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# **Energy Conservation, Energy Efficiency and Demand Management**

Transition  
June 2018  
Foundational Briefing

CONFIDENTIAL DRAFT

# Energy Conservation Overview

- Conservation provides multiple benefits, including:
  - Helping households and businesses manage their energy bills.
  - Reducing the need to build and operate more expensive energy infrastructure.
  - Reducing greenhouse gas emissions and air pollutants.
- According to studies commissioned by Natural Resources Canada, electricity and natural gas conservation investments assist consumers and businesses in managing their energy bills, generate economic growth and create jobs.

## Savings related to conservation can be measured in two ways:

1. Reduction in overall energy consumption:
  - **Watt hours (e.g. Terawatt hours, or TWh)** for electricity savings,
  - **Cubic metres (m<sup>3</sup>)** for natural gas savings and
  - **Joules (e.g. Petajoules, or PJ)** for general energy or other fuel savings, such as for propane, oil and wood.
2. Peak demand savings – refers to reductions in the total supply of electricity during periods of peak demand, and measured in **Watts (e.g. Megawatts, or MW)**. Only applicable to electricity.

# Where is Conservation Achieved?

## At the system level

- **By electricity system planners:**



To lessen reliance on more expensive generation assets, or avoid the need to invest in new assets.

- **And electricity system operators:**



To respond to real-time needs by calling on participating demand response resources.

## On energy transmission and distribution systems

- **Electricity:**



Investing in monitoring, controls or other technology to reduce losses when conveying electricity to customers.

- **Natural gas and other fuels:**



Reducing losses of fuels when conveying fuels to customers.

## In buildings, and as a customer tool to manage energy use



Residential buildings (single-family to multi-unit)



Commercial and Institutional



Industrial



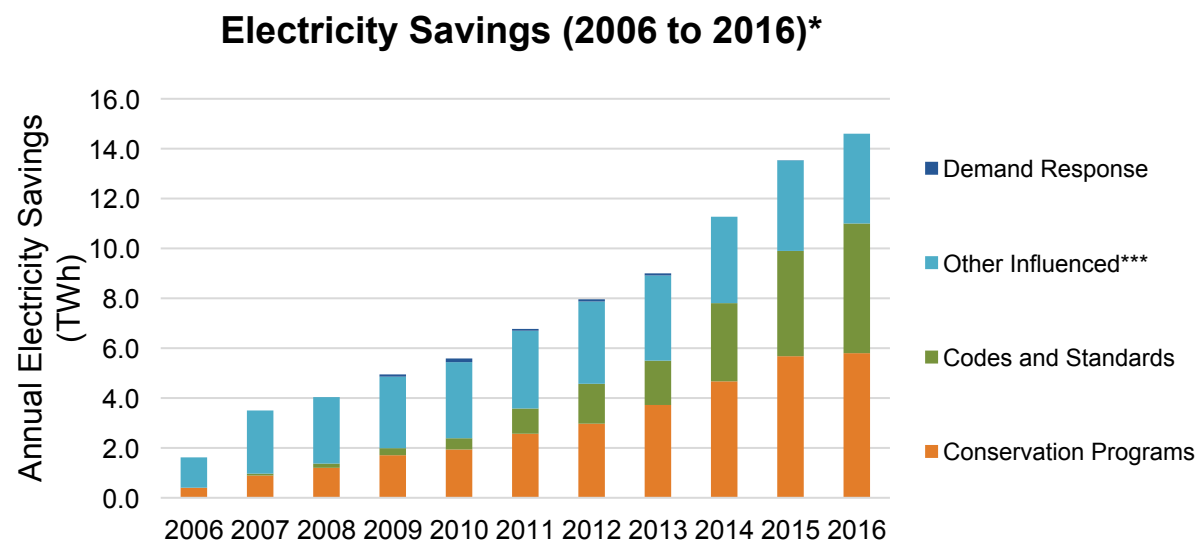
Other electricity loads (e.g. electric vehicles)

# How is Conservation Achieved?

- **Energy Efficiency:** Using less energy to provide the same service.
  - Building codes and product efficiency standards (e.g. for lighting, space/water heating and household appliances).
  - Incenting/natural adoption of energy efficient technology or measures in buildings (e.g. high efficiency furnaces in homes; energy efficient ventilation systems at mine sites).
  - Increasing transmission and distribution system efficiency (e.g. monitoring and controls).
- **Behavioural Changes:** Increasing awareness and adoption of conservation behaviour (e.g. through education; benchmarking energy use across buildings).
- **Demand Response and Demand Management:** Reducing or shifting electricity consumption away from periods of peak electricity demand, or when the system is stressed (e.g. IESO Demand Response Auction).
- **Behind-the-Meter Generation:** Displacing load through self-consumption of energy that is generated on-site (e.g. solar thermal or PV, or industrial waste energy recovery).

# Electricity Conservation Savings

- Conservation programs and codes and standards in place from 2006 to 2015 have resulted in a 9 percent reduction in electricity use from what it otherwise would have been, or 14.6 TWh of electricity savings in 2016.
  - 14.6 TWh is equivalent to the power used by the cities of Ottawa, London, Oakville, Niagara, and North Bay in 2016.

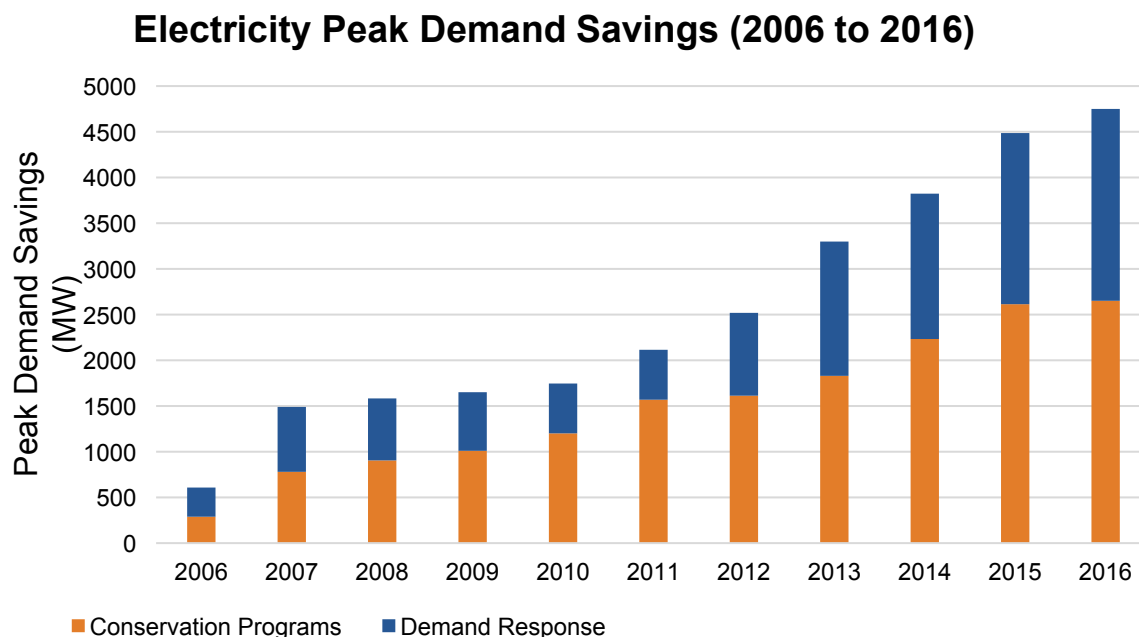


\* Source: Ministry of Energy (2017) "2017 Long Term Energy Plan (LTEP) modules"

\*\*\* "Other Influenced" is the electricity savings from conservation activities by organizations and programs not funded by IESO. Examples are federal government programs and natural gas utility programs that result in residual electricity savings–

# Electricity Peak Demand Savings

- Conservation programs and codes and standards in place from 2006 to 2015 have resulted in a 16 percent reduction in peak electricity demand, or 4,750 MW of peak demand in 2016.
- Conservation initiatives are projected to offset almost all of the growth in electricity demand between 2017 and 2035 (30.7 TWh in 2035).



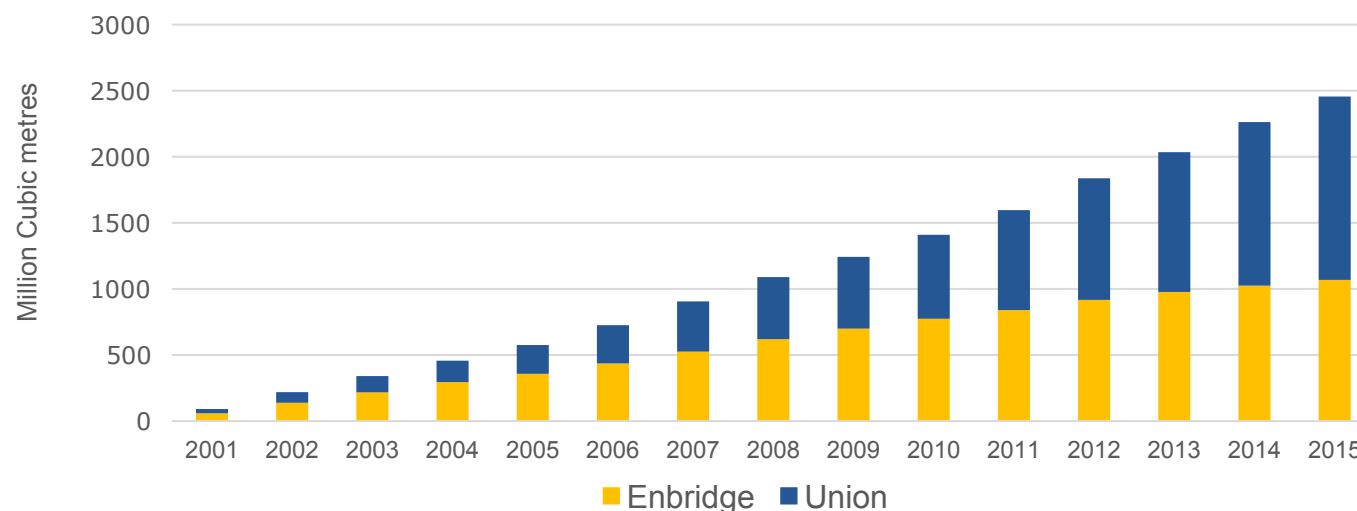
\* Source: IESO (2016) "2016 Conservation Progress Report"

\*\* Peak demand savings do not include savings from codes and standards.

# Natural Gas Conservation Savings

- From 2000 to 2015, Ontarians also conserved 2,456 million m<sup>3</sup> of natural gas from natural gas efficiency programs.
  - This is equivalent to the natural gas used by ~1,000,000 homes.
- The majority of natural gas savings have been achieved in the Commercial & Industrial sector, which accounted for 69% of savings in 2015.

**Natural Gas Conservation (2000 to 2015)\***



\* Source: Ontario Energy Board annual reports on natural gas conservation programs

\*\* The savings are for conservation programs only (do not include savings from codes and standards) and reflect lifetime savings (savings over the lifetime of installed energy efficiency measures).

# Cost-Effectiveness Requirements for Conservation

- Electricity and natural gas ratepayer-funded conservation programs are generally the most cost-effective energy resources as they must result in a net benefit to their respective ratepayers.
- Under the electricity and natural gas conservation program frameworks, each program, and portfolio of programs, must pass required cost-effectiveness tests (exceptions for low-income, Indigenous and educational programs).
- Cost-effectiveness tests ask whether the costs of delivering a program are outweighed by the benefits (avoided costs) of delivering that program.

## Costs and Benefits Considered in Ratepayer Cost-Effectiveness Tests

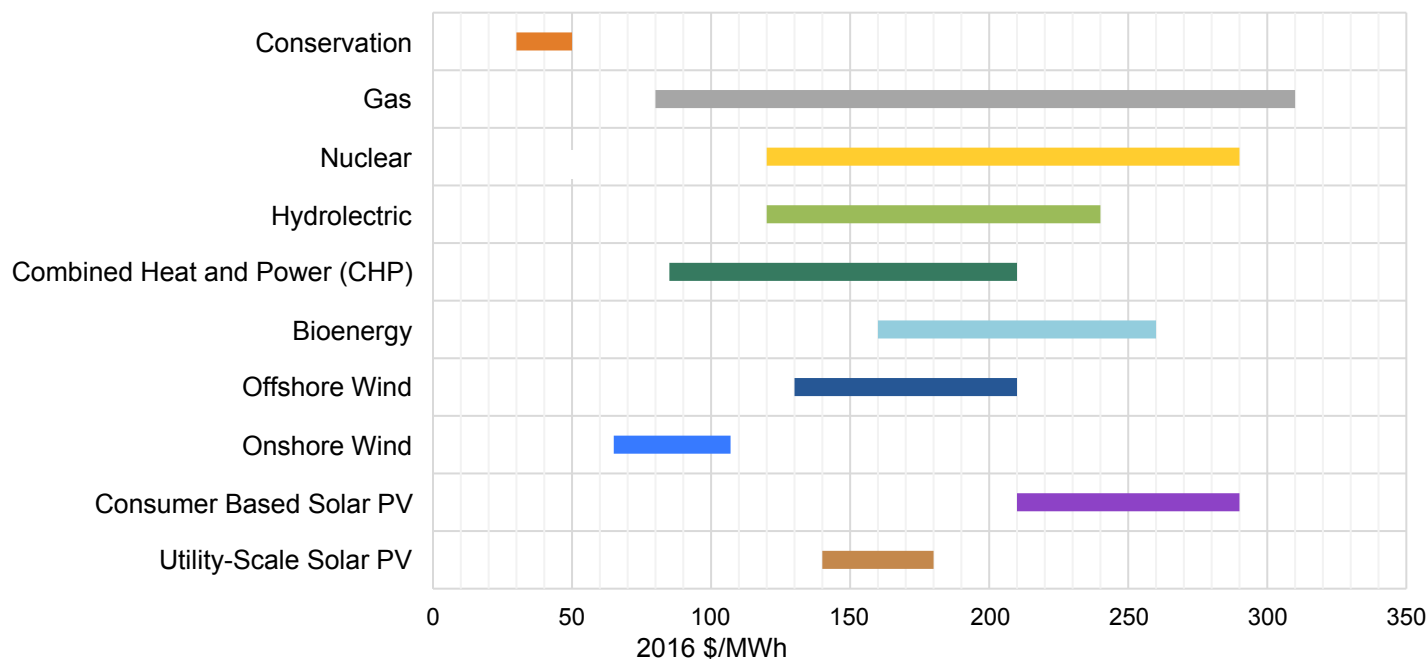
| Costs                                                          | Benefits                                                                                                                |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Participant Costs (incremental cost of the efficient measure*) | Avoided energy costs (e.g., avoided natural gas used to generate electricity)                                           |
| Incentive Costs                                                | Avoided infrastructure costs (e.g., generation assets (electricity only), transmission and distribution infrastructure) |
| Program Administration Costs                                   | Non-energy benefits (e.g., economic, social, environmental)                                                             |

\* Cost difference between the more energy efficient measure and the conventional measure that the consumer would have purchased without the incentive.

# Cost of Electricity Conservation

- Electricity conservation programs cost about \$21 per MWh in 2016, which is cheaper than most forms of new supply.

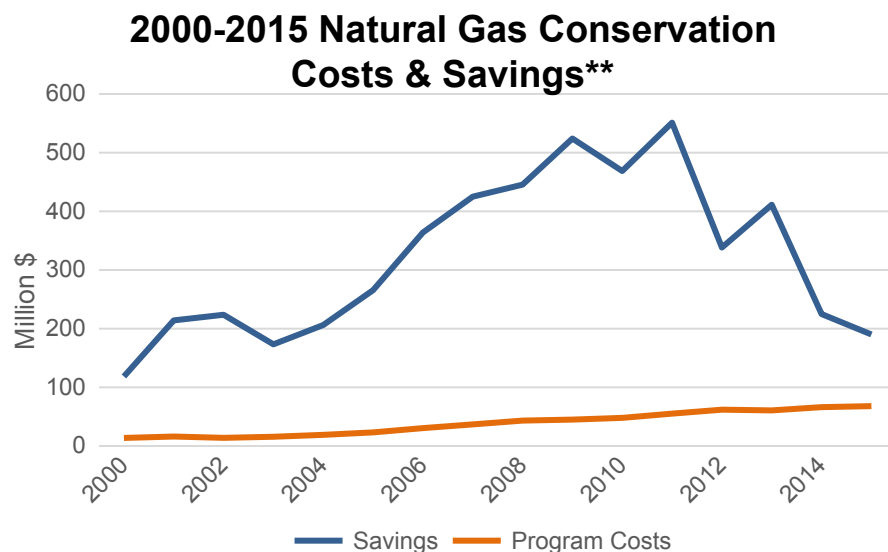
## Comparing the Costs of Electricity Conservation with Generation Options



\* Source: IESO 2016 Ontario Power Outlook (OPO). Note: 2016 conservation programs costs as described above were lower than the cost of conservation shown in this graph (2016 verified results were available after the OPO release).

## Cost of Natural Gas Conservation (Cont'd)

- Natural gas conservation programs cost about 4 cents per cubic metre saved in 2015.\*
- An investment of about \$617 million in natural gas conservation programs between 2000 and 2015 resulted in a total of about \$5 billion in savings to natural gas ratepayers.



- The decline in savings after 2011 is attributed to the discontinuation of successful programs due to market saturation, as well as the introduction of new residential programs that cost more to deliver per household, while benefitting the residential customer segment.

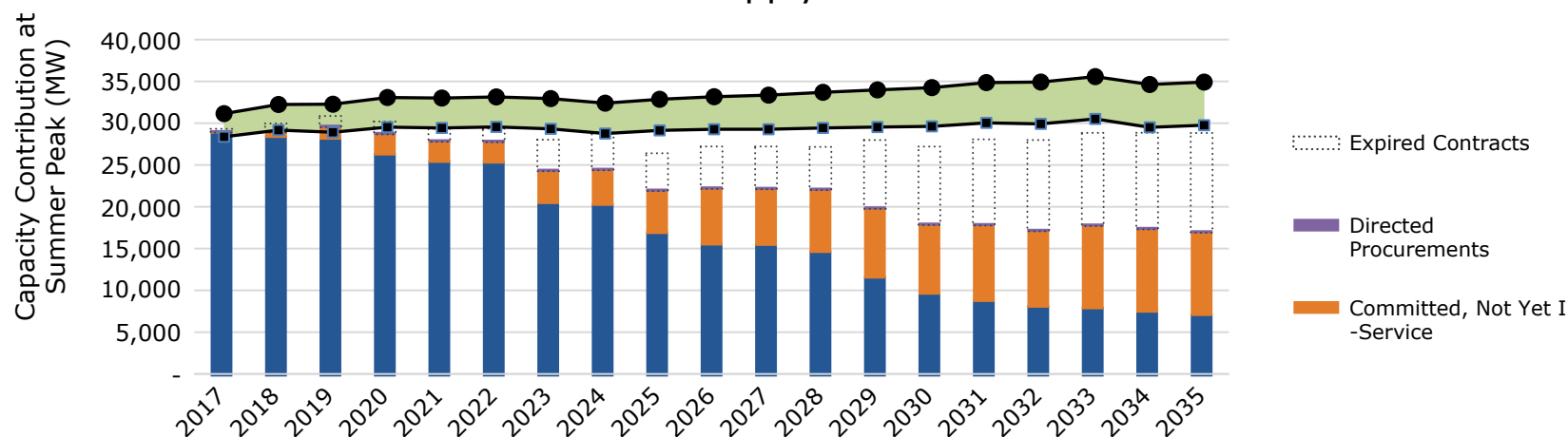
\* The OEB is working to finalize verified results for 2016.

\*\* Source: Ontario Energy Board annual natural gas conservation program verification reports, 2001 to 2016.

# Role of Conservation in Long-Term Energy Planning

- The IESO and OEB undertake an achievable potential study every three years to quantify the electricity, natural gas, GHG emission reductions, and the associated costs that can be expected from conservation efforts, to inform energy planning and programs.
  - Potential is determined under various scenarios, considering cost-effectiveness, likely market adoption and technical feasibility.
- The studies analyze short and long-term conservation potential, with the electricity conservation achievable potential study informing both short and long-term electricity reduction targets. The electricity target of 30 TWh is included in the 2017-2035 supply outlook.

2017-2035 Supply Outlook



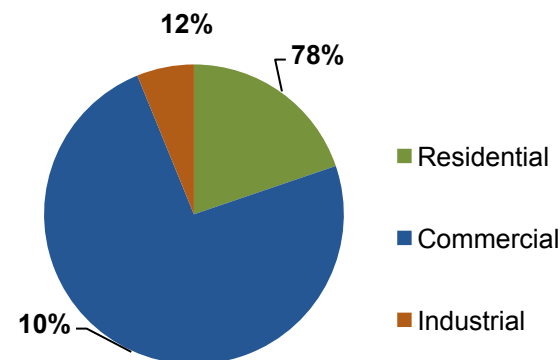
- There is currently no province-wide target for natural gas savings. Unlike electricity distributors, natural gas utilities are not licensed, and have no condition of license for program delivery. **(NTD: confirmed with ESP's Fuels Policy and Liaison unit)**

\* Source: IESO (April 2018), 'CDM Peak Savings Forecast' – consistent with 2017 LTEP Outlook.

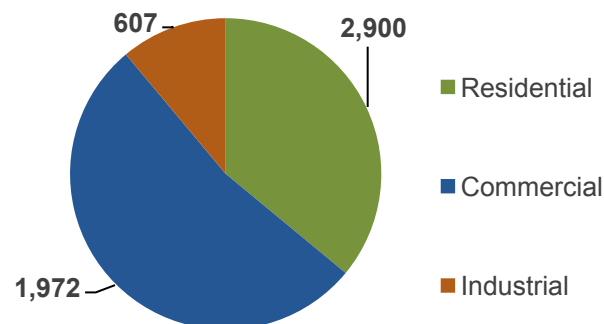
# Largest Opportunities For Electricity Conservation

- The IESO's 2016 Achievable Potential Study indicated that commercial, residential and industrial sectors are expected to account for 78%, 12% and 10% of total electricity savings, respectively over the period 2015 to 2035.
- The report identified a total electricity savings potential of 6,306 GWh/year in 2035.
- In May 2018, the IESO and OEB initiated work on an integrated study for the 2019 Achievable Potential Study that considers natural gas and electricity conservation and demand management potential.

**Achievable Electricity Conservation (GWh/year) 2015-2035**



**Total Implementation Costs (millions, \$) 2015-2035**

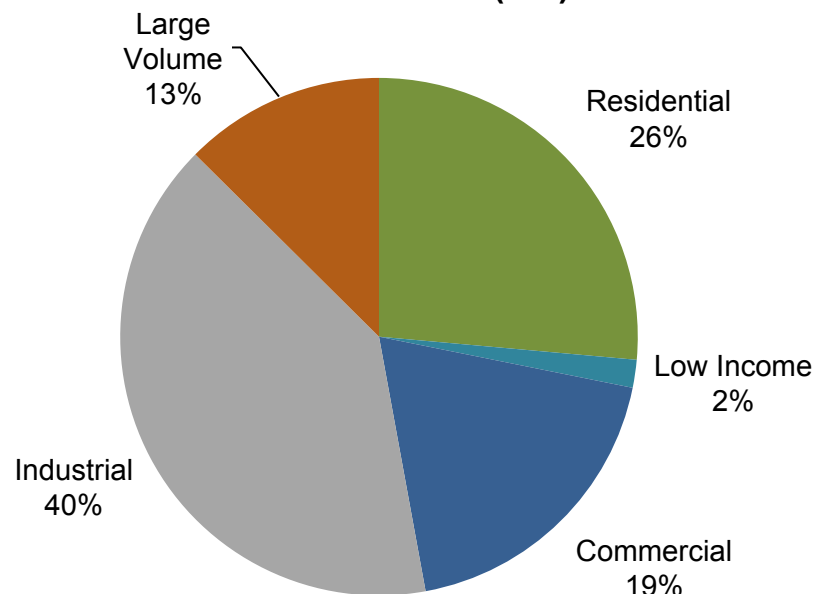


Source: IESO (2016), "Long-Term Energy Efficiency Report (2015-2020)"

# Largest Opportunities For Natural Gas Conservation

- In 2016, the OEB completed an Achievable Potential Study to estimate how much natural gas could be saved through conservation programs from 2015 to 2030.
- Natural gas is the primary space heating fuel in Ontario.
- The largest opportunity for natural gas savings are expected to continue to be in the industrial sector, but there are significant opportunities in the commercial and residential sectors as well.
- The report identified a total achievable natural gas savings potential of 2.9 billion m3 in 2030.

**Achievable Natural Gas Conservation Potential in 2030 (m3)**



Source: OEB (2016), "Natural Gas Conservation Potential Study."

# Energy Conservation Initiatives

# Product Efficiency Standards

- Energy efficiency standards for products and appliances are among the most cost-effective approaches to improving energy efficiency and reducing greenhouse gas (GHG) emissions.
- Ontario has been setting/adopting energy efficiency standards for products and appliances for 30 years, and currently regulates over 80 types of products - more products than any other jurisdiction in Canada (including Natural Resources Canada).
- Ontario continues to work with other provinces and the federal government to advance and harmonize efficiency standards across Canada. Most of Ontario's energy efficiency standards are harmonized with efficiency standards of leading North American jurisdictions, such as U.S. Department of Energy (DOE) reducing potential trade barriers and unnecessary regulatory burden on industry.
- Ontario's energy efficiency regulation sets efficiency standards for products and appliances using electricity, natural gas, oil and propane and found in residential, commercial and industrial sectors . The regulation also sets water efficiency standards for products which consume both energy and water. Setting water efficiency standards further contributes towards reducing energy and water consumption and GHG emissions.
- In 2032, amendments to the energy efficiency regulation are estimated to result in approximately:
  - **23 TWh** of electricity savings (equivalent to taking **2.3 million homes off the grid**)
  - **29 petajoules (PJ)** of natural gas and oil savings (equivalent to **energy used by 360,000 homes**)

# Energy Efficiency Programs

## *Electricity Conservation and Demand Management Framework*

- Electricity Conservation and Demand Management (CDM) frameworks are overseen by the IESO. They govern the delivery of electricity conservation and energy efficiency programs and provide the funding, guidelines and certainty needed for Local Distribution Companies (LDCs) to deliver conservation programs to their customers (a condition of a distributor's license).
- The 2015-2020 Conservation First Framework and the Industrial Accelerator Program are expected to achieve 8.7 TWh of savings in 2020, assisting the province in achieving its long-term conservation target of 30 TWh in 2032. The Framework serves distribution-connected residential and business customers, while the Industrial Accelerator Program serves transmission-connected industrial and business customers.
- Together, this represents an investment of approximately \$3 billion from electricity ratepayers.
- 68 LDCs are covered under the Framework, with **about 40 unique program types** in their CDM plans.
- The IESO undertook a **mid-term review** of the Framework and the Industrial Accelerator Program, required to be completed by June 1, 2018.

The IESO invests in **energy-efficiency innovation** through three funds:

- Conservation Fund open to all sectors to develop new programs (~\$9.5 million per year)
- LDC Innovation Fund to support pilot and market testing (\$70 million from 2015-2020), and
- Collaboration Fund to encourage LDC and gas utility collaboration (\$25 million, 2015-2020)

## Energy Efficiency Programs (NTD: NEW SLIDE)

### Costs of Electricity CDM Initiatives

- Electricity conservation initiatives are funded by electricity ratepayers through the Global Adjustment (GA).

**Costs of IESO Conservation Initiatives \$ (in millions)\***

|                                                                                       | 2015       | 2016       | 2017       | 2018       | 2019       | 2020       |
|---------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|
| Conservation Initiative                                                               | Actual     | Forecast   | Forecast   | Forecast   | Forecast   | Forecast   |
| 2011-2014 CDM Framework<br>(unused budget applied to<br>Conservation First Framework) | 401        | 54         | -          | -          | -          | -          |
| Industrial Accelerator Program                                                        | 18         | 64         | 147        | 158        | 80         | 61         |
| 2015-2020 Conservation First Framework                                                | 78         | 393        | 404        | 454        | 407        | 457        |
| IESO Conservation Fund**                                                              | 7          | 9.5        | 9.5        | 9.5        | 9.5        | 9.5        |
| <b>Total</b>                                                                          | <b>504</b> | <b>521</b> | <b>561</b> | <b>621</b> | <b>496</b> | <b>527</b> |

\*Source: IESO (April 2018). Consistent with cost forecast included in 2017 LTEP and 2017 LTEP Cost Module. Does not yet account for February 2018 amending direction to IESO, which resulted in a shift in target and associated budget from the IAP to CFF.

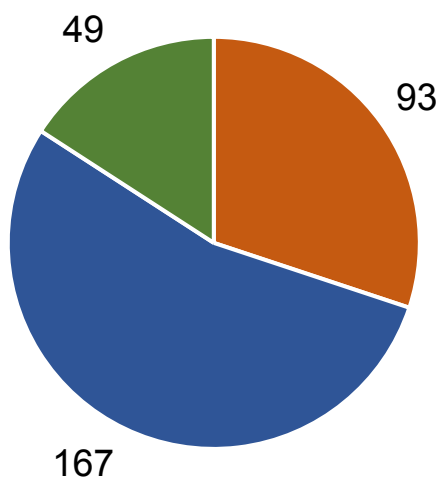
\*\* IESO Conservation Fund is outside of the CFF and IAP, and typically operates with a Board-approved budget of \$9 M/year. In December 2016, the Minister issued direction to IESO to fund the Regulated Price Plan (RPP) Time-of-Use Pilots led by the OEB through the Conservation Fund. These costs, expected to total approx. \$27.8M, are not reflected.

## Energy Efficiency Programs (NTD: NEW SLIDE)

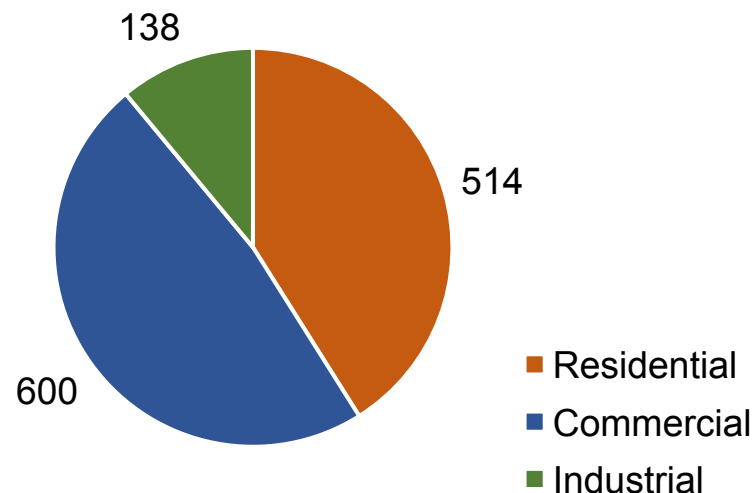
### 2016 CDM Costs and Savings by Sector (CFF and IAP)

- Typically most savings occur from the commercial and industrial sectors.
- However, in 2016, the Coupons program for the residential sector was very successful, resulting in savings of 428 GWh at a cost of \$41 million.

Conservation Costs (\$ million) in 2016  
by Sector



Conservation Savings (GWh) in 2016  
by Sector



# Energy Efficiency Programs

## *Natural Gas Demand Side Management Framework*

- **Demand Side Management (DSM) frameworks** are established and overseen by the OEB.
  - Launched December 22, 2014, the six-year DSM Framework governs the delivery of natural gas conservation and energy efficiency programs and provides the funding, guidelines and certainty needed for natural gas utilities to deliver programs to their customers.
  - Enbridge Gas Distribution and Union Gas design and deliver conservation programs for their residential and business customers (voluntarily, receiving a shareholder incentive).\*
- The OEB encouraged Enbridge and Union Gas to meet with the IESO with the objective of developing and jointly implementing conservation programs with electricity utilities.
- The mid-term review of the DSM Framework is expected to be completed by December 1, 2018. The review is looking at gas utility budgets and targets, how the programs are meeting customer needs, and interactions with Ontario's cap and trade program.

### **2015-2020 DSM Framework:**

- Total budget of approximately \$825 million\* from natural gas rates, bringing Ontario's total spending on natural gas conservation programs in-line with leading U.S. jurisdictions, allowing natural gas utilities to pursue greater levels of natural gas savings.
- Encourages coordination and integration of natural gas with electricity conservation programs.
- Extends programs for low-income consumers across the province

\*Includes \$125 million in maximum shareholder incentive (\$10.45 M/utility/year).

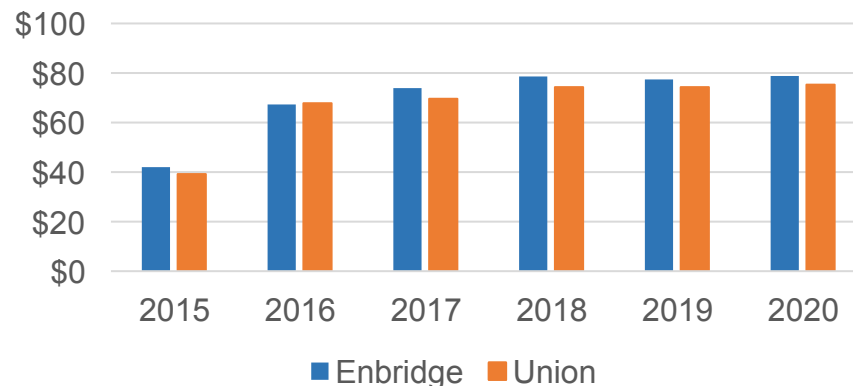
\* Enbridge and Union have proposed to merge by January 1, 2019 (application currently before OEB).

# Energy Efficiency Programs (NTD: NEW SLIDE)

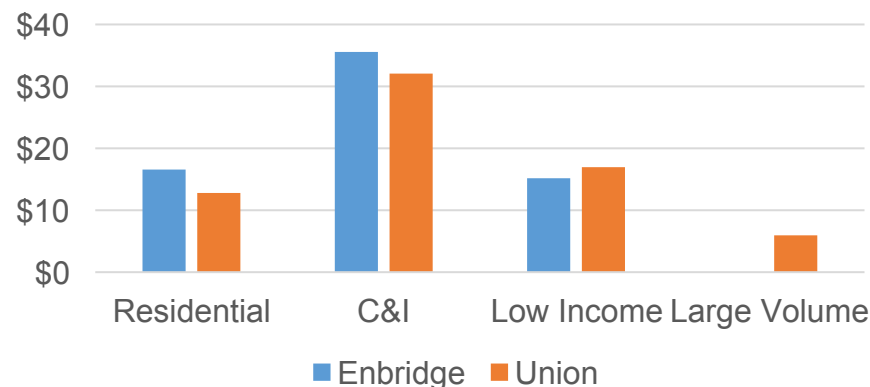
## Costs of Natural Gas DSM Framework and By Sector

- 2015 expenditures are actual, OEB approved expenditures.
- DSM expenditures ramp up in 2016 and 2018, leveling from 2018-2020.
- 2016-2020 cost forecasts are based on OEB-approved gas utility budgets and include a maximum incentive to the utilities of \$11 million annually.

**Annual DSM Expenditure by Utility  
2015-2020 (\$ million)\***



**2016 DSM Expenditure by Utility & Sector**



## Energy Efficiency Programs For Homes

|                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Electricity conservation programs (Save on Energy)</b>         | <p>Programs include instant discounts for a wide range of energy-efficient products at participating retailers; incentives for heating and cooling systems (furnace, central air conditioners, heat pumps); and, for low-income customers, free installation of efficient measures (e.g., LEDs, power bars, insulation and weatherstripping, energy efficient appliances).</p>                                                                                                                                                                                                                                                                                                                                                        |
| <b>Natural gas conservation programs (Enbridge and Union Gas)</b> | <p>Programs include home audit and retrofit rebates which provide a wide range of energy-saving rebates for the home (heating system, insulation, windows), smart thermostat rebate (Enbridge), and free insulation and weatherstripping to low-income consumers.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Multi-fuel programs</b>                                        | <p>In 2016, funding from the Green Investment Fund expanded the home audit and retrofit programs administered by Enbridge and Union Gas, to all homes in Ontario heated by natural gas, propane, oil and wood. Under Save on Energy, the IESO has, on a pilot basis, further expanded eligibility to electrically-heated homes and added electricity saving measures for all participants. Together this has resulted in a multi-fuel program offer for residential customers.</p> <p>The IESO is supporting the delivery and design of Green Ontario Fund programs (free smart thermostat installation and in-home energy review; smart thermostat rebate, and rebates for insulation, windows, geothermal systems, heat pumps).</p> |
| <b>Affordability Fund</b>                                         | <p>The Affordability Fund was established with funding from the Province, and is administered by an independent trust. Launched in October 2017, the Fund provides energy efficiency measures to electricity customers who do not qualify for the Save on Energy low-income conservation program, and who are unable to undertake energy efficiency improvements without support.</p>                                                                                                                                                                                                                                                                                                                                                 |

# Energy Efficiency Programs

## *For Business*

|                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Electricity conservation programs (Save on Energy)</b>         | <p>Programs provide financial incentives and other services for energy efficiency upgrades and measures for commercial, institutional and industrial customers.</p> <p>Incentives are available for refrigeration upgrades, new energy efficient lighting, up to 50% of the cost of an energy audit and project costs for upgrading old or inefficient equipment, for engineering studies and capital costs of energy efficiency upgrades.</p> <p>Other programs include Existing Building Commissioning, Energy Managers, New Home Construction, Training and Support.</p> |
| <b>Natural gas conservation programs (Enbridge and Union Gas)</b> | <p>Equipment incentives are available for retrofits, including space heating, water heating, food service, manufacturing, greenhouses, and other custom projects in the commercial sector.</p> <p>Industrial custom solutions and a range of incentives for audits and implementing energy efficiency projects.</p> <p>Other programs include Comprehensive Energy Managers, operational improvement programs, and the (Enbridge) School Energy Challenge Program.</p>                                                                                                      |
| <b>Multi-fuel programs</b>                                        | <p>Incentives for food and beverage processors to adopt low-carbon technologies, and for farms and manufacturing facilities to increase energy efficiency through retrofits are available through the Green Ontario Fund.</p> <p>Other programs for business are under development.</p>                                                                                                                                                                                                                                                                                     |

# Energy Efficiency Financing

## Investor Confidence Project

- The Investor Confidence Project, aims to increase access to financing for the building renovation market by standardizing how energy efficiency projects are developed, documented and measured. Individual projects can then be aggregated and traded by institutional investors on secondary markets – similar to mortgages or other asset-backed securities.
- The Ministry has signed a Transfer Payment Agreement with MaRS Advanced Energy Centre to pilot the Investor Confidence Project Protocols in Ontario and identify how they can be adapted for the Canadian market.

## On-bill Financing

- On-bill financing enables consumers to finance energy efficiency retrofits with repayment on their utility bill. Electricity distributors may undertake on-bill financing for electricity conservation and demand management measures under the *Ontario Energy Board Act, 1998* and the *Electricity Act, 1998*.
- Since 2007, Enbridge Gas has been offering an Open Bill Access service that allows third-party energy companies to include their charges on the Enbridge bill, or a separate standalone bill, for both electricity and natural gas measures. Union Gas plans to launch a similar service to its customers beginning October 2018.

# Conservation in Energy Planning

## IESO Regional Planning Process

- Regional planning is an integrated process that engages key stakeholders in developing solutions to address near and long-term electricity needs of a specific area. Solutions may consist of conservation, local generation, and transmission or distribution alternatives.
- The IESO and utilities have engaged communities in a formalized regional planning process involving 21 regions. A review of the process is underway.

## OEB rules, guidelines

- Electricity and natural gas distribution system planning is regulated by the OEB.
- In 2014, the OEB released Conservation and Demand Management Guidelines, which outline how electricity distributors consider conservation as a first resource in their demand forecasts, cost of service applications, and transmission applications.
- The Demand Side Management Framework requires that natural gas utilities consider conservation in infrastructure planning at the regional and local levels. Natural gas distributors are studying the potential role of Demand Side Management in reducing or deferring future infrastructure investments in planning efforts.

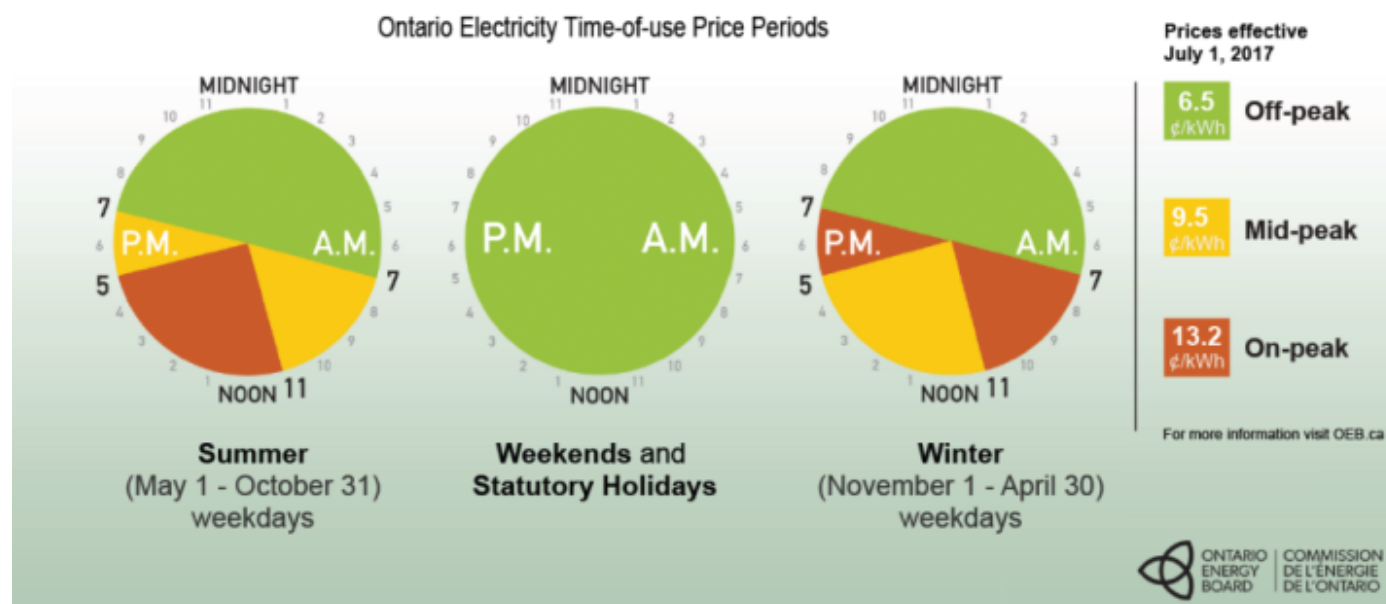
## In Front of the Meter Conservation

- In Front of the Meter Conservation technologies reduce line losses and optimize voltage levels on the distribution system and can cost-effectively save electricity, reduce peak demand and defer infrastructure upgrades.
- A 2017 study undertaken on behalf of the ministry determined that In Front of the Meter technologies/solutions can be cost-effectively deployed on approx. 30% of Ontario's distribution systems.

# Demand Management & Pricing Initiatives

## *Time-of-Use Pricing*

- Smart meters have enabled time-of-use (TOU) pricing. In Ontario, TOU pricing applies to almost all household and small business customers (general service <50kW) on the Regulated Price Plan (RPP).
- TOU rates are designed to reflect the cost of producing electricity throughout the day.
  - Prices are lower when demand can be satisfied with lower cost sources of generation (nuclear) and rise as demand increases and more expensive forms of generation (natural gas) are called on.
- Based on 12 month projections of demand and supply costs, the OEB sets TOU rates every six months in co-ordination with the main shift in the timing of peak demand from Summer to Winter.



# **Demand Management & Pricing Initiatives**

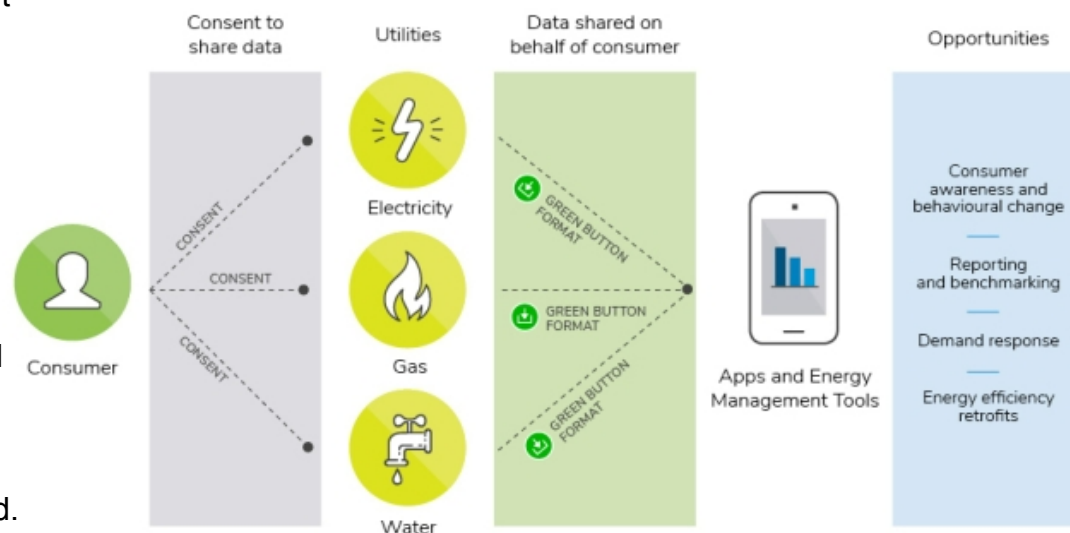
## ***Demand Response Auction***

- Demand Response (DR) refers to the change in end-user electricity consumption patterns in response to prices and system needs.
  - The procurement of DR permits the IESO to reduce overall system or regional demand for electricity to support reliability and mitigate the need for new generation resources that would otherwise be needed to satisfy demand.
- The IESO acquires DR through an annual DR auction.
  - IESO's third demand response auction in December 2017 procured approximately 570.7 MW for the summer commitment period (May 2018 to October 2018) and approximately 712.4 MW for the winter commitment period (November 2018 to April 2019).
  - As of Summer 2017, 687 contributors, including grocery stores, farms, factories and municipal facilities were providing demand response services through the auction, as well as residential customers through aggregators.
- DR auction participation is open to resources with peak load greater than 1 MW (e.g. industrial consumers, aggregators etc.).
- The IESO is also exploring how Demand Response can help meet regional and local needs through the regional planning process.
- The IESO is working directly with stakeholders through both the Incremental Capacity Auction Stakeholder Engagement and the Demand Response Working Group to facilitate the transition of Demand Response to the Incremental Capacity Auction.

# Energy Data Access, Information and Tools

## *Providing Energy Data Access through Green Button*

- Green Button is a data standard that originated in the United States and includes a common format (called “Download My Data” or DMD) and sharing protocol for energy data (called “Connect My Data” or CMD).
- Implementing Green Button enables homes and businesses to access their energy data and to share their energy data with apps and software of their choice, which can help them analyze their energy use and identify energy efficiency opportunities.
- The standard is at various stages of being implemented by utilities across the United States. In Ontario, electricity distributors representing about 60% of Ontario’s electricity customers have implemented Green Button DMD for their residential and small business customers. Four LDCs have voluntarily implemented Green Button CMD as well.
- In 2016, the ministry conducted a cost-benefit analysis and consulted on a draft policy proposal to require utilities to implement Green Button.
- In 2017, legislative amendments were passed, which enable Ontario to establish a regulatory framework for the province-wide implementation of Green Button.
- Next steps include establishment of technical working groups to develop utility implementation support documents and to propose a draft regulation to drive consistent province-wide implementation of the standard.



## Energy Data Access, Information and Tools

### *Broader Public Sector Reporting*

- Broader Public Sector (BPS) organizations, including municipalities, municipal service boards, universities, colleges, schools, and hospitals are required to:
  - Report annually to the ministry on their energy use and greenhouse gas emissions and publish the reports on their websites
  - Develop and publish on their websites a conservation plan every five years
- In 2017, 99% (705 organizations) of broader public sector organizations reported to the Ministry. In addition, 82% of broader public sector organizations developed conservation and demand management plans in 2014.
- The ministry posts the reports on the Open Data website. Open Data currently contains data files for reports from 2011-2015

## Energy Data Access, Information and Tools

### *Private Building Reporting & Benchmarking*

- Energy and Water Reporting and Benchmarking (EWRB) is the ongoing review of a building's energy and water consumption to compare it to its own past performance and the performance of other similar buildings.
- Disclosure of building data also allows the market to value efficiency in purchasing, leasing and lending decisions.
- Energy and water reporting and benchmarking for large private sector buildings is mandatory in Ontario. Building owners will be required to make their reports by July 1 each year.
- The reporting requirement is being phased in over three years based on building size.

| Phased Mandatory Reporting Timeline                                           | Who Needs to Report            |                                  | Total Buildings                     |
|-------------------------------------------------------------------------------|--------------------------------|----------------------------------|-------------------------------------|
|                                                                               | Commercial and Industrial      | Multi-Unit Residential           |                                     |
| <b>Year 1: July 1, 2018</b><br>(consumption data from the 2017 calendar year) | 250,000 square feet and larger | Not required to report in year 1 | ~1,013 Buildings<br>(~1,013 total)  |
| <b>Year 2: July 1, 2019</b><br>(consumption data from the 2018 calendar year) | 100,000 square feet and larger | 100,000 square feet and larger   | ~7,226 Buildings<br>(~8,239 total)  |
| <b>Year 3: July 1, 2020</b><br>(consumption data from the 2019 calendar year) | 50,000 square feet and larger  | 50,000 square feet and larger    | ~9,536 Buildings<br>(~17,775 total) |

# Energy Data Access, Information and Tools

## *Municipal Energy Plan Program*

- The Municipal Energy Plan program, administered by the Ministry of Energy, helps municipalities develop community energy plans.
- A municipal energy plan is a comprehensive plan designed to align energy, the built environment, and land use planning to identify opportunities for community-wide energy efficiency, clean energy, greenhouse gas emissions reductions, and economic development.
- The program has two funding streams: to support municipalities in the development of a new plan, and to support updates to existing plans.
- Annual budget for the program is approximately \$1 million.
- To date 24 applications have been approved for funding, representing 37 municipalities across Ontario.-
- Stream 1 program participants include:
  - Town of Aurora, Municipality of Bayham, Municipality of Chatham-Kent, Durham Region (representing eight lower-tier municipalities), City of Greater Sudbury, City of Kenora, City of Kingston, City of Markham, Municipality of Middlesex Centre, City of Mississauga, Town of Newmarket, Town of Oakville, Municipality of Sioux Lookout, City of Temiskaming Shores, City of Toronto, City of Vaughan, Region of Waterloo (representing seven lower-tier municipalities), Municipality of Wawa, City of Windsor, and City of Woodstock.
- Stream 2 program participants include:
  - Town of Caledon, City of Guelph, City of London, and City of Sault Ste. Marie.