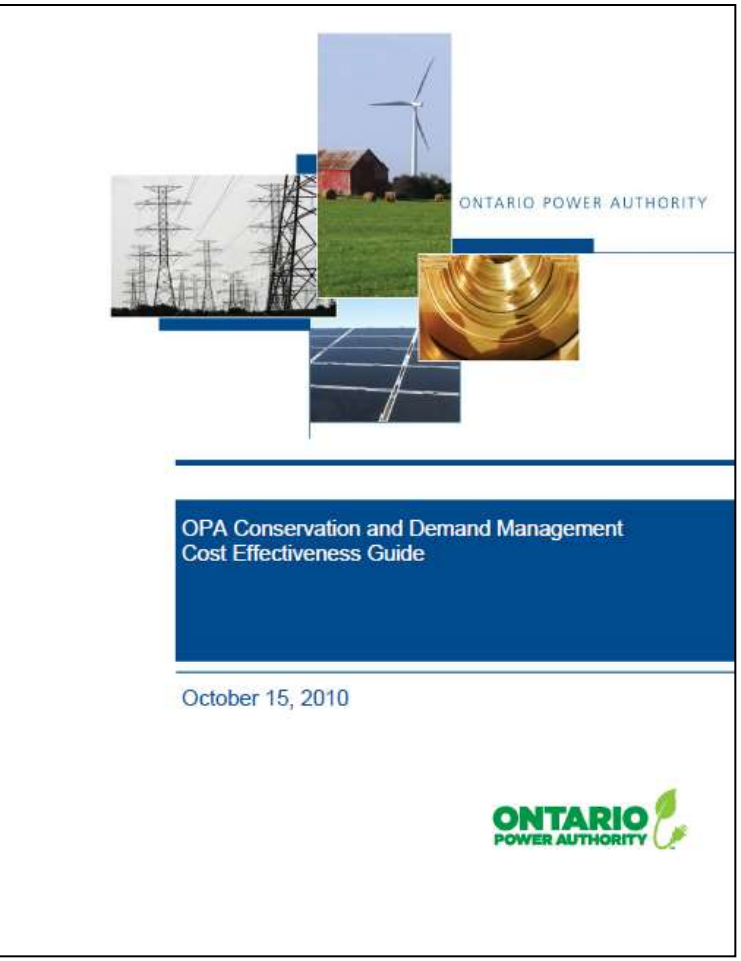
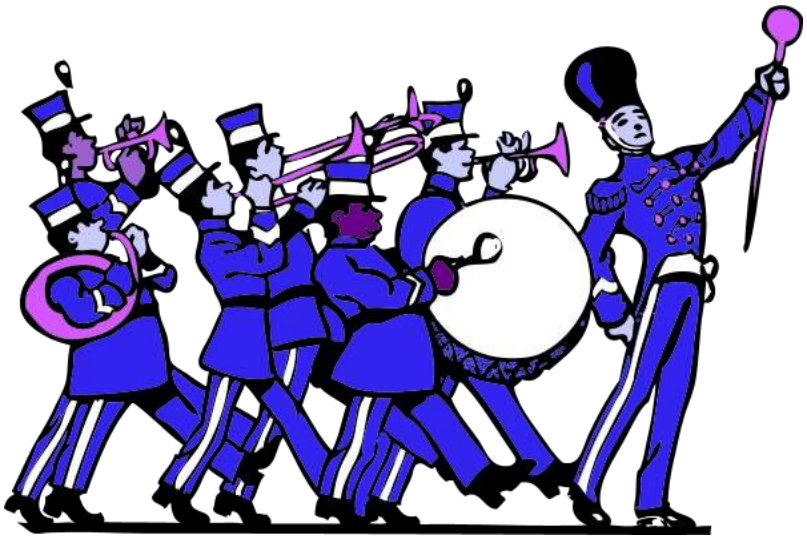



**Figure 2: Overview of Cost Effectiveness Metrics**

| Metric | Key Question Answered | Summary Approach |
|---|---|---|
| Total Resource Cost (TRC) test | How will the total costs of energy and demand in the utility service territory be affected? | Compares the costs incurred to design and deliver programs and customers' costs with avoided electricity and other supply-side resource costs (e.g., generation, transmission, natural gas, etc.) |
| Societal Cost (SC) Test | Is the utility, state or nation better off as a whole? | Identical to TRC approach, but also includes the cost of "externalities" (e.g., carbon emissions, health costs, etc.) |
| Program Administrator Cost (PAC)Test | How will utility costs be affected? | Compares the costs incurred to design and deliver programs by the program administrator with avoided electricity supply-side resource costs[4] |
| Ratepayer Impact Measure (RIM) Test | How will utility rates be affected? | Compares administrator costs and utility bill reductions with avoided electricity and other supply-side resource costs |
| Participant Cost (PC) Test | Will the participant benefit over the measure life? | Compares costs and benefits of the customer installing the measure |
| Levelized Delivery Cost (LC) | What is the per-unit cost to the utility? | Normalizes the costs incurred to design and deliver programs per unit saved (i.e., peak demand or energy savings) |

# Master Agreements



# saveONenergy Residential Conservation Programs


## *peaksaver* PLUS®

**Free in-home energy display**
If you have central air, an electric water heater or swimming pool pump, sign up for ***peaksaver* PLUS®** and get a FREE in-home energy display.


## COUPON EVENT

**Coupons for quick savings**
Available until December 31, 2013 – Here's an instant way to make your home more energy efficient. Visit participating retailers for in-store coupons, LEDs, CFLs, dimmers, thermostats and much more!


## HEATING AND COOLING INCENTIVE

**$650 Heating and cooling rebate**
Install a qualifying ENERGY STAR central heating and cooling system and receive a rebate of up to $650.


## FRIDGE & FREEZER PICKUP

**Save up to $125 a year**
**Got and old fridge or freezer you don't need? Call us for a FREE pickup and start saving on your electricity costs.**


## NEW HOME CONSTRUCTION

**Buying a new home?**
**When you are shopping for a new home, make energy efficiency a priority and save on your annual electricity costs.**

Commercial | Institutional | Industrial | Multi-Residential

- Audit Funding
- Retrofit Program
- Small Business Lighting
- High Performance New Construction
- Existing Building Commissioning
- Energy Managers

- **Funding to install high-efficiency equipment & control systems**
- **Cover up to 50% or project costs**
- **$800/kW or $0.10/kWh (non-lighting)**
- **$400/kW or $0.05/kWh (lighting)**

**Prescriptive**

Prescriptive Track applications are ideal for quick system upgrades.

**Engineered**

Engineered Track applications are for more complex equipment upgrades and provide the potential for higher incentives.

**Custom**

Custom track applications provide flexibility for more comprehensive projects with opportunities for increased energy savings.



RCREEE

## Register

**Both customer and 3rd Party register** at **www.saveonenergy.ca/**

## Submit application to the OPA

**Customer submits application/ assigns a 3rd party**

**Agree on M&V method with LDC beforehand (larger projects)**

## OPA routes application to LDC for Review/Approval

**May require a pre-project site visit**

## Customer Receives Pre-Approval from LDC

## Customer Implements Project

**Submits post-project documents to LDC**

## LDC Post Project Review and Approval

**May require a post project site visit**

## Customer submits invoice to LDC

## LDC submits to the OPA for settlement

**OPA pays LDC and LDC pays customer**

Commercial | Institutional | Industrial | Multi-Residential

- Audit Funding
- Retrofit Program
- Small Business Lighting
- High Performance New Construction
- Existing Building Commissioning
- Energy Managers

**Energy managers are trained to:**

- **find energy savings,**
- **identify smart energy investments,**
- **secure financial incentives,**
- **and unleash competitive advantage.**

**Embedded Energy Managere**

Are and add on hired by large facilities with salary subsidized from the distribution company to meet agreed on electricity savings and demand reduction

**Roving Energy Manager**

Are Hired by the Electricity Distribution companies and assigned to many sites.

**Both have to Certified Energy Mangers with reporting requirements such as:**

- Annual CDM plan,
- Quarterly reports



RCREEE

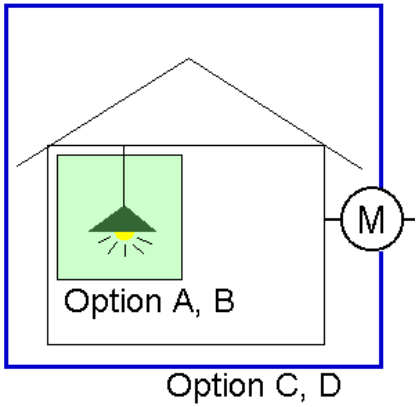
# Contents

- Relevant context within the province of Ontario
- Territorial targets based on achievable potential studies.
- Top-down approach in setting provincial targets
- Cost effectiveness tests for launching pilots and designing specific programs and initiatives
- **The Measurement and Verification (M&V) methodologies and assumptions used for the bottom-up verifications of the savings are presented.**
- The evaluation and reporting of program results at the utility level and the province levels

# International Performance Measurement and Verification Protocol (IPMVP)

**Volume I** - Energy Savings Concepts and Tools: Defines basic M&V terminology (4 "Options")

- General procedures to achieve reliable and cost-effective determination of savings
- Applicable to energy or water efficiency projects in buildings and industrial plants




| M&V Option | How savings are calculated |
|---|---|
| **Option A:** Based on *measured* equipment performance, measured or *stipulated* operational factors, and annual verification of "*potential to perform.*" | Engineering calculations. |
| **Option B:** Based on *periodic or continuous measurements* taken throughout the term of the contract at the device or system level. | Engineering calculations using measured data. |
| **Option C:** Based on *whole-building* or facility level utility meter or sub-metered data adjusted for weather and/or other factors. | Analysis of utility meter data. |
| **Option D:** Based on *computer simulation* of building or process; simulation is calibrated with measured data. | Comparing different models. |

**Options A and B are retrofit-isolation methods**
**Options C and D are whole-facility methods**
**The difference is where the boundary lines are drawn**

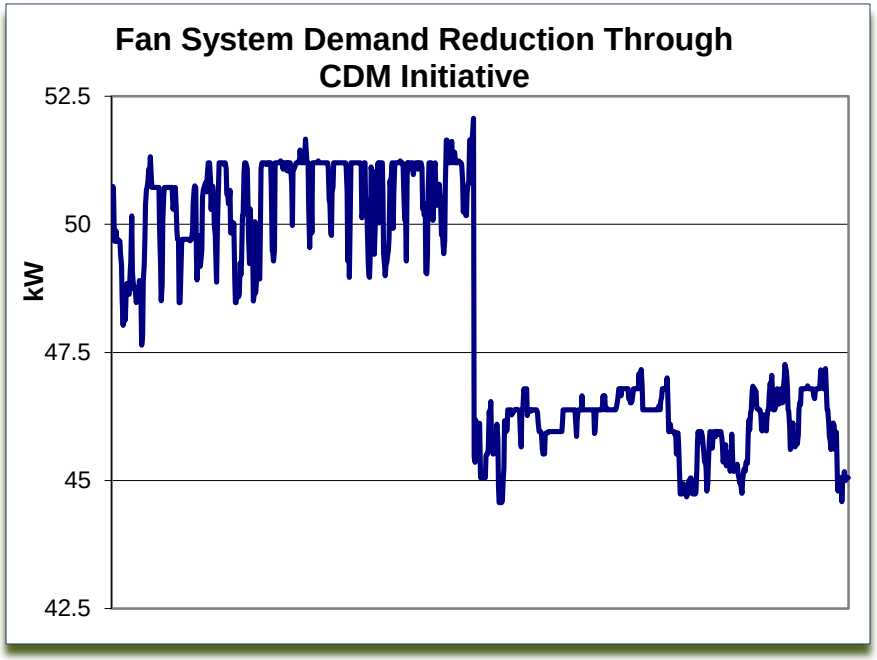
# saveONenergy Project Level M&V and QA/QC Requirements

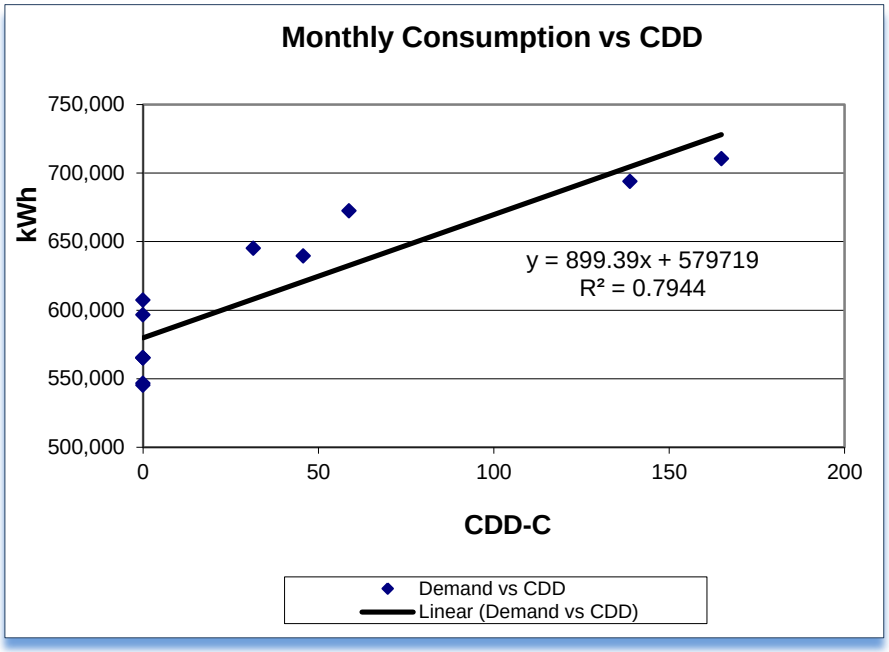
| Project Type | Criteria | Method | Pre/Post Visit | M and V Plan Required |
|---|---|---|---|---|
| Large Project | Including only Prescriptive and/or Engineered measures with incentives >$20K | Not applicable | Yes | No |
| Large Project | Including “Custom Measures” with incentives > $10K and < $25K | Basic | Yes | Yes |
| Large Custom | Including custom measures > $25K | Enhanced | Yes | Yes |
| Other | Not defined above (i.e. small projects) | Not applicable | Statistical Sampling | No |

# saveONenergy Measure Type M&V Requirements

| Measure Type | Basic | Enhanced |
|---|---|---|
| Lighting Retrofit | LR-B | LR-E |
| Equipment Replacement | ER-E | |
| HVAC Redesign | HVAC-E | |
| Variable Speed Drives | VSD-B | VSD-E |
| BAS | BAS-B | BAS-E |
| Lighting Controls | LC-B | LC-E |
| Sub-metering | SM-E | |
| Elevator Retrofit | ELR-E | |
| Building Envelope | BE-B | BE-E |

# saveONenergy M&V



# After the Incentive Cheque

- Programs are independently evaluated
- Evaluation determines net to gross ratios
- LDC Target

# Contents

- Relevant context within the province of Ontario
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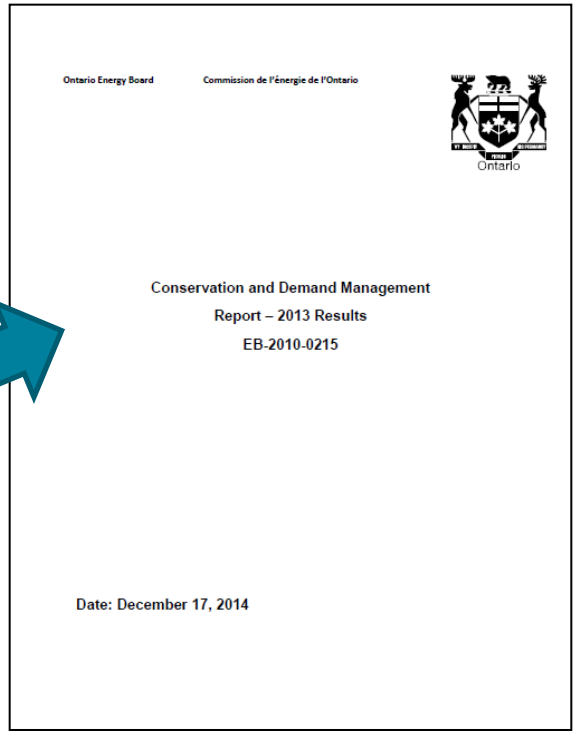
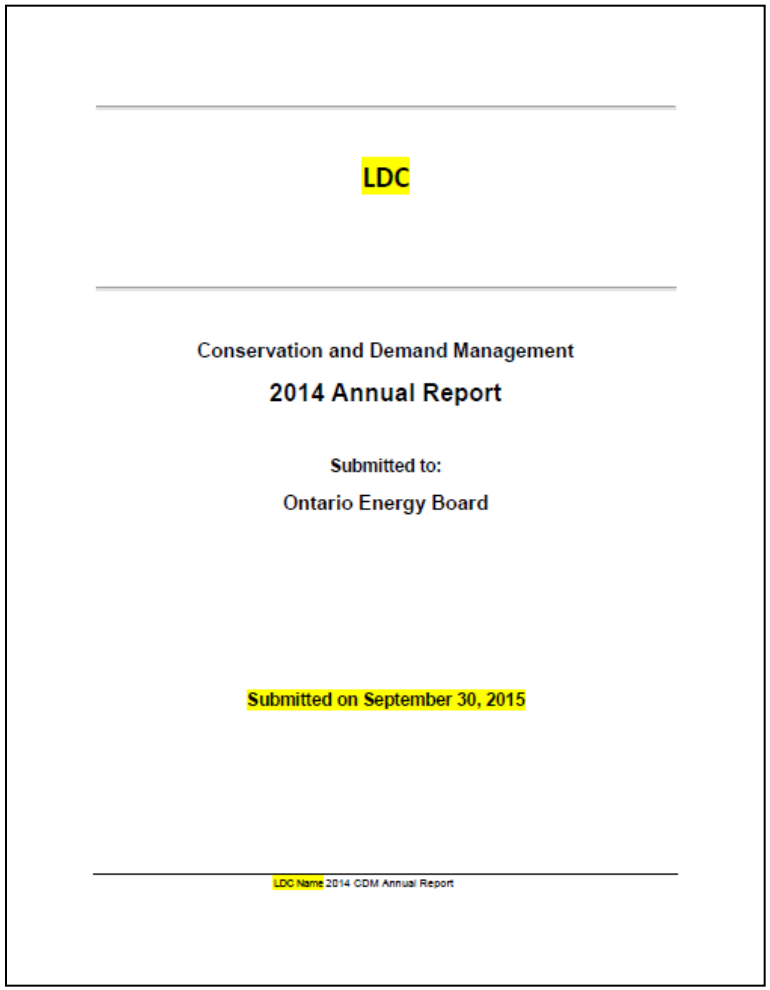
# Reporting and evaluation





# LDC Quarterly and Annual reports



LDC

Conservation and Demand Management

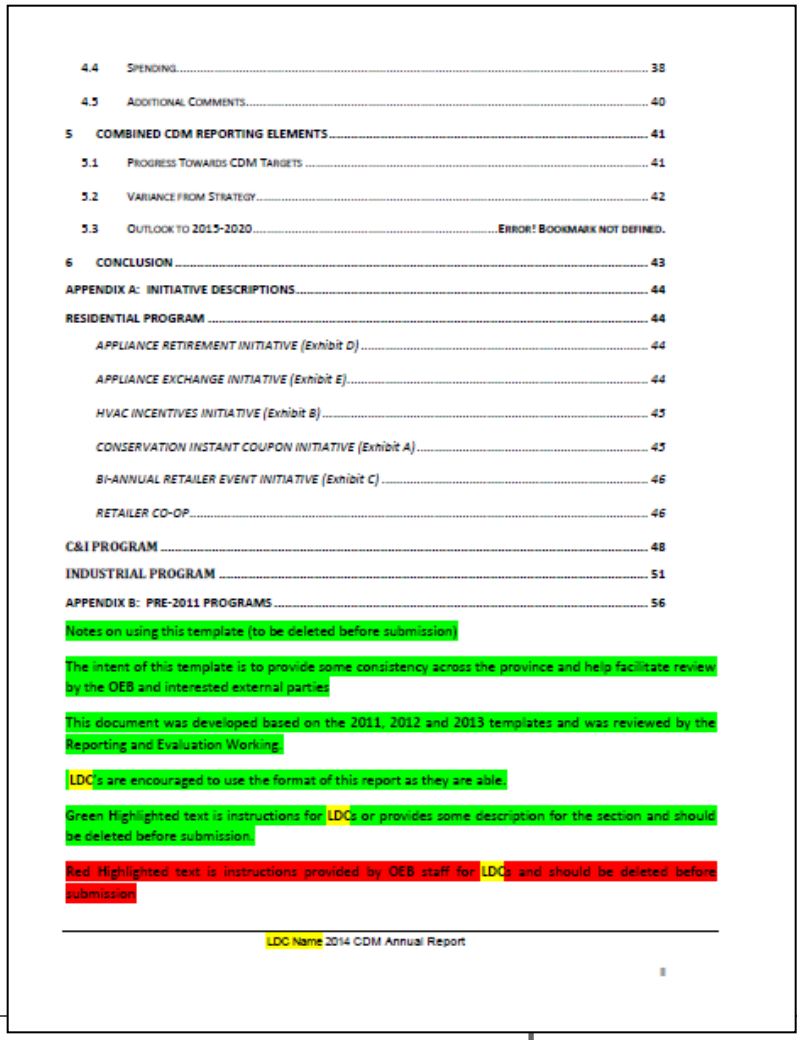
**2014 Annual Report**

Submitted to:

Ontario Energy Board

Submitted on September 30, 2015

LDC Name 2014 CDM Annual Report





Notes on using this template (to be deleted before submission)

The intent of this template is to provide some consistency across the province and help facilitate review by the OEB and interested external parties

This document was developed based on the 2011, 2012 and 2013 templates and was reviewed by the Reporting and Evaluation Working

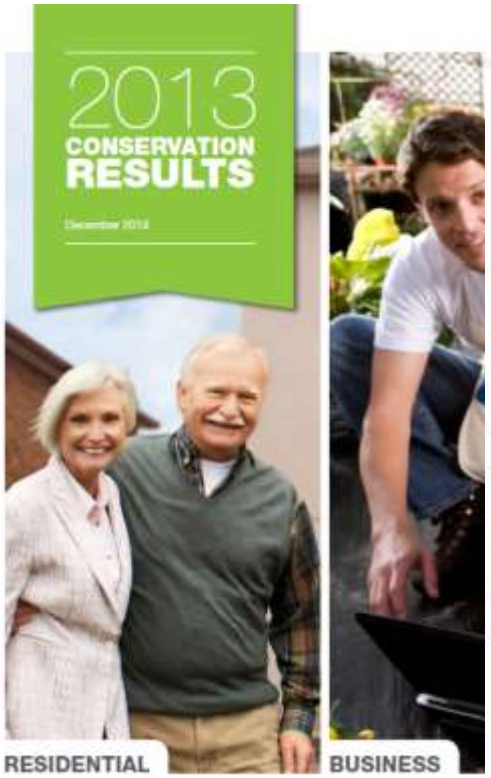
LDC's are encouraged to use the format of this report as they are able.

Green Highlighted text is instructions for LDCs or provides some description for the section and should be deleted before submission

Red Highlighted text is instructions provided by OEB staff for LDCs and should be deleted before submission

LDC Name 2014 CDM Annual Report

# OPA Annual reports




APPENDIX B

## Cost-Effectiveness Evaluation

The OPA's cost-effectiveness evaluations are used to identify the value of conservation for Ontario. Cost effectiveness is calculated using a range of standard industry benefit-cost analyses and metrics. The tests evaluate the cost-effectiveness of the saveONenergy programs delivered by the OPA and LDCs. A more detailed explanation of these tests can be found in Appendix C.

| 2012 Total Resource Cost Test | 2013 | 2011-2013 |
|---|---|---|
| Benefit ($ millions) | 563 | 1420 |
| Cost ($ millions) | 461 | 1182 |
| Net Benefit ($ millions) | 102 | 238 |
| Net Benefit Ratio | **1.22** | **1.20** |
| **2012 Program Administrator Cost Test** | | |
| Benefit ($ millions) | 568 | 1452 |
| Cost ($ millions) | 334 | 711 |
| Net Benefit ($ millions) | 234 | 741 |
| Net Benefit Ratio | **1.70** | **2.04** |
| **Levelized Delivery Cost (Demand Response)** | 9,368 $/MW-Month | 12,024 $/MW-Month |
| **Levelized Delivery Cost (Energy Efficiency)** | 44 $/MWh (4.4¢/kWh) | 37 $/MWh (3.7¢/kWh) |

# OEB Annual Reports

Ontario Energy Board  Commission de l'énergie de l'Ontario

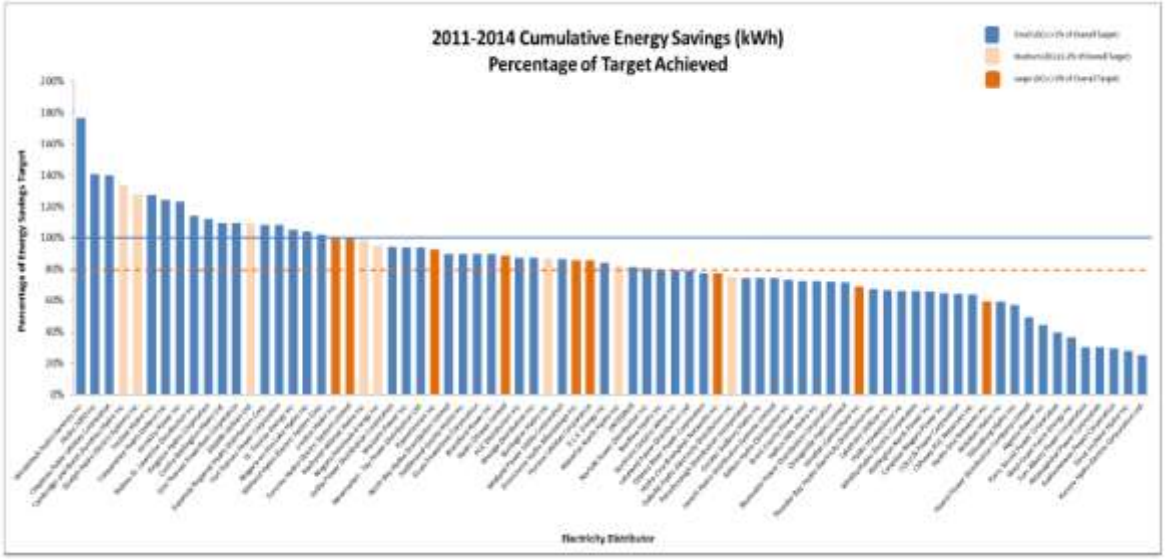
Ontario

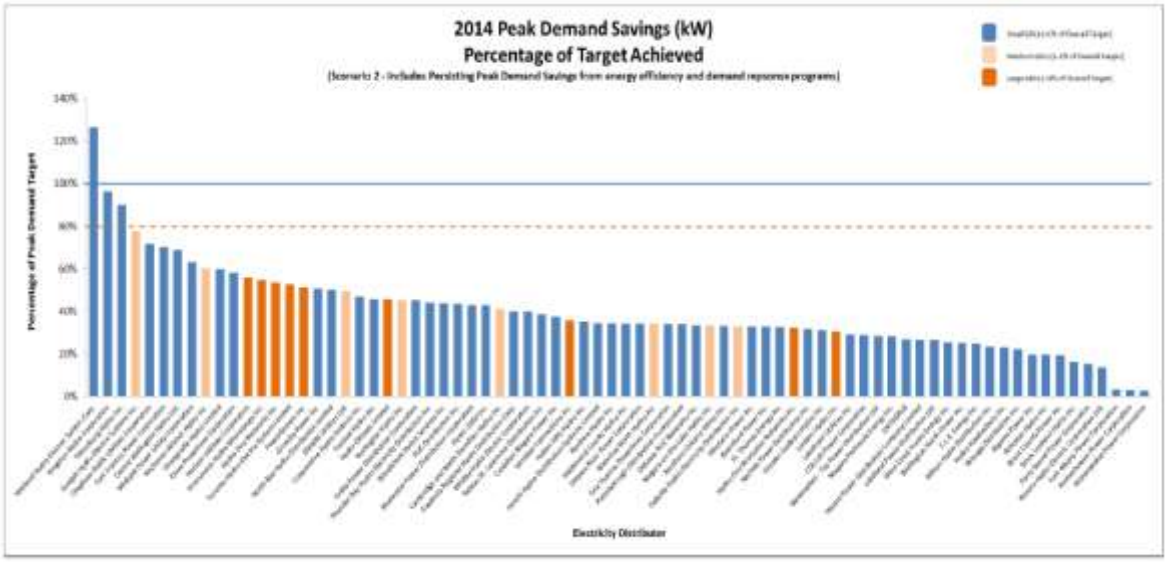
Conservation and Demand Management

Report – 2013 Results

EB-2010-0215

Date: December 17, 2014



# CDM Framework 2011-2014 Results

In Total the 4 year (2011- 2014) suite of saveONenergy program achieved:

- 6,553 gigawatt-hours (GWh) of energy savings,
- and 928 megawatts (MW) of demand reduction,
- at a total cost of 4 cents/kWh in comparison to 8 cents for additional capacity
- For each dollar invested in end users being more efficient, two dollars are saved in avoided generation.

# Moving Forward

## Third Tranche

**2005-2007**

- OEB oversees conservation programs delivered by electricity distributors
- Programs delivered in a fragmented way
- Costs recovered from distribution rates

## Agency Coordination

**2008-2010**

- OPA responsible for organizing and funding conservation programs
- Programs delivered by 3rd parties, including some distributors

## CDM Framework

**2011-2014**

- Targets of 1, 330 MW and 6, 000 GWh savings by 2014 established
- LDCs the face of conservation and deliver electricity conservation programs as a condition of licence
- OPA designs, approves and funds programs in coordination with LDCs
- OEB oversees local programs funded through distribution rates

## Conservation First

**2015-2020**

- Target of 7TWh by the end of 2020 established
- LDCs to deliver conservation programs to each customer segment
- LDCs provided with long term stable funding, more accountability for program development
- Customers will be given more CDM program choice along with streamlined oversight and administration

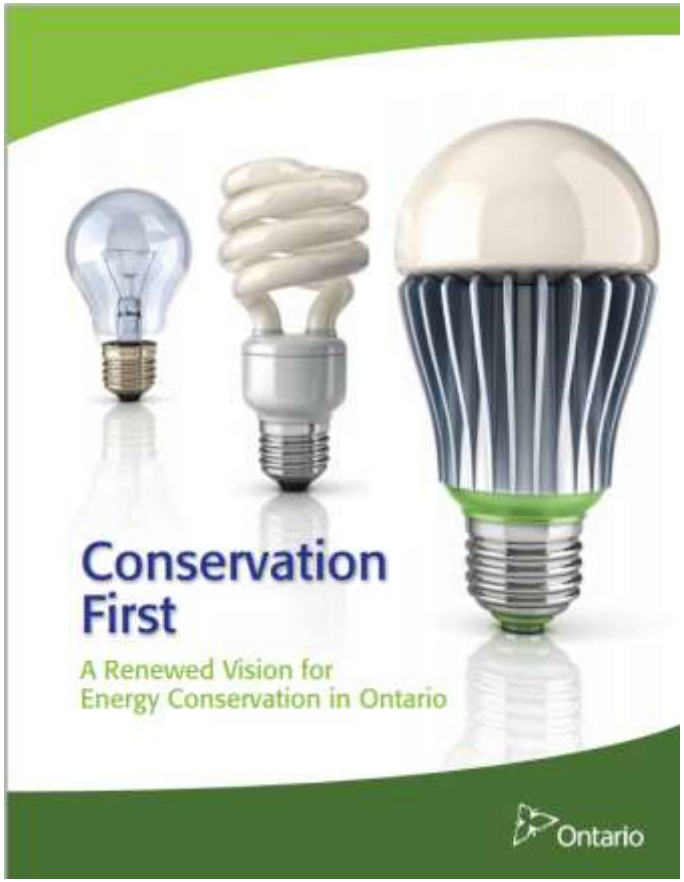
# Conservation First White Paper

**Purpose**

- On July 16, 2013, *Conservation First* put forward a consultation document with a renewed vision for conservation in Ontario and committed to expanding and enhancing its conservation efforts.

**Vision**

- **Putting Conservation First** before building new generation and transmission facilities, where cost effective.
- **Inspiring Action** by better aligning consumer awareness of the benefits of conservation with tools.
- **Providing Different Tools for Different Customers,** tailoring tools to the needs of different customers.
- **Encouraging Innovation** to better support local needs.
- **Leading by Example** with the Ontario government as well as the broader public sector continuing to play a leadership role in conservation efforts.



# Context for Action: Ontario's Long-Term Energy Plan

- On December 2, 2013, Ontario released its updated Long-Term Energy Plan, *Achieving Balance*.

- The 2013 plan is built around five key principles:
  1. Cost-effectiveness
  2. Reliability
  3. Clean energy
  4. Community engagement and
  5. Putting conservation first

# Conservation In Ontario's Long Term Energy Plan

- Conservation will be the first resource considered before building expensive new generation and transmission facilities, wherever cost-effective.
- Ontario has established a conservation target of 30 terawatt hours (TWh) by 2032
- Ontario will aim to meet 10% of it peak demand through demand response initiatives by 2025.
- Conservation and demand management provides multiple benefits to Ontarians, including:
  - Helping Ontario families and businesses save money on their energy bills
  - Reducing the need to build expensive generation and transmission, mitigating upward pressure on electricity prices
  - Growing the economy and creating jobs
  - Reducing greenhouse gas emissions and air pollution

# Conservation Policy

- Ontario's policy is to consider conservation before new supply where cost effective
- The province's Demand Response goal to reduce 10% of peak summer demand by 2025 (~2,400 MW) will be achieved through Dispatchable loads, Time Of Use and other price response initiatives. Existing DR is also being transitioned from an OPA program approach to a -IESO market based approach.
- Moving forward, LDCs will be required to deliver conservation to each customer segment as a condition of license
- Distributors will be encouraged to work together within 21 regions, aggregating targets and co-operatively developing regional CDM plans
- Lost revenues that result from conservation programs will not act as a disincentive to Distributors
- The DSM framework will enable the achievement of all cost-effective DSM and more closely align DSM efforts with CDM efforts

# Other Ministry Conservation Policy Initiatives

# Product Efficiency Standards

- Energy efficiency regulations are a widely-used tool to set minimum energy performance standards for energy using products to remove the least efficient products from the market.
- Ontario has been regulating the energy efficiency of products and appliances since 1988.
- The ministry committed to helping consumers choose the most efficient products for their homes and businesses by showing leadership in establishing minimum efficiency requirements for products
- The most recent major amendment to Ontario's energy efficiency regulation, O. Reg. 404/12, which set or enhance the minimum efficiency standards for 25 products (such as water heaters, boilers, household refrigerators, dishwashers, clothes washers and dryers, televisions, fluorescent lamps and small motors) that became effective on January 1, 2014 positioned Ontario as a leader in regulating energy efficiency of products and appliances.
- Ontario regulates more products than any other jurisdiction in Canada (including the federal government) and has the most stringent efficiency standards for a number of products, such as residential appliances (refrigerators, clothes washers/dryers, dishwashers, room ACs), lighting products (fluorescent lamps and ballasts, general service lighting) and some of HVAC and water heating products.

# Broader Public Sector Reporting And Conservation Plans

- A key conservation initiative that will assist Ontario in achieving its conservation goals is the energy reporting and conservation plan regulation (O. Reg. 397/11) developed under the *Green Energy Act, 2009.*
- O. Reg. 397/11 requires broader public sector (BPS) organizations to:
  - Report by July 1st annually to the Minister on their energy use and greenhouse gas (GHG) emissions beginning on July 1st, 2013
  - Develop and publish a 5-year conservation and demand management (CDM) plan every 5 years beginning July 1st, 2014
  - Make their annual reports and conservation and demand management plans publicly available on their websites
- Roughly 720 BPS organizations report annual consumption of all fuel types for over 20 operation types which are converted to an energy and GHG intensity figure. Reports are made public by each organization and the Ministry makes all data available on the Ontario One data web site.
- Last year compliance rate was 95%

# Municipal Energy Plan Program

- The Municipal Energy Plan (MEP) program was launched in August 2013 to support municipalities' efforts to better understand their local energy needs, identify opportunities for energy efficiency and clean energy, and develop plans to meet their goals.
- A MEP is a comprehensive plan designed to align energy, the built environment and land use planning to identify community-wide energy efficiency options and support economic development opportunities. MEPs will help municipalities:
  - Assess the community's energy use and greenhouse gas (GHG) emissions
  - Identify opportunities to conserve, improve energy efficiency and reduce GHG emissions
  - Consider impact of future growth and options for local clean energy generation
  - Support local economic development.
- The MEP Program provides successful applicants with funding for 50 per cent of eligible costs, up to a maximum of $90,000 to develop a municipal energy plan.
- The ministry has completed its first round of MEPs applications with 8 successful applications and just launched a ssecond window for applications.

# Thank you

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