# 2017 Long-Term Energy Plan

**Ministry of Energy**

**Date: July 26, 2017**

Minister

Deputy Minister

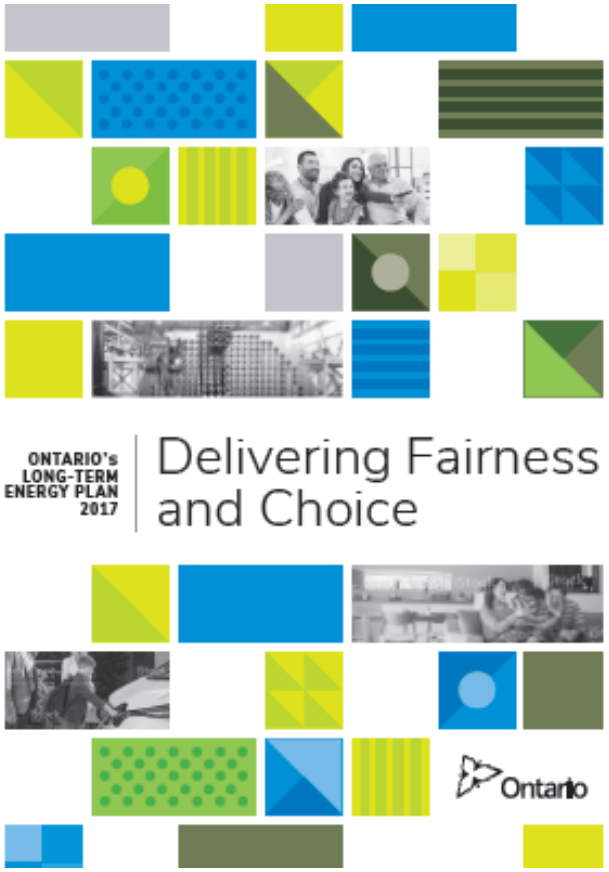
# Agenda for Discussion

1. Introduction and Overview of Request
2. Process and Timelines
3. Engagement Process and Feedback
4. Outlooks
5. Key Policy Initiatives
6. Implementation Directives and Plans
7. Proposed LTEP Frequency Regulation
8. Communications Roll-out
9. Next Steps
10. Proposed Cabinet Minute
11. Appendices

# 1. INTRODUCITON AND OVERVIEW OF REQUEST

# Introduction

- The Long-Term Energy Plan (LTEP) is the energy sector's roadmap. It includes 20-year outlooks and identifies initiatives to position the energy sector for the future.
- The Province previously released two LTEP's: in 2010 and 2013.
- Recent changes mean the 2017 LTEP differs from the previous two iterations in a number of ways:
  - Development of the 2017 LTEP followed a new process, enshrined in legislation last year.
  - It is less prescriptive- further implementation decisions are being left to sector experts at the Independent Electricity System Operator (IESO) and Ontario Energy Board (OEB).
  - LTEP 2017 does not include targets for supply technologies, instead it positions Ontario towards a technology-neutral approach for supply decisions.
  - It broadens its focus to include the fuels sector, in addition to electricity
- The LTEP includes a number of initiatives focussed on energy affordability, innovation and customer choice.



Ontario

# OVERVIEW OF REQUEST

- The Ministry of Energy will prepare the following for Cabinet approval:
  1. ~~Issue the~~ Long-Term Energy Plan 2017
     - This includes initiatives contained in the LTEP document led by ENERGY*
  2. ~~Issue an~~ LTEP implementation directive to the Independent Electricity System Operator and;
  3. ~~Issue an~~ LTEP implementation directive to the Ontario Energy Board.
- These three items will be tabled for Cabinet approval in August 2017.

# GOVERNMENT COMMITMENT

- *"Building on the processes and principles used in the 2010 and 2013 plans and the new legislation, work with partner agencies and energy sector agencies to consult with consumers and stakeholders, and engage with Indigenous communities to develop Ontario's next Long-Term Energy Plan (LTEP) to be released in 2017"*

  – Minister of Energy Mandate Letter, September 2016.

*initiatives identified in "proposed minute" section

# 2. PROCESS AND TIMELINES

# LTEP 2013


- Ontario's last LTEP was released following Cabinet approval, on December 2, 2013.
- The plan set out direction for the energy sector including conservation, generation, transmission/distribution, oil/gas, Indigenous participation, and regional planning.
- The plan identified five principles that guide energy decisions:
  - Cost effectiveness;
  - Reliability;
  - Clean energy;
  - Community engagement; and
  - An emphasis on conservation and demand management.
- The plan was informed by the most comprehensive engagement process the Ministry of Energy has ever undertaken.

# LTEP 2013 Achievements


LTEP 2013 Released **Dec. 2013**

**Coal Phase-Out** Coal eliminated from electricity supply mix **Apr. 2014**

SAVE ON ENERGY

**Conservation** Six-Year Conservation First Framework takes effect **Jan. 2015**

**Regional Planning** Process underway across Ontario **Jan. 2016**

**Connecting First Nation Communities** Watay-nikaneyap Power selected as transmitter **Jul. 2016**

DARLINGTON REFURBISHMENT

**Nuclear Refurbishment** Darlington Refurbishment to begin **Oct. 2016**

2014 — 2015 — 2016

**Price Mitigation** Industrial Conservation Initiative expanded **Apr. 2014**

**Ontario Energy Reporting** Website Launched **Dec. 2014**

ONTARIO ENERGY REPORT

**Electricity Storage** 50 MW Storage Procurement Completed **Nov. 2015**

**Nuclear Refurbishment** Bruce Power Refurbishment Implementation Agreement **Dec. 2015**

**Renewable Energy** Large Renewable Procurement I contracts offered **March 2016** FIT 4 contracts offered **June 2016**

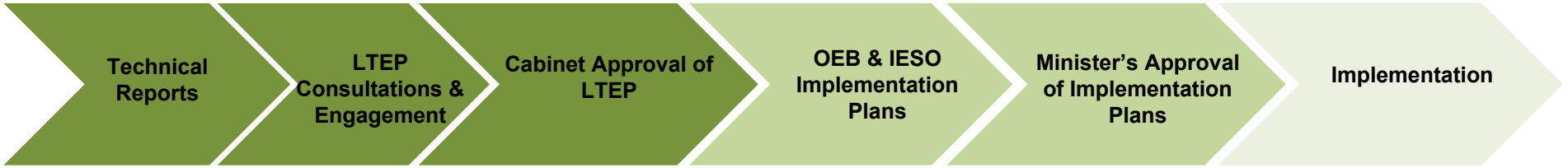
**ON-QC Electricity Trade Agreement** An agreement is reached **Oct. 2016**



*Timeline includes initiatives from LTEP 2013. Does not include other recent achievements (e.g., Fair Hydro Plan)

# New Energy Planning Process

- After the 2013 LTEP, the Ministry of Energy took time to reflect on its energy planning process. It determined that the process used for developing the 2010 & 2013 LTEP's should be enshrined in legislation.
- These changes were made through the *Energy Statute Law Amendment Act, 2016* which was passed in June 2016 and came into force on July 1, 2016.
- The next LTEP will follow this planning process. The process will include:




### Creating the LTEP

- LTEP process begins with IESO technical report.
- ENERGY leads LTEP development, engagement, and consultations.
- Cabinet approves the LTEP and directives issued to IESO and OEB asking for Implementation Plans

### Implementation

•IESO and OEB develop plans for implementing LTEP objectives.

•Minister of Energy approves OEB and IESO implementation plans.

### Procurements & Programs

•IESO and OEB develop programs and policies, or procure resources outlined in their Implementation Plans.

# LTEP 2017 Timeline

- The Ministry of Energy developed the LTEP, incorporating other major government priorities:




Minister of Energy requests technical report from IESO **June 2016**

Electricity & fuels technical reports released **Sept. 2016**

LTEP Engagement **Oct. 2016 to Jan. 2017**

LTEP Policy Development & Modelling **Feb. to June 2017**

June 2016 — 2017

Climate Change Action Plan Released: **June 2016**

8% rebate: Announced **Sept 13** Legislation passed **Oct 19**

Ontario Fair Hydro Plan Announced **March 2** Legislation passed: **May 31**

# LTEP Process

**September 2016**
Technical Reports

- IESO published its Ontario Planning Outlook (OPO) on Sept 116.
- The Ministry published the Fuels Technical Report (FTR) on Sept 30/16.

**Oct '16- Jan' 17**
LTEP Engagement

- Included 17 in-person sessions; 17 indigenous sessions online tools and *EBR* posting.

**Feb'17- June 17**
Policy Development

- Fair Hydro Plan policies developed and announced; implementation begins.
- ENERGY developed LTEP initiatives

**July 2017**
**Cabinet Approval**

**Sept' 17**
Publish LTEP

**Sept' 17**
Issue Directives

- Final LTEP published on ENERGY website
- Minister issues Cabinet-approved implementation directives to IESO & OEB

**Fall 2017**
Implementation Plan Development

- IESO and OEB develop implementation plans based on directives

**Dec' 2017**
Implementation Plan Approval

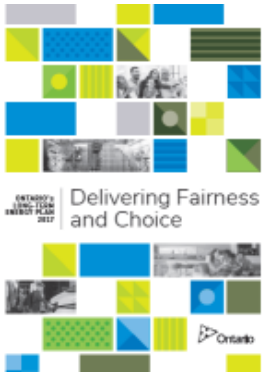
- Implementation plans submitted to Minister of Energy for approval

**2018-2020**
Implementation

- IESO and OEB proceed with the procurements, policies and programs identified in their implementation plans

# Enhancements since previous LTEPs


**LTEP 2010 & 2013**




**LTEP 2017**

| | |
|---|---|
| No formal process for development | Development followed the process enshrined in Electricity Act, 1998 last year |
| Technology-specific supply targets (i.e., 10,700 MW of renewables online by 2021 ) | Technology-neutral; sets the framework for market-based procurements |
| Direction to agencies on specific procurements and other actions | Less prescriptive with a focus on outcomes; provides agencies more flexibility |
| Implemented through subsequent Minister directives | Implemented through Cabinet-approved directives and agency implementation plans |
| Focus on electricity sector | Broader focus to include fuels sector |

# LTEP Documents

- The LTEP process in the *Electricity Act, 1998* identifies three tools for creating and implementing the LTEP: the LTEP document, implementation directives, and implementation plans.
- The documents will work together to articulate objectives and identify the steps required to meet them. The process gives the IESO and OEB flexibility to determine the best courses of action.

| LTEP Document | Author | Approval |
|---|---|---|
| Sets out the government's goals for the energy sector and provides the narrative and rationale behind new and ongoing initiatives. | ENERGY | CABINET |

| Implementation Directives | Author | Approval |
|---|---|---|
| Articulates outcomes and provides direction to the IESO and OEB for LTEP implementation LTEP. Directives are high level and provide agencies flexibility to create detailed implementation plans. | ENERGY | CABINET |

| Implementation Plans | Author | Approval |
|---|---|---|
| Outlines the steps the IESO and the OEB will take to meet the directive. Plans will identify how agencies will engage with public, Indigenous communities and councils, and key stakeholders. | IESO/ OEB | MINISTER |

# 3. ENGAGEMENT FEEDBACK

# Methods for Engagement

- The LTEP engagement process took place from October 2016 to January 2017. The process yielded feedback from three channels:

*In-person sessions*

Stakeholder sessions
Public open houses
Indigenous sessions

17 communities visited

~550 stakeholder attendees

Hundreds of open house attendees

17 Indigenous sessions

*Written submissions*

Environmental Registry
LTEP@ontario.ca
Hardcopies (mail, drop-off)

~1,500 Environmental Registry submissions

~200 letters, emails and paper submissions

*Talks Tool*

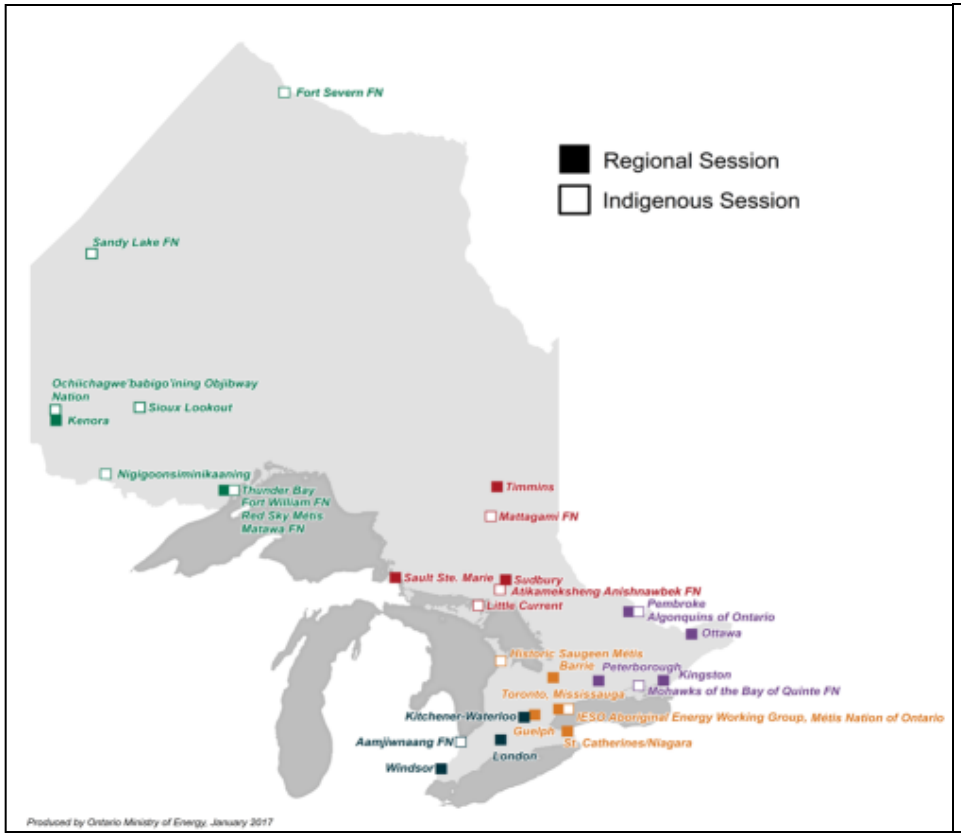
Online survey and comments on an online forum

2,835 online comments and submissions

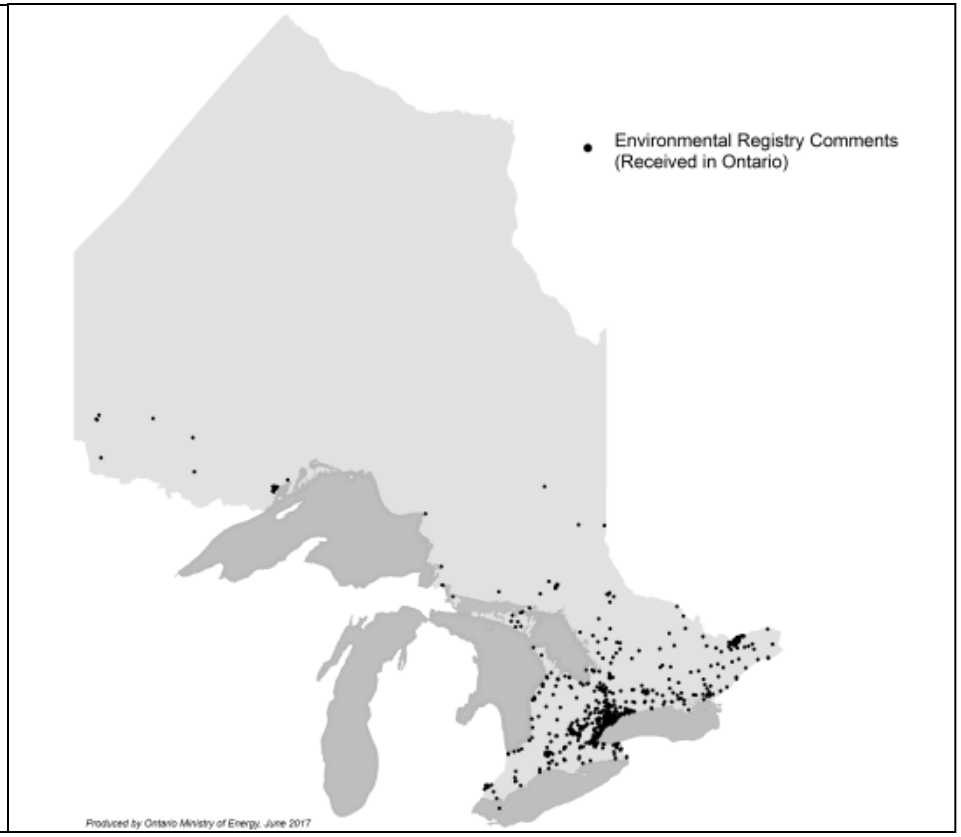
2,285 users

# Engagement Feedback

## Communities Visited

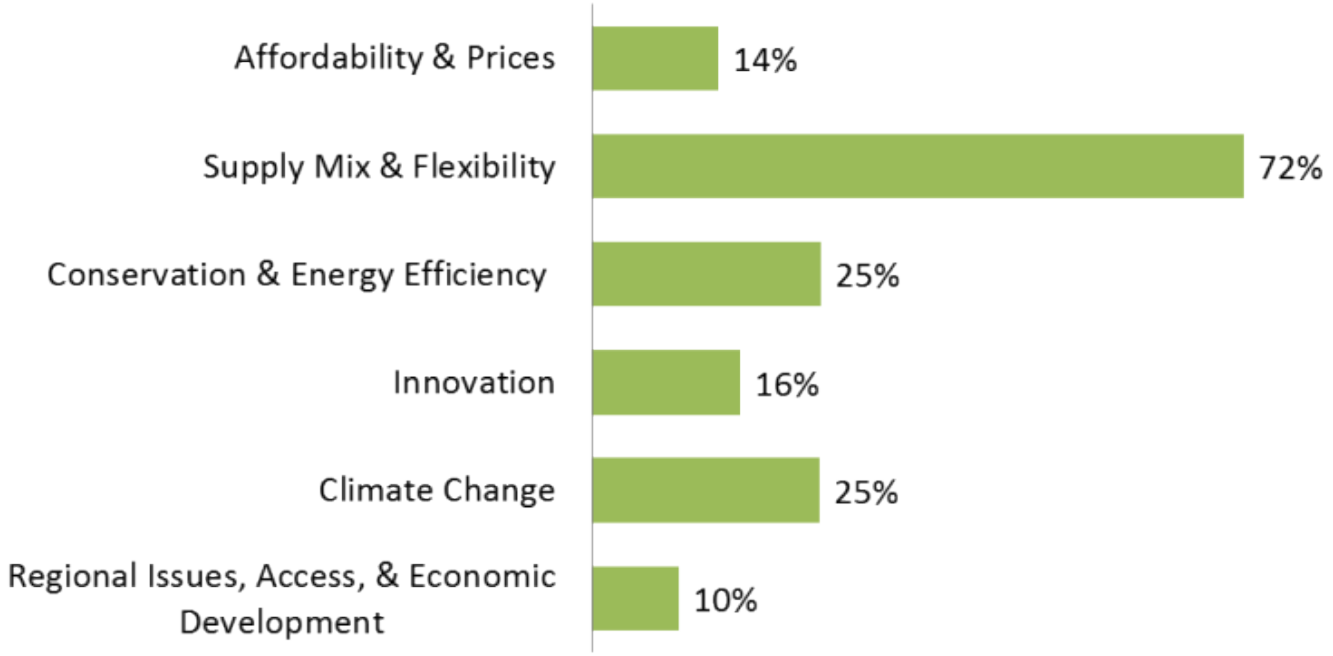



## Comments Received



# Proportion of Topics through Environmental Registry

- Percentage of comments received through the Environmental Registry that mentioned the following topics:




*Note: Comments do not sum to 100% because topics were not mutually exclusive*

# Feedback: Affordability and Prices

- Costs for residents and businesses are too high
- Energy prices are affecting Ontario's industrial competitiveness
- Consider funding from tax base to reduce electricity rates
- Desire from businesses for energy cost certainty
- Consider impact of carbon pricing on energy system and costs

*"Home energy rates are difficult for the average person to grapple with."*

*"High electricity prices are not conducive to sustaining existing jobs or creating new ones."*

*"Consideration should be given to moving some of the costs for electricity and gas infrastructure into the tax base."*

*Source: Feedback from in-person sessions and Environmental Registry submissions. (Registry # 012-8840, Comments 206552, 197419)*

# Feedback: Flexible and Efficient Electricity System

- Support outcome based regulatory approach and customer focused reliability measures
- Consider more interconnections with other jurisdictions
- Prepare for impacts of distributed generation
- Consider capacity markets for supply decisions moving forward
- Supply decisions should be technology-neutral
- Differing views on nuclear and renewable generation

*"If we are talking about new supply, do it as a competitive bid, technology aside, you are going to get the best prices if you do it competitively."*

*"The capacity market must be sophisticated enough to allow all required types of generation to successfully compete"*

*Source: Feedback from in-person sessions and Environmental Registry submissions. (Registry # 012-8840, Comment 207183)*

# Feedback: Conservation and Energy Efficiency

- Tailor conservation programs for specific customers and regions
- Consider new energy management technologies and strategies such as social benchmarking
- Continue and enhance existing conservation programs
- Support community based energy planning.
- Allow for projects that conserve energy in-front of the meter conservation and prevent line loss
- Consider changes to Time of Use Pricing;
- Align programs with initiatives from Climate Change Action Plan

*"People need help to make their houses more energy efficient and green. Use cap and trade revenues for this."*

*"The current TOU price structure is not easily understood by customers, nor does it set prices that provide consumers with incentives and opportunities to reduce their electricity bills by shifting their time of electricity use."*

*Source: Feedback from in-person sessions and Environmental Registry submissions. (Registry # 012-8840, Comment 205386)*

# Feedback: Innovation

Revised market systems and regulatory reform could spur innovation

Consider new opportunities/ business models for utilities to invest in new technologies and raise capital

Change rate design to allow for smart grid projects with broad system benefits

Customer, not government, should dictate the technologies that emerge.

Capitalize on opportunities provided by:

- Energy storage
- Renewable natural gas
- Microgrids
- Distributed energy
- Electric vehicles

*"The utility of the future will need to present customers with an amalgam of traditional and non-traditional services."*

*"Give the power back to the communities and to let them decide what energy sources and technologies…best meet their needs."*

*"Electric vehicles provide an excellent opportunity for the current grid."*

*Source: Feedback from in-person sessions and Environmental Registry submissions. (Registry # 012-8840, Comments 205121, 207175, 196755)*

# Feedback: Climate Change Impacts

- Consider impacts of climate change policy on grid and natural gas industry
- Confusion over cap and trade, and what funding will be used for
- Reduce use of fossil fuels across the sector
- Transition towards 100% renewable energy
- Develop an integrated approach to decarbonization
- Demonstrate benefits of electric heating and provide incentives to encourage its use

*"I am very pleased that Ontario has taken a leadership role as a climate leader in this country, and we have a great opportunity ahead of us to continue that leadership role."*

""We need to factor in externalities, as they are currently understood, with the costs of climate change."

*"The importance of tackling climate change cannot be overstated."*

*Source: Feedback from in-person sessions and Environmental Registry submissions. (Registry # 012-8840, Comments 203858, 196190)*

# Feedback: Regional Issues

- Consider non-wires solutions in regional planning;
- Need increased transmission capacity and improved reliability in the North
- Reserve corridor space before development occurs
- Expand access to natural gas

*"Invest in remote community energy, aligned with investment in northern infrastructure."*

*"Transmission lines further fragment the boreal forest causing serious and unnecessary disruption to animal habitat."*

*"Moving forward with smart grid development and deployments is Ontario's best approach to strengthen transmission system reliability in all regions."*

*Source: Feedback from in-person sessions and Environmental Registry submissions. (Registry # 012-8840, Comments 207137, 205003, 206960)*

# Feedback: Indigenous Sessions

The need to **address energy affordability,** including improved access to support programs, consideration of an Indigenous rate, and solutions through conservation & more diversified energy options such as fuels

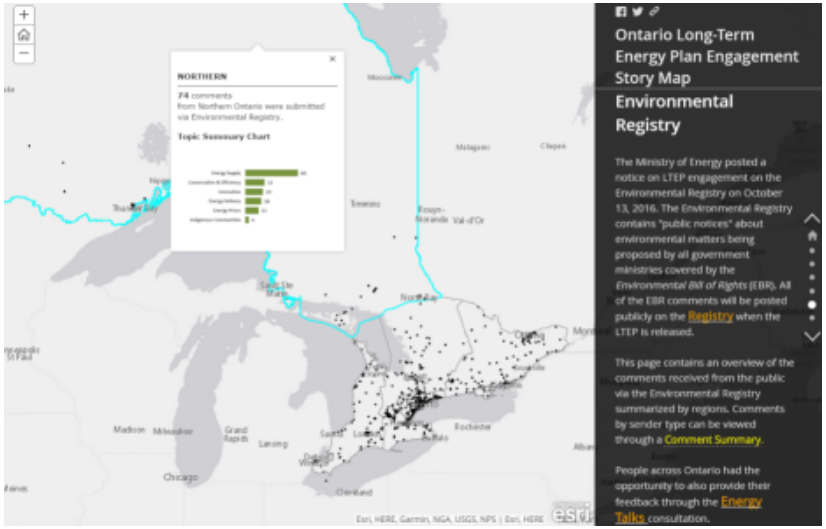
*Every 30 days a bill comes to someone in our community who can't pay it*

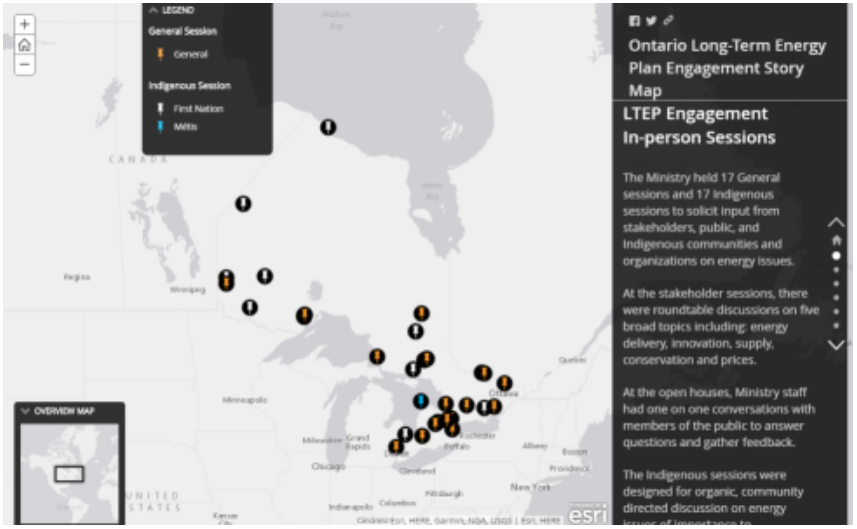
The need for **enhanced energy resiliency** including more reliable transmission, investments in renewable energy and innovation, addressing climate change and linking energy to issues of housing & well-being.

The need to **support local opportunities** from local generation & benefits to increased human capacity to engage in energy issues; training & energy literacy; the need to include the voices of youth & the north, respecting local jurisdiction and decision-making, and the need for better financing options.

# Public Report Back

- The Ministry of Energy published an interactive story map on June 23 as a tool to describe the LTEP consultation and engagement process.
- The story map summarizes where we went and what we heard through the LTEP engagement process.
- The story map received nearly 500 views in its first week (68 views per day).




*http://www.energy.gov.on.ca/en/ltep/ontarios-long-term-energy-plan-2016-2017-consultations/*

# Indigenous Report Back

- A summary report of LTEP feedback received from First Nations was compiled and emailed to all First Nation session invitees and participants.
  - The ministry hosted an LTEP First Nation wrap-up event, to confirm accuracy of the ministry's record of feedback, and to receive input on the ministry's initial ideas for the next LTEP.

- A summary report of LTEP feedback received from Métis was compiled and emailed to all Métis session invitees and participants.
  - The Ministry has offered to present feedback and ideas at the Métis Nation of Ontario Annual General Assembly.

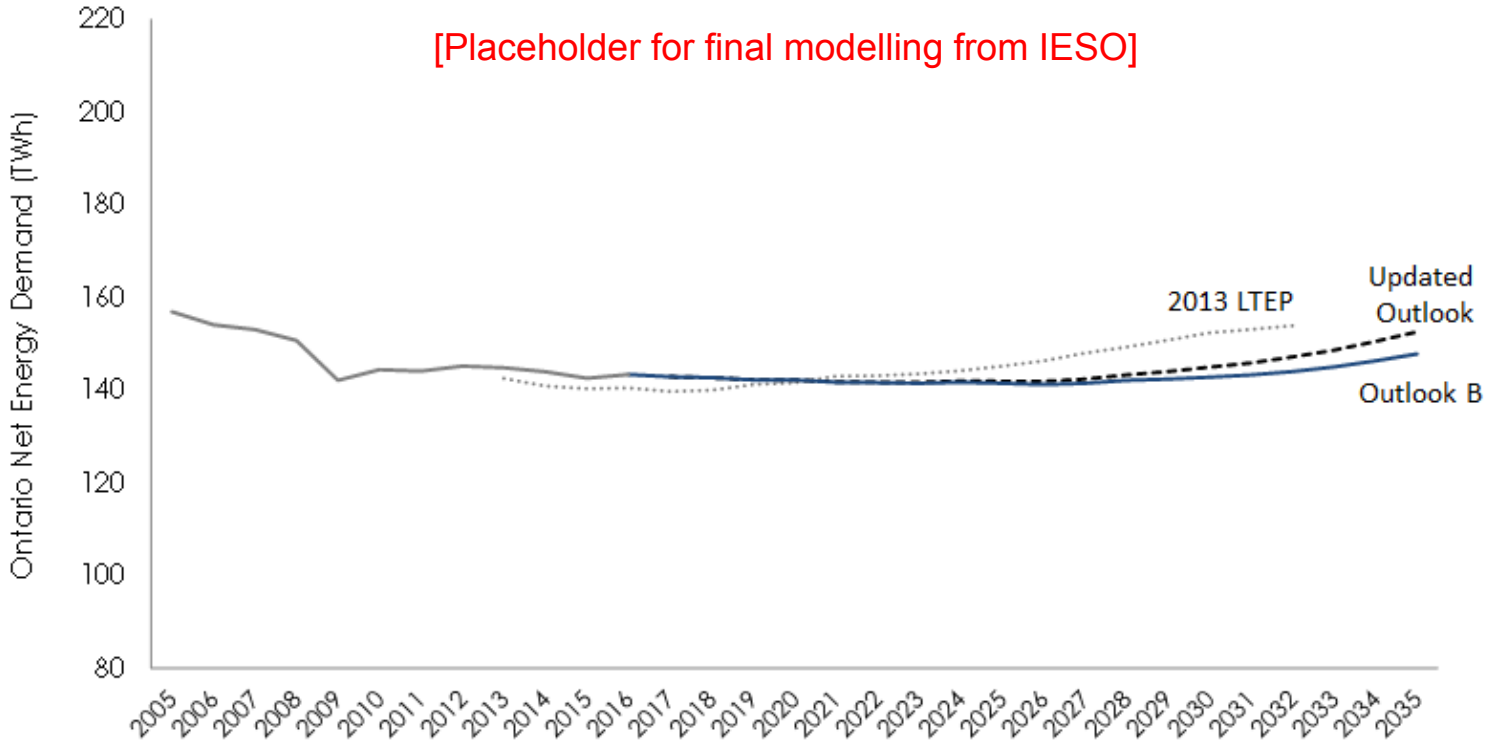
# 4. Outlooks

# 4. OUTLOOKS

- Total energy consumption (2016 & 2035)
    - By source (fuels, electricity)
    - By sector (residential, commercial, industrial, transportation)
  - Demand Outlook
    - Electricity
    - Fuels
  - Supply Outlook
    - Electricity
  - Emissions Outlook
    - Electricity
    - Fuels
  - Cost Outlook
    - Total electricity system
    - Average electricity bills
    - Total fuels cost
  - Uncertainty and notes -alignment with OFHP, other moving pieces
    - Demand forecast subject to key assumptions and next CCAP (detailed in appendix)

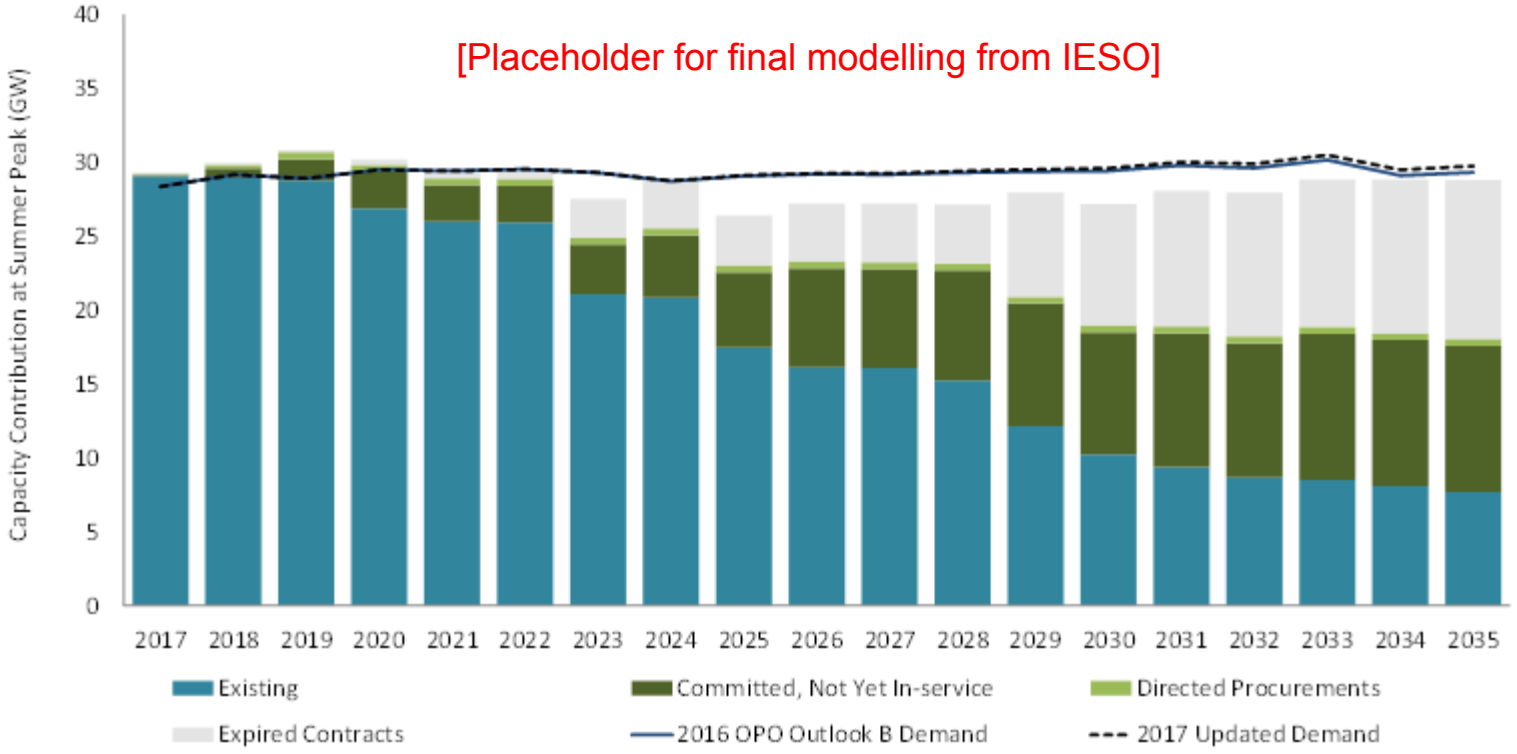
# DEMAND OUTLOOK - ELECTRICITY

- The following chart compares the demand forecast in LTEP 2013, the IESO's outlook publically released in September (Outlook B), and the new updated outlook for LTEP 2017.
- The updated outlook was based on Outlook B with increased EV uptake and recent sector updates.



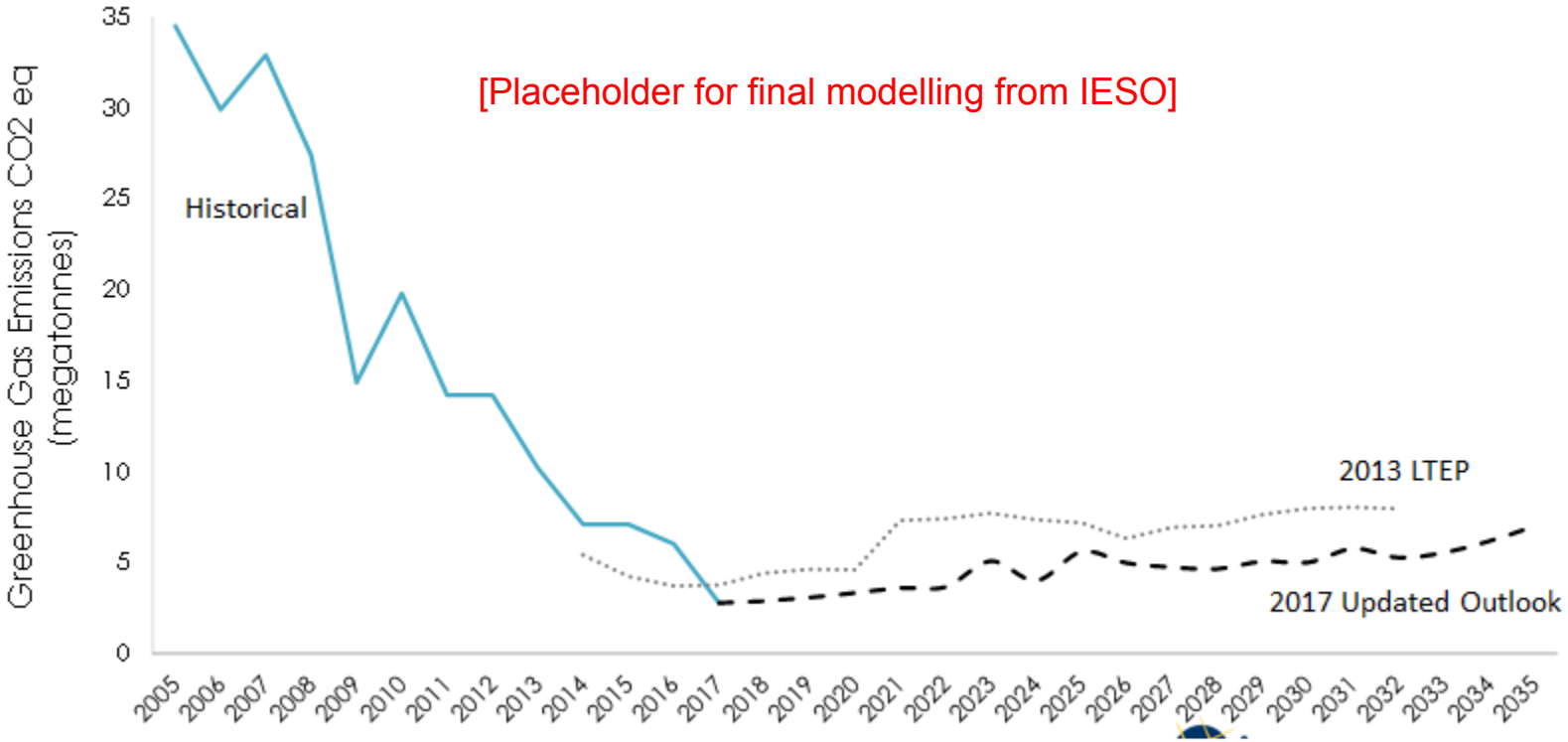
# SUPPLY OUTLOOK - ELECTRICITY

- 18 GW of supply resources will reach the end of their contact term by 2035, resulting in need for additional resources in the early 2020s.
- These resources provide opportunities for adaptation should, for example, demand trend lower or as better opportunities arise.



# EMISSIONS OUTLOOK - ELECTRICITY

- With the retirement of coal plants, greenhouse gas (GHG) emissions have dropped by over 80% in the past 10 years.
- The trend of lower emissions is forecast to continue over the planning outlook.



# Fuels and Integrated Modelling

- Placeholder- to be discussed in separate decks

# 5. Policy Initiatives

# 5. KEY POLICY INITIATIVES

- The following slides identify the initiatives that will be highlighted in LTEP 2017.

- Some initiatives are new while others are ongoing.

- Initiatives are broken into the following sections:
  A. Ensuring Affordable and Accessible Energy
  B. Flexible Energy System
  C. Improving Value and Performance for Consumers
  D. Conservation
  E. Preparing for the Future/Innovation
  F. Responding to the Climate Change Challenge
  G. Supporting Indigenous Capacity and Leadership
  H. Regional Priorities

# A. Ensuring Affordable and Accessible Energy

**Ongoing Initiatives to be profiled in LTEP**

- Fair Hydro Plan:
  - Rate Reduction via GA Refinancing
  - Expansion of Ontario Electricity Support Program (OESP)
  - Affordability Fund
  - Enhanced Distribution Rate Protection
  - First Nations Delivery Credit
- Gasoline Price Review
- Increased Consumer Protection
- Natural Gas Expansion
- Greenstone Transmission

# A. Ensuring Affordable and Accessible Energy

**Rate Reduction via GA Refinancing**

- Under the Ontario Fair Hydro Plan Act, 2017 (OFHPA), a portion of Global Adjustment is being refinanced to spread the cost of electricity investments over a longer period of time. This will relieve the burden on today's ratepayers and share costs more fairly with future generations.
- Under the OFHPA, as of July 1, 2017, residential electricity bills are reduced by an average of 25%. Up to 500,000 small businesses and farms will also benefit.

**Expansion of Ontario Electricity Support Program (OESP)**

- Ontario has already made significant progress on enhancing the OESP. On-bill, monthly credits have increased by 50% and program eligibility has expanded to include more low-income customers.
- Work is well underway to align the OESP with other social assistance programs, with the goal of significantly increasing uptake by automatically qualifying for OESP. Next steps include finalizing the OESP's transition to government funding, and solving for 'wet signatures', to help with program uptake.

# A. Ensuring Affordable and Accessible Energy

**Affordability Fund**

- An Affordability Fund is being established to help Ontarians who are not eligible for low-income conservation programs and who need financial assistance to make energy efficiency improvements to their homes.
- The Fund will be administered by an independent trust that will distribute funds to electricity distributors on an application basis. Distributors are in the best position to provide consumers in need of assistance with energy efficiency improvements, and it is expected that they will be able to begin applying to the Affordability Fund by the end of summer 2017.

**Enhanced Distribution Rate Protection**

- The Province has expanded rate protection to provide Distribution Rate Protection to about 800,000 residential customers served by local distribution companies with the highest distribution rates, including many of those who continue to receive RRRP. The cost of the DRP will be funded by provincial revenues.
- Eligible residential customers of the affected distribution companies are: Hydro One Networks Inc (R1 & R2); Northern Ontario Wires Inc.; Lakeland Power (Parry Sound service territory); Chapleau Public Utilities Corporation; Sioux Lookout Hydro; InnPower; Atikokan Hydro; and Algoma Power.

# A. Ensuring Affordable and Accessible Energy

**First Nations Delivery Credit**

- The First Nations Delivery Credit(FNDC) will benefit approximately 21,500 residential customers living on reserve. The costs will be funded by provincial revenues.
- The FNDC will provide much needed relief from the high costs of electricity in First Nations communities and encourage socio-economic well-being. This is an important step towards reconciliation and the strengthening of Ontario's relationship with First Nations.

**Gasoline Price Review**

- Northern communities are concerned about the high cost of the gasoline they use. As a result, the Minister of Energy directed the OEB in November 2016 to review Ontario's retail market for gasoline and diesel fuel.
- The OEB expects to report back to the Ministry with its findings later this year. The government intends to review the OEB's report in detail and consider the information in future decision-making.

# A. Ensuring Affordable and Accessible Energy

**Increased Consumer Protection**

- As part of the Long-Term Energy Plan, the Ministry is proposing to proclaim existing (unproclaimed) provisions under the *Ontario Energy Board Act, 1998* (OEBA) that would empower the Ontario Energy Board to rate regulate Unit Sub Meter Providers (USMPs).
    - USMPS are private companies that provide metering services to multi-unit residential buildings so that individual unit residents can be billed for electricity based on their individual consumption levels.
- Enhancing consumer protection and taking a more stringent approach to regulation would give the OEB more insight into how these sub-metering companies determine their costs, set their rates and enter into agreements with developers. By enacting the unproclaimed legislation (through a Proclamation OIC) USMPs would become rate regulated entities.
- Customers would benefit as information about rates would be more transparent. Market participants will see this as a more “fair” process within the industry.
- In proclaiming this legislation the end use customer could see an increase to their costs depending on the level of regulatory oversight and burden.

# A. Ensuring Affordable and Accessible Energy

**Natural Gas Expansion**

- To expand access to natural gas to support greater customer choice and help economic development of local communities, the government launched a new $100 million Natural Gas Grant Program in April 2017 (administered by the Ministry of Infrastructure).
- A new regulatory framework issued by the OEB in November 2016 gives utilities more flexibility by allowing them to charge increased rates and surcharges to those customers who benefit from any expansion.

**Greenstone**

- The Ministry will highlight the work of the Greenstone Electricity Supply Working Group, established to work collaboratively with local stakeholders on electricity reliability and transmission issues.

# B. Flexible Energy System

**Proposed Initiatives**

- **East West Tie:** The LTEP will note that increasing costs are a concern and Ontario will review all options to ensure that the project is built for a cost that is fair to Ontario ratepayers.
- **North West Bulk:** The LTEP will outline a phased approach to the project, with the first phase to come into service as soon as practical.
- **Bulk System Planning:** The Ministry will direct the IESO to establish a formal process for planning the future of the integrated province-wide "bulk" system

**Ongoing Initiatives to be profiled in LTEP**

- IESO Market Renewal Initiative
- Cap and Trade impacts
- Maximizing Existing Generation Assets:
  - Renewable Energy
  - Natural Gas
  - Nuclear

# B. Flexible Energy System

**East West Tie – Overview**

- The EWT is an approximately 400 km, 230 kV transmission line paralleling an existing line between Wawa and Thunder Bay. The proponent, Nextbridge, was selected through a competitive process run by the Ontario Energy Board. Ontario declared the construction of the EWT a priority project in 2016.
- In May 2017, NextBridge informed ENERGY that the estimated capital costs for the EWT had increased from its initial 2011 estimate of $400M to $740M. They have not yet filed their “Leave to Construct” application, and this cost information will only become public once they do.
- The Minister will request an updated needs assessment from the IESO and consider seeking approval from Cabinet rescinding or amending the prioritization Order-In-Council that was issued in 2016.

**Proposed Actions**

- The LTEP will note that with Ontario’s focus on making the electricity system more cost-effective, increasing costs are a concern. Ontario will review all options to ensure that the project is built for a cost that is fair to Ontario ratepayers.

# B. Flexible Energy System

**North West Bulk – Overview**

- The Northwest Bulk Project, a reinforcement of the 230 kV system from Thunder Bay to Dryden, was named as a priority in the 2013 LTEP and Hydro One was designated as the transmitter.
- Hydro One has taken limited steps to develop the line and has indicated it needs either a hand-off scope letter from IESO or a prioritization OIC to move forward
- In late 2016 the IESO provided an update on the Northwest Bulk Transmission Project and recommended a scope and next steps. The IESO recommended that a scoped project reinforcing the system between Thunder Bay and Atikokan (Phase 1) proceed immediately with a second optional reinforcement from Atikokan to Dryden (Phase 2) to be developed if load forecasts increase.
- The IESO will issue a hand-off letter to Hydro One, defining the project's scope and in-service date (2024) for Phase 1 and recommending that it is prudent for Hydro One to commence development work on both Phase 1 and Phase 2. The LTEP would also identify a potential future third phase to Manitoba.
- Ontario will retain the option to issue an OIC at a later point when development has progressed and the need assessment presents a stronger case for transmission reinforcement to Dryden.

**Proposed Actions**

- The LTEP will outline a phased approach to the NWB project with Phase 1, a line from Thunder Bay to Atikokan, to come into service as soon as is practical, and no later than 2024, and Phase Two, a line from Atikokan to Dryden, to come into service by 2034 unless IESO's outlook on the demand forecast suggests an earlier date. Development work for the first two phases will proceed at the same time.
- The LTEP will also identify the potential for a future Phase Three line from Dryden to the Manitoba border to accommodate better integration of provincial electricity grids. Development of this phase would only take place when required in the future.

# B. Flexible Energy System

**Bulk Planning – Overview**

- The enhanced regional electricity planning process has brought greater consistency and transparency at the regional level and there is a need to establish for a standardized, predictable approach to planning the bulk system.
- A number of bulk system projects were identified in previous LTEPs, including the East West Tie, the Northwest Bulk, and the Clarington Transformer Station. Other bulk system upgrades have been identified through the regional planning process as a result of shared bulk and regional needs.
- A transparent process would provide the public and stakeholders with an overview of the planned and forecast transmission projects that are necessary to maintain bulk system reliability and help to level the playing field once a competitive transmission process is developed.

**Proposed Actions**

- The Ministry will direct the IESO to establish a formal process for planning the future of the integrated province-wide “bulk” system, which includes the high voltage system that is typically 230 kV and 500 kV in Ontario. As part of the process, the IESO will consult with stakeholders and communities.

# B. Flexible Energy System

**Market Renewal**

- The IESO has begun a Market Renewal program to redesign the province's wholesale electricity markets. Market Renewal is expected to deliver a more efficient, competitive and stable electricity market.
- The IESO is working with stakeholders and government to consider what, if any, complementary market based mechanisms might be needed to facilitate broader policy objectives such as climate change mitigation.
- Market-based approaches to procuring new generation have been successful in other jurisdictions to provide a cost-effective supply of electricity.

~~**Electricity Supply and Demand**~~

- ~~Placeholder text once S&D forecast is available from IESO.~~

# B. Flexible Energy System

~~*Fossil Fuel Supply and Demand Forecast*~~

- ~~The 2017 LTEP does not forecast any issues with the supply of fossil fuels within Ontario. Reinvestment and maintenance expenditures will continue to match market requirements in processing, storage, transmission and distribution facilities.~~
- ~~While existing infrastructure is sufficient for conventional fuels, new investments in processing and delivery infrastructure may be required to handle increased volumes of alternative fuels such as ethanol, biodiesel, other biofuels and renewable natural gas (RNG).~~
- ~~[placeholder for fuels demand outlook(s)]~~

# B. Flexible Energy System

**Cap and Trade Impacts**

- On January 1, 2017, Ontario implemented a cap and trade program. It will influence how we plan the province's energy supply and achieve cost-effective reductions in greenhouse gas (GHG) emissions going forward.
- The cap and trade program will increase the competitiveness of non-emitting electricity generation and clean imports, as well as more efficient natural gas generation. Cap and trade also affects the price consumers pay for fossil fuels such as natural gas, gasoline, diesel and propane.
- For natural gas, the OEB approves the costs incurred by regulated natural gas utilities to comply with cap and trade, including acquiring emission allowances, that are then collected in rates charged to their customers.
- For other fuels such as gasoline, diesel and propane, fuel suppliers in Ontario operate in a competitive market which is not subject to economic regulation.
- These fuel suppliers are responsible for complying with cap and trade regulations and it is expected their compliance costs, including acquiring emission allowances, will be passed through to retail consumers.

# B. Flexible Energy System

**Maximizing Existing Generation Assets: Renewable Energy**

- Between 2026 and 2035, long-term contracts for over 4,500 MW of wind energy and 2,200 MW of solar energy will be expiring. In many cases, the wind turbines and photovoltaic panels will still be able to generate electricity after their 20-year contracts expire.

**Maximizing Existing Generation Assets: Natural Gas**

- Most natural gas turbines are also expected to operate beyond their 20-year contract life. These plants can continue to provide energy and capacity to support nuclear refurbishment and the retirement of the Pickering Nuclear Generating Station.
- These plants will predominantly be used for their capacity to ensure the reliability of the electricity system. By using these plants strategically for reliability, greenhouse gas emissions are also minimized.

# B. Flexible Energy System

**Maximizing Existing Generation Assets: Nuclear**

- Refurbishing Ontario's nuclear generating stations is the most cost-effective option for meeting the requirements for baseload generation while producing no GHG emissions.
- Ontario is moving forward with the plans laid out in 2013 LTEP to refurbish a total of 10 nuclear units between 2016 and 2033: four units at Darlington and six units at Bruce.
- Refurbishing these 10 units will secure over 9,800 MW of affordable, reliable and emission-free generation capacity for the long-term benefit of Ontario. It will also support the 180 companies and 60,000 jobs that make up Ontario's globally-recognized nuclear supply chain.
- The refurbishments will be subject to strict oversight. Off-ramps are in place to ensure that refurbishments are only undertaken if they provide value for ratepayers.
- On October 15, 2016, Ontario Power Generation commenced Darlington Unit 2 refurbishment. The project is progressing well and is on track to be complete on time and on budget. First Bruce refurbishment will commence in 2020.

# C: Improving Value and Performance for Consumers

**Proposed Initiatives:**

- **Preserving Transmission Corridors:** The LTEP will detail the need for a new transmission line through the Northwest Greater Toronto Area and highlight the need to protect the corridor for the line.
- **Enhancing Reliability:** The LTEP will detail the government's policy objectives for utility reliability and quality of service and will direct the OEB and IESO to review reliability standards.
- **Competitive Transmitter Selection:** The Minister will direct the IESO to develop a competitive transmission selection or procurement process and identify potential pilot projects.
- **Right-sizing Assets:** The Minister will direct the IESO and the OEB to take a coordinated, long-term approach when addressing the need to replace end-of-life assets.
- **Modernizing the Utility Business:**
  - Enhanced regulation of LDCs
  - Improved Regulatory Efficiency
  - Bill redesign

**Ongoing Initiatives to be profiled in LTEP:**

- The Digital Transformation

# C: Improving Value and Performance for Consumers

**Preserving Transmission Corridors – Overview**

- The IESO has identified the need for a new transmission line through the Northwest Greater Toronto Area Integrated Regional Resource Plan (2015) to supply portions of the Regions of Halton, Peel and York. Demand forecasts were developed by the IESO based on population and employment forecasts included in Ontario's Growth Plan for the Greater Golden Horseshoe.
- Given the size of the forecasted growth and the distance from existing transmission lines, alternatives to a new transmission corridor are either not technically feasible or not economic. The IESO estimates it could cost at least an extra $1 billion to build underground transmission lines later, if an overhead transmission corridor is not reserved before the area develops.
- The PPS and GPGGH reinforce the link between energy infrastructure planning and land use planning, including planning for and protecting infrastructure corridors and not permitting development that could preclude or negatively affect the use of a planned corridor.

**Proposed Actions**

- Decision: The LTEP will highlight the need to protect corridor lands for a new transmission line in the Northwest GTA, consistent with the Provincial Policy Statement, 2014 (PPS) and the Growth Plan for the Greater Golden Horseshoe, 2017 (GPGGH).

# C: Improving Value and Performance for Consumers

**Enhancing Reliability – Overview**

- While Ontario's transmitters and distributors must adhere to a range of standards and requirements to ensure the safety and stability of the electricity grid, improvements can be made.
- The LTEP will outline the province's policy objectives that transmitters and distributors provide customers with fairness by:
  - establishing new reliability metrics and standards that provide more detailed insight into local reliability performance, in addition to the current system-wide averages;
  - ensuring that utilities report their performance against the standards, in a way that customers find meaningful;
  - setting out clear timelines and steps that utilities must follow when customers report problems with reliability, power quality and other quality of service issues or when reliability standards are not met; and
  - creating cost-effective incentives for improvement and penalties for non-compliance to ensure transmitters and distributors are accountable for meeting the standards.

**Proposed Actions**

- The LTEP will detail the government's policy objectives for utility reliability and quality of service and will direct the OEB and IESO to review the standards for reliability and quality of service for transmitters and distributors.

# C: Improving Value and Performance for Consumers

**Competitive Transmitter Selection – Overview**

- To increase the role of the private sector in transmission, the Energy Statute and Law Amendment Act, 2016 enabled the Minister to direct the IESO to use competitive processes to select companies or consortia to build new transmission lines in Ontario.
- Increasing competition in transmission projects where practical will ensure Ontario ratepayers get the best value from potential investments in the system.

**Proposed Actions**

- The Minister will direct the IESO to develop a competitive transmission selection or procurement process, and identify possible pilot projects. The results of these pilots will be used in developing a procurement process that is cost-effective, transparent, efficient and able to respond to changing policy, market and system needs.

# C: Improving Value and Performance for Consumers

**Right-Sizing Assets – Overview**

- When transmitters and distributors replace aging equipment, they can increase efficiency by “right-sizing” the replacements, ensuring the new investments match current demand and requirements. This could mean upgrading pieces of equipment in communities with growing demand, or downgrading or removing the equipment if demand has dropped.
- Ensuring coordinated planning is taking place at all levels could reduce costs by ensuring new infrastructure is sized appropriately to meet the province’s needs by taking a realistic view of the need for expansion with respect to growth uncertainties and considering the effect of government policies and new technologies.

**Proposed Actions**

- The LTEP will provide a policy statement supporting “right-sizing” transmission and distribution assets at end of life and the Minister will direct the IESO and the OEB to take a coordinated, long-term approach when addressing the need to replace these assets.

# C: Improving Value and Performance for Consumers

**Modernizing the Utility Business: Enhanced regulation of LDCs**

- Direct the Ontario Energy Board (OEB) to strengthen its regulatory framework by further enhancing performance and improving efficiency of LDCs through the introduction of more defined incentives and penalties
- As part of this initiative the OEB would create a regulatory environment which better replicates the pressures and incentives of a competitive market, whereby utilities are motivated to be more proactive, innovative, cost effective and less risk averse in the delivery of electricity service which responds to their customers' needs and expectations
- Existing tools such as the LDC Performance Scorecard can be better leveraged to use performance metrics to drive efficiency and continuous improvement.
- This framework would create a future where customers get better service at lower cost.

**Modernizing the Utility Business: Improved Regulatory Efficiency**

- Direct the OEB to review its own regulatory requirements to ensure that it minimizes regulatory burden and does not impose undue costs on LDCs. Opportunities could include:
  - Assessing cost/benefit of regulatory requirements
  - Reviewing opportunities to eliminate unnecessary regulatory costs that are putting upward pressure on LDC operating expenses.

# C: Improving Value and Performance for Consumers

**Modernizing the Utility Business: Bill redesign**

- The Ministry recently introduced new invoicing requirements to support transparency and communication of the changes made under Ontario's Fair Hydro Plan (OFHP) including requirements to display standardized on-bill OFHP messaging; include quarterly bill inserts about OFHP initiatives; and remove outdated messaging requirements.
- There is an opportunity to further revise the regulatory framework on invoicing to improve the value of electricity bills to all consumers.
- ENERGY proposes to launch a Redesign Action Plan (RAP) with the aim of improving electricity bills by achieving the following policy objectives:
  - Enhancing the customer experience;
  - Better communicating government initiatives and programs
  - Consolidating the regulatory framework; and
  - Promoting greater understanding.

**The Digital Transformation**

- The LTEP will detail the government's continued commitment to improve the ways that people can use data to make decisions about their energy use.

# D: Conservation

**Proposed Initiatives:**

- **Behind the meter generation (BMG):** Phase out incentives for BMG projects that use supplied fossil fuels (e.g. natural gas Combined Heat and Power projects).
- **In Front of the Meter Conservation (IFMC):** Allow LDCs to count electricity savings from IFMC projects toward their conservation targets, and ask OEB to examine and identify steps for pursuing opportunities to encourage LDCs to pursue energy efficiency on the distribution system.
- **Green Button Standard:** LTEP to reaffirm Ontario's commitment to expanding Green Button province-wide and indicate government's intent to bring forward amending legislation to mandate Green Button for electricity and natural gas distributors.

**Climate Change Action Plan (CCAP) Report Back Items:**

- **Green Button Standard:** Develop a proposed approach for a province-wide implementation of the Green Button program in 2017, and report back to Cabinet in 2017.
- **Social Benchmarking:** Develop single portal for energy-related social benchmarking programs for natural gas and electricity, with recognition of the additional energy requirements of homes with electric vehicles, and report back to Cabinet in 2017.
- **Waste Water and Drinking Water Treatment Plants**: Work with MOECC to establish GHG reduction standards for drinking water and waste water treatment plants, and report back to Cabinet in 2017 with a proposed approach for implementation in 2018.

# D: Conservation

**Eligibility of CHP and WER Projects Under the CFF and IAP – Overview**

- Behind the Meter Generation (BMG) projects, according to current conservation and demand management (CDM) program rules include Combined Heat and Power (CHP) and Waste Energy Recovery (WER), are eligible to receive incentives through the CFF and IAP.
- Rationale for the eligibility of BMG projects has been that they reduce the participant's draw from the electricity grid and are more energy efficient than the alternative of natural gas heating and electricity grid consumption. They also help mitigate rising electricity prices for large commercial and industrial customers.
- CHP projects mainly use natural gas or propane as fuel, this results in a net increase of GHG emissions. WER projects, which use a facility's waste by-product as its primary fuel typically do not result in a net increase in GHG emissions.
- Over 240 CHP projects and 13 WER projects are planned to be implemented under CFF and IAP, between 2015 and 2020 based on current CDM plans and IAP projects.

**Proposed Actions**

- Effective July 1, 2018, the IESO will cease accepting incentive project applications for BMG projects that result in a net increase in GHG emissions. Note: all but 10 out of the 240 CHP projects are expected to go ahead under this approach.
- In recognition of their environmental benefit, the installation of renewable energy projects, such as solar thermal water heating or use of biomass fuel for boilers, will continue to be eligible for funding under the CFF and IAP. Electricity distributors may also offer incentives for energy storage systems that are integrated with a customer's own renewable energy projects.

# D: Conservation

**In Front of the Meter Conservation (IFMC) – Overview**

- In Front of the Meter Conservation (IFMC) technologies are deployed on the distribution system and provide electricity savings and peak reductions to customers behind the meter. Examples include technologies that reduce line losses and optimize voltage levels.
    - Pilots across in North America, including pilots in Ontario funded by the Smart Grid Fund and Conservation Fund, have shown that IFMC technologies can provide electricity savings for customers behind the meter. However, Ontario distributors face barriers to deploying IFMC.
- A recent study commissioned by the Ministry of Energy estimated that IFMC technologies can reduce customer electricity consumption by an average of approximately 2.7% depending on local feeder conditions and technology deployed.

**Proposed Actions**

- Provide direction to the OEB to explore ways to further encourage distributors to pursue energy efficiency on the distribution system.
- ENERGY and its agencies to encourage distributors to increase the energy efficiency of their distribution systems, by allowing distributors to count the electricity savings from IFMC technologies towards their electricity savings targets under the Conservation First Framework.

# D: Conservation

**Implementing Green Button Province-Wide – Overview**

- Green Button is a data standard that can empower households and businesses with access to data on their energy and water consumption. Green Button also allows households and businesses to automate the secure transfer of their own data from their utilities to applications of their choice, which can help them manage and conserve energy and water. See Appendix for more information.
- Greater access to data through Green Button will encourage behavioural changes and energy efficiency improvements, support energy reporting and benchmarking, and create economic development opportunities.
- Ontario is a leader in the implementation of Green Button in North America and was the first jurisdiction in Canada to announce its adoption in 2012. However, adoption of Green Button is currently voluntary for Ontario's utilities.
- The 2013 LTEP promoted Green Button as a way to give consumers access to their electricity consumption data. Green Button can also be extended to natural gas and water utility consumption data.
- Since the 2013 LTEP, Ontario has taken several steps in support of broader adoption of Green Button, including supporting the technical pilots, completing a cost-benefit analysis, and consulting on an implementation approach to require Ontario's electricity, natural gas and water utilities to implement Green Button.
- The 2016 CCAP committed to expand the Green Button program province-wide to help conserve energy and water.
- Customers, such as Canada's five largest banks and building owner associations (BOMA and REALpac), are urging the government to move forward with broader adoption, so they can access tools to pursue energy efficiency and conservation.

**Proposed Actions**

- Proceed with development of a legislative and regulatory framework to mandate province-wide implementation of Green Button for electricity and natural gas distributors, and voluntary implementation for water distributors utilities.
- Note: further detail on the implementation plan for Green Button is included as part of ENERGY's CCAP Report Back in the following slides.

# D: Conservation

CCAP Cabinet Minute #75: ENERGY develop a proposed approach for a province-wide implementation of the Green Button program in 2017, and report back to Cabinet in 2017

**Implementing Green Button Province-Wide – CCAP Report Back Item – Overview**

- The 2016 CCAP committed to expand the Green Button program province-wide to help conserve energy and water. The following slides are intended to meet ENERGY's requirement to report back on its proposed approach for implementation.

**Implementation Approach**

- ENERGY is proposing to bring forward amending legislation and a new regulation that would, if approved, ~~to~~ require electricity and natural gas distributors to implement Green Button.

| Policy Element | Proposed Approach | Rationale |
|---|---|---|
| **1. Utility and Customer Type** | Require electricity and natural gas distributors to implement Green Button for all customer types (residential, commercial, institutional and industrial).<br><br>Support voluntary implementation for water utilities. | There is wide stakeholder support for requiring the standard for electricity and natural gas. However, some stakeholders questioned the value of requiring water utilities to implement.<br><br>Implementation for electricity and natural gas is more cost-effective than implementing for all three utility types. The cost-benefit analysis concluded a cost-benefit ratio of 1:4.4 in the first five years if electricity and natural gas distributors implement Green Button. Including water is only cost-effective from a societal level when combined with electricity and natural gas (cost-benefit ratio of 1:1.8). (see appendix for more details on the cost-benefit analysis). |

# D: Conservation

**Implementing Green Button Province-Wide – CCAP Report Back Item (cont'd):**

| Policy Element | Proposed Approach | Rationale |
|---|---|---|
| **2. Timing** | Require electricity and natural gas distributors to implement Green Button by July 31, 2020 (date pending further consultation via Environmental and Regulatory Registry postings). | Provides utilities two years to implement the standard (if regulation is in place by July 1, 2018). Also provides utilities flexibility to determine when a Green Button implementation is most appropriate and ability to implement earlier than the deadline, depending on the readiness of their IT systems, and infrastructure upgrade plans and customer interest/demands. |
| **3. Implementation Type** | Allow utilities to choose from a limited number of Green Button platforms.<br><br>Establish procurement principles in regulation for utilities to follow when procuring platform services (i.e. ensure procurements are cost effective and that selection criteria is fair, open, accessible, competitive and recognizes the need to ensure customer data privacy and security standards). | Reduces risk of using a single provider (e.g. potential to cease operations or increase costs over time due to monopoly).<br><br>Reduces implementation costs compared to other approaches considered (e.g. each utility develops its own platform in-house) by allowing for economies of scale through cost/resource sharing.<br><br>Encourage utilities to leverage existing platforms, and creativity and innovation through competition among platform solution providers. |

# D: Conservation

**Implementing Green Button Province-Wide – CCAP Report Back Item (cont'd):**

| Policy Element | Proposed Approach | Rationale |
|---|---|---|
| **4. Certification** | Mandate utility certification through the Green Button Alliance's certification program or a future Ontario/Canada based certification program.<br><br>Allow for voluntary third party solution provider certification. | Utility certification provides confidence that an implementation complies with the standard and is compatible with other Green Button products and services.<br><br>Requiring certification would address challenges with utility implementations to date in the U.S. where utilities have interpreted the standard differently, resulting in inconsistent implementations. |
| **5. Registration Platform for Third Party Solution Providers/ Applications** | Allow the marketplace to make registration platform services available (i.e. do not mandate a single registration platform). | The Green Button Alliance (through London Hydro) has indicated it is already developing a registration platform, and planning to offer services to other utilities/solution providers.<br><br>Allowing the marketplace to drive demand and adoption of a registration platform can ensure utility and solution provider needs are met while encouraging innovation and competition.<br><br>Where Ontario organizations offer and charge for the use of platform services, this can foster Ontario knowledge expertise and exports for Green Button-enabled services. |

# D: Conservation

**Implementing Green Button Province-Wide – CCAP Report Back Item (cont'd):**

| Policy Element | Proposed Approach | Rationale |
|---|---|---|
| **6. Costs** | Electricity and natural gas distributors would recover the costs of their Green Button platform procurements through their Ontario Energy Board (OEB) rate applications. | Provides utilities with flexibility to align Green Button implementations with planning and rate application processes to support alignment with IT infrastructure upgrade plans.<br>Leverages the OEB's well-established and transparent rate application process to ensure Green Button implementation costs are reasonable and in the public interest. Would also ensure Green Button costs are reviewed in combination with other utility costs. |

**Proposed Actions**

- **Beginning in Fall 2017:** Establish a working group to adapt the Green Button Standard and develop guidance documents for natural gas and water as well as update the guidance documents for electricity to support a standardized implementation across Ontario.
- **Fall 2017:** Seek LRC and Cabinet approval of proposed legislative amendments (*Green Energy Act, 2009* and *Ontario Energy Board Act, 1998)* that would enable implementation of Green Button. Introduce amending legislation ~~(as part of Fall Economic Statement bill – TBD)~~ and issue EBR/RR posting of regulation.
- **Early 2018:** Seek LRC and Cabinet approval of regulation.
- **July 1, 2018:** Regulation in force (TBD).

# D: Conservation

CCAP Cabinet Minute #77: "ENERGY develop single portal for energy-related social benchmarking programs for natural gas and electricity, with recognition of the additional energy requirements of homes with electric vehicles, and report back to Cabinet in 2017"

**Social Benchmarking Portal – CCAP Report Back Item Overview:**

- Energy comparison, or social benchmarking, allows households and businesses to compare how much energy they use and when with other similar customers, giving them the information they need to manage their usage.
- There is a growing landscape of energy social benchmarking programs in Ontario, delivered through electricity and natural gas distributors.

**Status/Progress Update:**

- Launching in August 2017 (TBC), under the mandate of the MOECC, the Green Ontario Fund (GreenON) website will provide a one-stop shop for low-carbon technology and energy efficiency programs, including social benchmarking. ENERGY and the IESO have been working to support launch of GreenON.
- Funded through the 2015-2020 (electricity) Conservation First Framework, 16 local distribution companies have indicated in their Conservation and Demand Management (CDM) Plans that they plan to deliver social benchmarking programs to their customers (as of June 2017).
  - Currently, there are a total of 742,896 customers receiving social benchmarking reports in the province from Hydro One, Powerstream (Alectra) and Horizon (Alectra). Toronto Hydro also has a program but has not yet reported results to the IESO.
- Enbridge Gas Distribution and Union Gas are delivering social benchmarking as a component of their outreach and education to promote uptake in the broader residential audit and retrofit programs (funded from gas rates, electricity rates, and the Green Investment Fund (GIF)).
  - The social benchmarking element is funded through the GIF through TPAs with ENERGY, and is expected to reach approximately 125,000 to 140,000 customers per utility by 2019 .
  - Enbridge and Union will also leverage this initiative to assess the opportunity to include behavioral based programs as part of their Demand Side Management programs in the future.

# D: Conservation

CCAP Minute #75: ENERGY work with MOECC to establish GHG reduction standards for drinking water and waste water treatment plants, and report back to Cabinet in 2017 with a proposed approach for implementation in 2018.

**Energy Efficiency Standards for Drinking Water and Waste Water Treatment Plants – CCAP Report Back Item – Overview**

- Ontario's Climate Change Action Plan 2016-2020 included a commitment to "*continue to implement product efficiency standards to reduce energy use. Update energy efficiency standards for key energy-using products and equipment found in drinking water and waste water treatment plants, based on the volume of water processed by the facility".*
- ENERGY's approach is to set and update energy efficiency standards for equipment found in drinking water treatment plants (DWTPs) and waste water treatment plants (WWTPs) through amendments to Ontario's energy efficiency regulation (O. Reg. 404/12).
- ENERGY does not have authority to establish GHG reduction standards for WW/DWTPs.

**Status/progress made:**

- Ministry of Energy staff have identified the key electricity consuming equipment in WW/DWTPs, including commercial / industrial air compressors, fans, blowers, variable frequency drives, clean water pumps, sludge pumps, motors and ultra-violet lighting.
- O.Reg. 404/12 currently includes new and updated energy efficiency standards for two of these ~~two~~ pieces of equipment (commercial/industrial clean water pumps and electric motors).
- In June 2017, ENERGY initiated a study to identify available test methods and efficiency standards for key electricity consuming products in WW/DWTPs, characterize Ontario's market for these products, and determine corresponding estimated potential energy and GHG emissions savings.
- The study is expected to be completed in September 2017, and would help to inform potential future updates to Ontario's energy and water efficiency regulation.
- ENERGY staff intend to continue to set and implement efficiency standards for equipment in WW/DWTPs through future amendments to the efficiency regulation, as appropriate.

# D: Conservation

**Ongoing Initiatives to be profiled in LTEP**

- Energy Efficiency Standards
- Electricity Conservation Target
- Elimination of Demand Response (DR) target
- Alignment and Collaboration Within and Between Conservation Programs
- Smart Thermostat Incentive Programs
- Large Building Energy and Water Reporting and Benchmarking Initiative
- Broader Public Sector Energy and GHG Reporting
- Green Investment Fund – Home Energy Audit and Retrofit Programs
- Municipal Energy Plan Program
- Investor Confidence Project

# D: Conservation

**Energy Efficiency Standards – Overview**

- Ontario continues to play a leadership role in setting and enhancing energy efficiency standards for products and appliances used in our homes, offices and factories.
- Since 2013, Ontario improved or set new energy efficiency standards for over 60 products.
- The Ministry of Energy is also regulating the water efficiency of products that consume both energy and water, resulting in more efficient use of water and even greater energy savings and reductions in greenhouse gas emissions.
- Ontario is working with other provinces and the federal government to improve and harmonize efficiency standards across Canada, including exploring opportunities and strategies to develop market for high-efficiency products and appliances to support net-zero buildings.

**Proposed Actions**

- Ontario will continue to set advanced efficiency standards for products and appliances and work with other provinces and the federal government in order to harmonize and raise the bar for energy and water efficiency standards.

# D: Conservation

**Electricity Conservation Target – Overview**

- Ontario has a healthy supply of energy, with any added demand for electricity not expected to materialize until the mid-2020s. In this context, LTEP will reaffirm its commitment towards the long-term target established in the 2013 LTEP of 30 TWh of electricity savings in 2032.
  - The IESO and electricity distributors are working towards aggressive conservation goals (8.7 TWh in 2020)
  - 2017 LTEP will need to balance the broad benefits of conservation investments with the need to mitigate rate impacts.

**Proposed Actions**

- Explore opportunities to enhance the value of existing planned conservation investments, and to reassess a higher conservation target in the future to reflect updates to the supply/demand forecast and an updated assessment of cost-effective conservation potential.

# D: Conservation

**Elimination of Demand Response Target – Overview**

- 2013 LTEP stated that Ontario will aim to use DR to meet 10% of peak demand by 2025 (equivalent to ~2,400 MW under 2013 LTEP forecast conditions). This target includes peak reductions from a variety of initiatives, including the Industrial Conservation Initiative (ICI), Time-of-Use (TOU) rates, DR auction and DR pilots.
- Ontario is in a healthy supply situation and there is limited system need for incremental DR. Moreover, program changes made to ICI, since the 2013 LTEP, have resulted in higher than forecasted peak demand savings from DR.
- A DR target could constrain future capacity auctions by requiring the IESO to procure a specific DR amount. The IESO is planning to implement a general capacity auction through which DR resources will compete with other resources and would be procured if cost-competitive with other offers.

**Proposed Actions**

- Eliminate the long-term DR target to use DR to meet 10% of peak demand by 2025 while reaffirming the commitment to evolve the DR auction into the capacity auction.

# D: Conservation

**Alignment and Collaboration Within and Between Conservation Programs – Overview**

- ENERGY and its agencies are working with MOECC and other partner ministries to ensure a streamlined, customer-focused approach to conservation and low-carbon technology programs.
- As an early example of collaboration, the IESO is providing web, customer and program design services to the Green Ontario Fund.
- Another early example is the expansion of home retrofits to provide residential consumers with a simple, one-stop to energy efficiency improvements and greenhouse gas emission reduction.
    - Beginning October 31, 2016 Ontario invested $100 million from its Green Investment Fund (GIF) to expand natural gas rate-funded home audit and retrofit programs delivered by Enbridge Gas and Union Gas, to launch the programs province-wide and help eligible homes heated with natural gas, oil, propane or wood. In May 2017, IESO partnered with Enbridge Gas and Union Gas, to further enhance the programs to include electricity incentives and expand eligibility to electrically-heated homes.
- The IESO and the OEB are currently conducting mid-term reviews (MTR) of the Conservation First Framework and Industrial Accelerator Program for electricity conservation programs and the Demand Side Management Framework and natural gas programs.
    - Through the MTR the IESO and OEB are working together to evaluate the results of collaboration to date and identify barriers to further collaboration. Formal reports are expected in 2018.
    - The IESO is also assessing the impact the CFF and IAP have on electricity planning and Ontario's climate change objectives, including the impact of energy-only savings targets and opportunities to align distributor targets with local and regional electricity needs

**Proposed Actions**

- Post-2020, Ontario could move towards an integrated approach to conservation programs across the province following completion of the CFF, where most or all conservation programs would be delivered by a single agency with funding from cap and trade proceeds.

# D: Conservation

**Smart Thermostat Incentive Programs – Overview**

- Smart thermostats are the next important technology for homeowners looking for more ways to reduce their home heating and cooling costs, and their carbon footprint. Ontario has enabled several smart thermostat incentive programs:
  - Standalone $100 bill rebates are available in Enbridge Gas' service area – expanded to homes heated primarily with oil, gas and wood through the Green Investment Fund (GIF).
  - Union Gas offers a $100 incentive for smart thermostats as one measure to undertake when completing its Home Energy Reno Rebate program, also GIF-enhanced (homeowner must complete two measures).
  - The Save on Energy Heating and Cooling Program is offering $50 rebates with the purchase of a energy efficient furnace or air source heat pump beginning July 2017.
- For the first time during the IESO's 2016 DR Auction, a residential DR provider (OhmConnect) is contracted for the summer period (1 MW). Residential DR utilizes smart devices / thermostats to call upon customers to reduce energy use when the grid needs it.
- On May 30, 2017, MOECC received Treasury Board approval for certain programs delivered by the Green Ontario Fund, which include a smart thermostat program for residential consumers.

**Proposed Actions**

- ENERGY will work with its agencies and MOECC to standardize incentive offerings and ensure smart thermostats incentives are available for homeowners across the province.

# D: Conservation

**Large Building Energy and Water Reporting and Benchmarking Initiative – Overview**

- Ontario's new Energy Water Reporting and Benchmarking regulation is a tool to help building owners understand their energy performance and compare the energy and water usage of their buildings with the performance of similar facilities and identify where improvements can be made.
- The reporting requirements come into effect in July 2018, starting with the largest buildings (250K sq. ft. and larger) in year one and ultimately requiring buildings 50K sq. ft. and larger to report their energy and water consumption by 2020.
- The regulation enhances Ontario's commitment to conservation and builds on the success of energy and greenhouse gas reporting initiatives for Ontario government owned facilities and broader public sector organizations.

**Proposed Actions**

- Continue to develop IT infrastructure for program implementation and develop stakeholder support resources to ensure building owners can report their data.

# D: Conservation

**Broader Public Sector Energy and GHG Reporting – Overview:**

- O. Reg. 397/11 requires certain broader public sector (BPS) organizations to:
  - Report annually to the Ministry of Energy (ENERGY) on their energy use and greenhouse gas (GHG) emissions and publish the reports on their websites (starting in July 1, 2013); and
  - Develop a five-year conservation plan and publish the plan on their websites. Plans must be updated every five years beginning in 2019 (Starting July 1, 2014).
- BPS organizations support for the regulation is high, with 98% of organizations submitting their annual energy and GHG report in 2016 and 82% developing energy conservation and demand management plans.
- LTEP would list Ontario's BPS Energy and GHG Reporting Regulation as a benchmarking tool that helps organizations understand how much energy their buildings are using.

**Proposed Action:**

- Continue to work with BPS stakeholders to achieve a high rate of participant reporting. The Ministry is also considering moving BPS energy reporting to Portfolio Manager to better align it with EWRB reporting requirements.

# D: Conservation

**Green Investment Fund – Home Energy Audit and Retrofit Programs – Overview**

- Ontario allocated $100 million for home energy audits and retrofits available over three years beginning fall 2016 to spring 2019. GIF enhances Enbridge and Union's existing home energy audits and retrofit programs, the Home Energy Conservation (HEC) Program and Home Reno Rebate (HRR) Program respectively.
- The $100 million investment is expected to enable 37,000 homes to be audited and retrofitted by 2019, and cumulatively save approximately 1.6 million tonnes of lifetime GHGs.

**Proposed Action:**

- Working with Enbridge, Union Gas and other stakeholders, continue to build on the success of the GIF program by encouraging participant uptake.

**Municipal Energy Plan Program – Overview**

- A Municipal Energy Plan (MEP) is a comprehensive plan designed to align energy, the built environment and land use planning to identify community-wide energy efficiency and green energy options and support economic development opportunities.
- The MEP program is available to all Ontario municipalities and intake is ongoing. 21 Municipal Energy Plans are underway covering 34 municipalities.

**Proposed Action:**

- Continue to educate and encourage municipalities to participate in the MEP program.

# D: Conservation

**Investor Confidence Project – Overview**

- Ontario is exploring how to increase access to corporate financing for energy efficiency projects. The Investor Confidence Project creates a standardized method for accurately predicting the energy and financial savings that arise from energy efficiency retrofit investments and gives financiers the information and tools they need to assess these projects.
- The Investor Confidence Project was established by the Environmental Defense Fund in the United States in 2013 and expanded to Europe in late 2014.

**Proposed Actions**

- ENERGY, in partnership with the MaRS Advanced Energy Centre, will be piloting Investor Confidence Project protocols in Ontario and exploring how they can be adapted for the Canadian market.

# E: Preparing for the Future and Innovation

**Proposed Initiatives**

- **Grid Modernization:** Provide direction to OEB to address regulatory and cultural barriers in order to encourage innovation, optimal utility investment, and customer choice
- **Renew Smart Grid Fund:** Renew the SGF with an expanded scope and more targeted investments in innovative solutions that support grid modernization-$60M over 5 years.
- **Energy Storage:** Update market and regulatory rules so storage can be introduced onto the grid where in makes technological and economic sense
- **Electric Mobility:** Remove regulatory barriers; develop vehicle-grid integration road map and facilitate information sharing between government and utilities.
- **International Demonstration Fund:** Establish a $10 million pilot program funded from the tax-base to support the demonstration of Made-in-Ontario energy technologies in markets outside of Canada.
- **Net Metering Updates:** Update Ontario's net metering framework to allow third-party ownership and operation of net-metered renewable generation, and allow for virtual net metering demonstration projects.
- **Deployment of Distributed Generation projects:** Work with the IESO to develop a program for deploying renewable distributed generation projects

**Ongoing Initiatives to be profiled in LTEP**

- Exporting Ontario's energy expertise
- Regulated Price Plan (RPP) pilots by the OEB

# E: Preparing for the Future and Innovation

**Grid Modernization – Overview**

- Ontario has made important investments in grid modernization through smart meters and the Smart Grid Fund. With the availability of new technologies that can provide more reliable and cost-effective distributed energy solutions, now is the time to take the next steps for modernizing the grid. LTEP will articulate the government's vision for distribution grid modernization: the creation of an environment that enables the a modern, digital grid for Ontarians.

**Proposed Actions**

- Provide direction to OEB to address regulatory and cultural barriers in order to encourage innovation, optimal utility investment, and customer choice. Direction options include:
  - Where cost-effective, promoting smart grid and non-wires solutions – along with the digital platform required to support them – that can enable the use of distributed energy, grid visibility, realize the full value of data, and promote customer choice;
  - Providing greater clarity on how the OEB will treat these investments, including a cost -benefit framework that recognizes the full value of these alternatives;
  - Allow customers to use their behind-the-meter assets to partner with their utilities, providing benefits to both the customer and the grid at-large;
  - Ensuring that LDCs are able to earn a rate-on-return on all assets that bring value to ratepayers, not just poles and wires; and,
  - Direct utilities to create plans that articulate how they intend to cost-effectively modernize their grids and promote innovation within their operations.

# E: Preparing for the Future and Innovation

**Smart Grid Fund – Overview**

- The SGF has helped many innovators become successful international companies. However there are still barriers to domestic integration of these solutions, and a renewed SGF will be an important piece to overcome barriers to modernization. The LTEP will renew the SGF with an expanded scope and more targeted investments in innovative solutions that support grid modernization. **Recommendation: $60M over 5 years.**

**Proposed Actions**

- A renewed SGF would provide an opportunity to pursue several key projects / initiatives, such as:
  - EV data gathering deployment – project will generate critical data for EV policy.
  - Non-electricity demonstration / deployment – this would broaden the SGF scope. Initiatives could include power-to-gas and district energy solutions.
  - Turn-key grid solutions – development of complete smart grid solutions that align with utility needs and demonstrate a clear business case.
  - LDC collaboration on modernization plans – this would help change the 'innovation aversion' culture.
  - Transactive energy deployment – explore options to enable highly advanced customer choice options.

# E: Preparing for the Future and Innovation

**Energy Storage – Overview**

- Energy storage has enormous potential to improve how electricity grids work. However each grid has different challenges and needs, and it is critical to first understand how storage will impact them individually.
- Ontario has therefore taken prudent steps to test this technology. The Ministry will take that work one step further in this LTEP by eliminating regulatory and market barriers that prevent both vendors and utilities from capturing the full value of energy storage, including behind-the-meter options.

**Proposed Actions**

- Update market and regulatory rules so storage can be introduced onto the grid where in makes technological and economic sense:
  - Amend regulations to address the “double counting” issue with global adjustment (GA);
  - Direct OEB to investigate similar issue with network charges to storage facilities; and
  - Direct the IESO to review the application of charges for the wholesale market.

# E: Preparing for the Future and Innovation

**Electric Mobility – Overview**

- Electrification of vehicles and transit will have an impact on electricity grids. There are steps we can take to ensure that those impacts are positive, and that we optimize the integration of electric mobility in Ontario. The LTEP will support a transition to a low-emission transportation economy by taking steps to understand and plan for the impact of more electric mobility on the grid.

**Proposed Actions**

- Work with OEB and key stakeholders to remove regulatory barriers for utilities investing in residential smart charging.
- Develop a Vehicle Grid Integration Roadmap, with smart charging as a foundational objective as it ensures the full benefits of EVs are realized.
- Facilitate information sharing between government and utilities so they can provide better services and mitigate costly grid problems.

# E: Preparing for the Future and Innovation

**International Energy Demonstration Fund – Overview**

- Stakeholders have indicated that while the Smart Grid Fund and other business support programs have helped energy companies scale-up and demonstrate their technologies with local distribution companies across the province, programs run by the Ontario or Federal Governments do not typically consider international projects to be in scope.
- An international energy demonstration fund would address this gap by helping Ontario energy companies demonstrate their technologies with foreign utilities, thereby getting a foothold in a new market and creating a pipeline for further business opportunities.

**Proposed Actions**

- Proposal is for a $10 million (tax base) pilot program to fund 5-10 high-value projects and assess the impact on exports and company growth.
- Priority would be on supporting Ontario-based project costs, including goods and services produced in Ontario, to maximize the benefits to the Province.
- Supporting projects in foreign markets carries unique risks and requires a higher level of due diligence and collaboration with partners.
- The program would be designed in collaboration with the Ministry of International Trade (MIT) and the Ministry of Economic Development and Growth (MEDG) to leverage their expertise in program development and utilize Ontario's representatives in foreign markets.
- A formal arrangement could also be developed with the Federal Government to utilize Trade Commissioners in foreign markets to conduct on-the-ground due diligence on foreign business and utility partners.

# E. Preparing for the Future/Innovation

**Net Metering Updates – Overview**

- An amended Net Metering Regulation (O.Reg. 541/05), came into force July 1, 2017. These updates, referred to as “Part 1 updates”, included removal of the 500 kilowatt project size limit and clarified the eligibility of energy storage paired with renewable technologies. The amended regulation is expected to broaden participation in net metering while enabling innovative technologies and customer-utility relationships.
- Third-party Ownership and Virtual Net Metering emerged during stakeholder consultations for Part 1 updates as two potential areas for further enhancements to Ontario’s net metering framework.
  - Third-party ownership arrangements involve third parties owning and operating net-metered renewable generation systems located at electricity customer sites and selling the power generated to the customer.
  - Virtual Net Metering involves net metering of generation that is not located at the customer site and selling power “virtually” to one or more participants, who receive a credit for the power generated on their bills. VNM projects can be of large-scale or utility-scale depending on the model and specific program restrictions.
- To date, net metering uptake has been low due to direct competition with the Feed-in Tariff (FIT) and MicroFIT programs which offered guaranteed revenue streams over 20 years. While increased interest in net metering is expected with these procurement programs winding down in 2017, in the near term, it is expected that uptake will be driven by the availability of incentives.

# E. Preparing for the Future/Innovation

**Proposed Actions**

- ENERGY is seeking approval to expand and enhance Ontario's net metering framework to enable third-party ownership and related consumer protection measures, and to allow for virtual net metering demonstration projects, and to develop and propose necessary legislative and regulatory amendments, together with other instruments as appropriate, as follows:

  1) Legislative and regulatory amendments to the Ontario Energy Board Act, 1998 and the Net Metering Regulation (O. Reg. 541/05) to expand regulatory authority and eligibility for third-party ownership arrangements, and to align electricity retailer licensing requirements for licensing of third-party ownership and operation of net-metered facilities;

  2) Legislative and/or regulatory amendments to the Net Metering Regulation to provide flexibility to local distribution companies who wish to pursue or facilitate virtual net metering demonstration projects; and

  3) Legislative and/or regulatory amendments under the *Energy Consumer Protection Act, 2010* to ensure appropriate consumer protection measures would apply to third party ownership arrangements.

- ENERGY is also working with the Ontario Energy Board and partner ministries to identify appropriate consumer protection and project siting measures to support implementation of the proposed net metering updates.
- ENERGY to communicate its policy intentions through the LTEP.
- A full regulatory proposal to support implementation of third-party ownership and allow for virtual net metering demonstration projects would be posted to the Environmental and Regulatory Registries for public comment prior to further Cabinet approval. These updates could be in force by July 1, 2018, subject to attaining necessary approvals for all proposed legislative and regulatory changes.

# E. Preparing for the Future/Innovation

**Proposed Actions cont'd**

- To date, net metering uptake has been low due to direct competition with the Feed-in Tariff (FIT) and MicroFIT programs which offered guaranteed revenue streams over 20 years. While increased interest in net metering is expected with these procurement programs winding down in 2017, in the near term, it is expected that uptake will be driven by the availability of incentives.
    - Ministry analysis estimates the baseline projected uptake to be 430 MW over 10 years with incentives under the Green Ontario Fund. Proposed changes could drive an estimated additional 80 MW of uptake, bringing the total of new net metering capacity to 510 MW over 10 years.
    - This level of uptake would have negligible impact on electricity rates.

**Other Jurisdictions:**

- All Canadian provinces and territories have some form of net metering policies in place. However, no Canadian provinces have provisions for third-party ownership, and only Nova Scotia and Alberta have policies in place for virtual net metering.
- Of the 43 U.S. states & DC that have mandatory net metering policies, 26 allow third-party ownership and 25 have some form of virtual net metering.

**Expected Stakeholder Reaction:**

- Ministry analysis considered internal research and feedback from engagement with stakeholders and Indigenous groups in early 2017.
- The majority of stakeholders indicated third-party ownership as the most important update to achieve flexibility for innovation and efficiency in the market.
- Industry will view a commitment to further examine virtual net metering through demonstration projects as positive action in the absence of immediate broad implementation.
- Some local distribution companies will be able to participate as net metering providers through their affiliates and explore opportunities for virtual net metering through demonstration projects.
    - Local distribution companies that may not be ready to accommodate more complex, virtual net metering models would not be required to do so.

# E: Preparing for the Future and Innovation

**Deployment of Distributed Generation projects**

- Ministry to work with the IESO to develop a program for the strategic deployment of smart, renewable distributed generation projects that demonstrate value to customers and utilities.

# E: Preparing for the Future and Innovation

**Exporting Ontario's Energy Expertise**

- LTEP will renew the Ministry's commitment to helping Ontario energy companies increase the export of their goods and services by:
  - working with other provincial and federal government partners, industry associations and companies to develop and support trade initiatives that strengthen international relationships and create new business opportunities
  - developing market intelligence that determines which foreign markets hold the most promise for Ontario's energy goods and services
  - participating in energy-related trade missions abroad, in particular those led by the Ministry of International Trade (MIT)
  - promoting Ontario's technical expertise at appropriate international forums

# E: Preparing for the Future and Innovation

**Regulated Price Plan (RPP) Pilots:**

- The OEB is testing innovative Time-of-Use (TOU) price plans through pilots in Ontario, including price plans with flat rates, low overnight rates, seasonal TOU rates and critical peak pricing plans. Pilots are expected to be in market by November 2017, with results available in 2019/2020.
- The results of the pilots will help inform future OEB decisions on potential new price plans that could be offered, and could better match customer lifestyles and give more control over electricity costs.
- The pilots will provide value by delivering reliable results at a manageable scale, with data about customer understanding and price responsiveness. This will inform OEB decisions that mitigate cross-subsidization between customers and ensure cost recovery.

# F: Responding to the Climate Change Challenge

**Proposed Initiatives**

- **Climate Change Adaptation:** With a focus on the energy distribution sector, Ontario will strengthen the ability of the energy industry to anticipate the effects of climate change and integrate the impacts into operational and infrastructure planning.

**Ongoing Initiatives to be profiled in LTEP**

- Shifting to Renewable Natural Gas
- Shifting to Lower Carbon Transportation Fuels
- Heating and Cooling with Renewable Energy Technologies
- Near and Net Zero Carbon Buildings

# F: Responding to the Climate Change Challenge

**Climate Change Adaptation- Overview**

- Ontario's Climate Change Strategy commits the province to "integrate climate change mitigation and adaptation considerations into government decision-making and infrastructure planning."
- The Auditor General (2016 report, with reference to electricity distribution), the Environmental Commissioner (2017) and others have called for systematic action on adaptation.
- To avoid additional regulatory burden, Ministry, IESO and OEB actions can be integrated into the broader regulatory refresh.

**Proposed Actions**

- The LTEP will serve as a dual-purpose tool:
    1. Profile dedicated adaptation actions currently underway in the sector and those with an adaptation co -benefit.
        - These include remote connections to reduce reliance on diesel fuel and winter road fuel transport, and smart grid technologies to help resilience and improve communications.
    2. Propose initiatives to improve adaptation capacity in the distribution sector.
        - Actions have been taken in the generation, transmission and distribution sector. However, research indicates that there is need for a more systematic integration of adaptation into energy planning at the regional and distribution levels. Small and medium size utilities, in particular, tend to lack the capacity to integrate climate change into their planning activities.
- Several studies show that evidence-based adaptation actions are expected to be highly cost-effective compared to business-as-usual.
- The cost of a province-wide energy distribution vulnerability assessment (tax-based) would reduce the cost to utilities of developing detailed risk analyses and action plans at the local level.

# F: Responding to the Climate Change Challenge

- The Ministry of Energy is proceeding with a number of initiatives related to the response to the climate change challenge.

**Shifting to Renewable Natural Gas**

- The government is looking at using renewable natural gas (RNG) to lower the carbon intensity of the natural gas we burn.
  - RNG is a low-carbon fuel produced by the decomposing organic materials found in landfills, forestry and agricultural residue, green bin and food and beverage waste, as well as wastes from sewage and wastewater treatment plants.
  - Ontario is investing up to $100 million over four years from the proceeds of the cap and trade auctions to help introduce RNG in the province. The province's investment in RNG will reduce GHG emissions and help consumers with the cost of shifting to renewable natural gas , as RNG costs more than conventional natural gas.
  - The Ministry of Energy will continue to work with industry stakeholders, the Ministry of the Environment and Climate Change (MOECC) and the OEB to introduce a requirement for renewable content for natural gas, fulfilling a commitment of the Climate Change Action Plan

# F: Responding to the Climate Change Challenge

**Shifting to Lower Carbon Transportation Fuels**

- The 2017 LTEP recognizes the CCAP commitment to introduce a Renewable Fuel Standard (RFS) for gasoline. This is an important step towards reducing GHG emissions from the transportation sector.
- Opportunities to increase the use of renewable and low-carbon transportation fuels include:
  - increasing the use of renewable liquid fuels by existing vehicles. “Drop-in” fuels such as ethanol can be mixed with gasoline to produce blended fuels and used the same way as regular gasoline;
  - having existing stations offer higher blends of ethanol and biodiesel;
  - making renewable liquid fuels available to more regions of the province;
  - adding biomass fuels to the crude oil that Ontario refineries process; and
  - lowering the carbon intensity of renewable fuels produced by Ontario manufacturers

# F: Responding to the Climate Change Challenge

**Heating and Cooling with Renewable Energy Technologies**

- Ontario supports the use of low-carbon thermal technology to heat and cool Ontario homes and businesses – including geothermal heat pumps, air source heat pumps, and solar thermal panels for air or water heating.
- MOECC is developing CCAP incentives for heating and cooling with renewable energy technologies under the Green Ontario Fund, which will build on existing conservation and renewable energy programs.
- The Ministry of Energy will continue to work with MOECC to further investigate and encourage the development and deployment of low-carbon thermal technologies to heat and cool residential, commercial, industrial and institutional buildings.

**District Heating and Cooling**

- District energy uses a combination of technologies to generate and supply heating and cooling, domestic hot water and electricity to blocks or neighborhoods in a community. Use of renewable energy sources can help reduce greenhouse gas emissions.
- The Ministry of Energy will work with MMA and MOECC to identify policies, regulations and programs that would support adoption and expansion of district heating and cooling.

# F: Responding to the Climate Change Challenge

**Near and Net Zero Carbon Buildings**

- Existing programs and new programs offered through the Green Ontario Fund, as well as other conservation and renewable energy programs, will encourage the adoption of high efficiency, low-carbon emission homes and buildings.
- New advanced efficiency standards will be set for products and appliances that have the greatest potential to increase energy efficiency and reduce GHG emissions used in new and existing homes and buildings.
- ENERGY is also taking steps to expand and enhance Ontario's net metering framework, which would provide increased opportunities for building owners to integrate renewable energy generation and energy storage technologies.

# G: Supporting Indigenous Capacity and Leadership

**Proposed Initiatives**

- **Evolve Indigenous conservation programs**: the IESO will produce a report, informed by engagement with Indigenous communities, on options to improve conservation programs for First Nations and Métis communities.
- **Evolve Indigenous support programs:** Evolve programs to include support for energy plan implementation, which could include small-scale renewables, conservation and other community-scale energy opportunities.
- **Outreach to Indigenous communities:** Increase outreach to Indigenous communities and organizations to better align policy development with local and regional needs.

**Ongoing Initiatives to be profiled in LTEP**

- Affordability initiatives
- Off-grid communities
- Access to financing

# G: Supporting Indigenous Capacity and Leadership

**Evolve Indigenous conservation programs – Overview**

- Conservation programs address a wide range of issues raised during LTEP and other interactions with Indigenous communities such as energy affordability, community energy plan implementation, and the need for increased human resource capacity.

**Proposed Actions**

- In alignment with the Mid-Term Review of the Conservation First Framework (CFF) on opportunities to align Conservation and Demand Management (CDM) programs funded through the 2015 to 2020 CFF and Industrial Accelerator Program with initiatives established through the Green Ontario Fund, the IESO will produce a report, informed by engagement with Indigenous communities, on options to improve conservation programs for First Nations and Métis communities, including improving availability with consideration for, but not limited to, programs offered under the CFF and the Demand Side Management Framework.
- This reporting on Indigenous conservation programs can be done within existing budgets and will have no incremental impact on the rate or tax base.

# G: Supporting Indigenous Capacity and Leadership

**Evolve Indigenous support programs – Overview**

- Nearly [$9 million to be verified], has been committed to support 97 First Nation communities with developing community energy plans. Funding for the implementation of those plans (conservation, small-scale renewables, etc.), is needed to maximize and leverage the investments already made.

**Proposed Actions**

- An evolution of the suite of energy support programs currently offered to Indigenous communities and organizations by the IESO should be informed by engagement with Indigenous communities, and should seek to better align programming with community needs and interests and current opportunities including but not limited to activities related to the implementation of community energy plans.
- Evolution of Indigenous support programs can be done within existing budgets and will have no incremental impact on the rate or tax base. The IESO currently has a $10 million annual funding envelope to support energy sector programs which can be allocated to support the continuation of existing programs as well as new proposed initiatives.

# G: Supporting Indigenous Capacity and Leadership

**Increase outreach to Indigenous communities and organizations to better align policy development with local and regional needs – Overview**

- Through initiatives such as the First Nations-Ontario Energy Table and the LTEP engagement sessions, Indigenous communities and groups have signaled their desire for ongoing engagement on energy issues.

**Proposed Actions**

- Increased outreach can be done within existing budgets and will have no impact on the rate or tax base.
- As Ontario's energy sector landscape continues to shift and change, likewise there is a requirement for the policy to change, in order to address needs, gaps, and opportunities to strengthen Indigenous participation in the energy sector, including the participation of communities that have had limited energy sector participation to date.
- Policy is best informed by the people it has the potential to effect, as they are best positioned to communicate their needs, and current policy gaps.

# G: Supporting Indigenous Capacity and Leadership

**Addressing energy affordability:**

- LTEP will highlight programs available to address electricity affordability for Indigenous consumers including the Ontario Electricity Support Program, Rural and Remote Rate Protection, Low-Income Energy Assistance program and the First Nation Delivery Credit.

**Off-Grid Communities:**

- LTEP will highlight the government's continued commitment to the connection of remote First Nations to the provincial grid, which includes working towards the connection of Pikangikum on an accelerated timeline.
- It will also highlight that the ministry continues to engage with the four communities that are not economic to connect to the grid to develop diesel-reduction options that meet community energy needs.

# G: Supporting Indigenous Capacity and Leadership

**Access to Financing**

- LTEP will highlight that Ontario intends to explore innovative financing models and support tools that may help lower financing costs and stimulate more capital in the financing of First Nation and Métis projects.
- Opportunities to participate in Ontario's energy sector have changed due to Ontario's strong energy supply position. Without power purchase agreements (such as FIT), it will be even more challenging for Indigenous communities to access capital for energy projects. The existing Aboriginal Loan Guarantee Program is designed for larger-scale projects and is not practical for smaller-scale community projects.

# H. Regional Priorities

**Proposed Initiatives**

- **Regional Economic Development:** The Ministry will explore ways to use federal and provincial infrastructure and economic development funding to support electricity transmission and distribution infrastructure that supports regional economic development. [NTD: This decision is the subject of a separate decision deck MO requested for PO]
- **Regional Planning Review:** Direct the IESO and the OEB to jointly review the regional planning process

# H. Regional Priorities

**Regional Economic Development**

- Through consultations and engagement sessions in support of the development of the LTEP, many communities highlighted that regional differences in electricity infrastructure are hindering economic development. Concerns included:
  - The impact of declining reliability on load customers
  - The impact of connection constraints and the costs of system expansion or enhancement for:
    - load customers looking to increase their load profile or set up new facilities
    - generation customers siting new renewable generation.

**Proposed Actions**

- Decision: The Ministry will explore ways to use federal and provincial infrastructure and economic development funding to support electricity transmission and distribution infrastructure that supports regional economic development. [NTD: This decision is the subject of a separate decision deck MO requested for PO]

# H. Regional Priorities

**Regional Planning Review – Overview**

- Since 2013, an enhanced regional planning process has brought communities to the table to identify their electricity needs and develop cost-effective solutions to meet them.
- Over the past three years, the electricity needs of all 21 of Ontario's electricity planning regions have been evaluated, marking the completion of a full cycle of regional planning assessments. The completion of the first cycle provides an opportunity to review the process to address lessons learned.

**Proposed Actions**

- The Minister will direct the IESO and the OEB to review the regional planning process and report back with options and recommendations to address the challenges and opportunities that have emerged, including:
  - Addressing barriers to cost-effective non-wires solutions, such as demand response and distribution energy resources
  - Integrating bulk, regional, distribution system and community energy planning
  - Streamlining the regional planning process
  - Integrating the regional planning process with the need to right-size assets reaching end of life

# 6. Implementation Directives

# 6. Implementation Directives

- Ministry is seeking Cabinet approval to issue directives to IESO and OEB requesting they submit implementation plans for Minister's approval by December 1, 2017.
- The directives are intended to be high-level, allowing the agencies to determine the specific initiatives to meet LTEP objectives and would be released simultaneously with the release of the LTEP document.
- The directives only cover new initiatives that fall within the IESO and OEB mandates. This means not all LTEP policies are covered in the directives.
- The directives require the IESO and OEB to engage with stakeholders, Indigenous communities and the public on their implementation plans as required.
- The language in the directives is included in the proposed minute of this presentation.

**September 1, 2017**

Minister of Energy issues Cabinet-approved directives to IESO and OEB.

Directives require implementation plans be submitted by Dec. 1/17

**Sept-Dec 2017**

IESO and OEB develop implementation plans to meet requirements of directives.

IESO and OEB engage on the plan as required.

**December 1, 2017**

Implementation plans submitted to Minister of Energy for approval.

Ministry of Energy expects plans to be approved by end of 2017

# IESO Directive

- The IESO directive includes the following items:

1. **Evolve Indigenous Energy Support programs**
   - Identify opportunities to improve conservation programs for First Nations and Métis communities.
   - Evolve support programs offered to Indigenous communities and organizations to better align with community needs and interests

2. **Net metering and Distributed Generation**
   - Assess system impacts of increased net metering and identify opportunities to enhance local and system value of distributed energy resources under net metering framework
   - Develop a program that supports the strategic deployment of distributed energy resources.

3. **Storage**
   - Work with OEB to identify barriers to entry for storage facilities and identify appropriate mitigation strategies.

# IESO Directive (con't)

5. **System Planning**
   - Develop a formal bulk system planning process
   - Develop a coordinated approach to replacing transmission assets at end of life
   - Develop a competitive transmitter selection or procurement process. Identify specific pilot projects to be used to develop the competitive transmitter process.

6. **Reliability Planning and Operations**
   - Review the technical criteria used to assess customer reliability for the purposes of identifying and evaluating the need for and effectiveness of local area enhancements.

7. **Regional Planning**
   - Work with OEB to review the regional electricity planning process and report back with options to address challenges and opportunities.

# IESO Directive (con't)

- Some LTEP policy initiatives require amendments to previous directives to the IESO. Prior to the LTEP release, the Minister of Energy will issue an amending directive to achieve the following objectives:

1. **Conservation program alignment with climate change goals**
    - Amend 2014 directive so that behind the meter generation projects using fossil fuels as primary sources are excluded from conservation & demand management (CDM) activities

2. **In-Front of the Meter Conservation**
    - Amend 2014 directive to allow reduced electricity consumption resulting from any measures a Distributer uses to count towards the distributor's CDM target

3. **Indigenous programs**
    - Various changes to make language in previous directives consistent with current policy

# 6. Implementation Directive

- [SNAP to include summary of OEB directive]

TBD

# 7. LTEP Frequency Regulation

# 7. LTEP FREQUENCY REGULATION

- **Description:** Under the *Electricity Act, 1998,* a regulation is required that identifies how often the government will issue a Long-Term Energy Plan.
- The Ministry of Energy is proposing that an LTEP be issued at least every three years years from the date of:
  - i) the Minister of Energy approving all implementation plans submitted as part of the last long-term energy plan; or
  - ii) the last long-term energy plan if no implementation plans were required as part of the last plan
- As per the proposed regulation, the first long-term energy plan will be released, subject to Cabinet approval, within three months of the proposed regulation coming into force.
- **Timing:** A plain language posting was posted concurrently on the Regulatory Registry and the Environmental Registry on July 4, 2017 for a period of 45 days which ends on August 19 (TBC). [insert links]
  - The Ministry will seek LRC approval of the regulation in late August, prior to the LTEP being issued.
- **Considerations:** fairly administrative /house keeping (TBC)

# 8. Communications Roll-Out

# 8. COMMUNICATIONS ROLL-OUT

**Narrative**

- The 2017 Long-Term Energy delivers fairness and choice to help all Ontarians adjust to a rapidly changing energy future.
- We have invested well in our energy system and it's reliable, "green" and ready for future technical innovations.

**Strategy**

- Engage in proactive media relations for the official launch day
- Execute a multi-platform strategic communications plan
- Leverage LTEP themes to create a strong narrative to inform longer term messaging

**Considerations**

- The launch date of the LTEP will occur in late summer.
- The Fair Hydro Plan (FHP) and rate mitigation will continue to be the focus for media.

# 8. COMMUNICATIONS ROLL-OUT

**Rollout & Sustaining Activities**

On launch day, Energy will host:

1) A technical briefing;
2) a press conference in the media studio and pitch to media outside the Gallery;

The Ministry will also:

- Ensure all consultation participants are informed of the impact of their deputations including indigenous leaders.
- Design a social media campaign (organic and paid) to target specific audiences. Elements would include video and shareables.
- Produce customer focused collateral materials to complement the book – print and digital.

# 9. Next Steps and Proposed Minute

# NEXT STEPS

Communications:

- Writing and design is well underway
- Developing tactical digital communications and issues management plan
- Planning launch day events

# PROPOSED CABINET MINUTE

- Cabinet directs the Ministry of Energy to prepare for approval an LTEP setting out the following goals and objectives:
  - Ensuring affordable and accessible energy
  - Provide a flexible energy system
  - Improving value and performance for consumers
  - Reaffirm commitment to conservation
  - Prepare for the future and innovation
  - Respond to the climate change challenge
  - Support Indigenous capacity and leadership
  - Respond to regional priorities

# PROPOSED CABINET MINUTE

- Cabinet directs ENERGY move forward with initiatives identified in the LTEP including:
  - Explore federal and provincial infrastructure and economic development funding to support electricity transmission and distribution infrastructure that supports regional economic development [TBD based on PO feedback].
  - Report to LRC and Cabinet with legislative amendments and supporting regulation to implement Green Button province-wide
  - Highlight in the LTEP the need to protect corridor lands for a new transmission line in the Northwest GTA, consistent with the Provincial Policy Statement, 2014 and the Growth Plan for the Greater Golden Horseshoe, 2017.
  - Renew the SGF with an expanded scope and more targeted investments in innovative solutions that support grid modernization for $60 million over 5 years.
  - Establish, in collaboration with the Ministry of International Trade, the Ministry of Economic Development and Growth, and the Federal Government, a $10 million pilot program to support the demonstration of Made-in-Ontario energy technologies in global markets.
  - Support the development of a vulnerability assessment of the energy distribution sector

# PROPOSED CABINET MINUTE

- Cabinet agrees
  - ENERGY has fulfilled its requirement to report back to Cabinet on a number of CCAP initiatives: approach for establishing GHG reduction standards for drinking water and wastewater treatment plants (Minute item #75), approach for province-wide implementation of Green Button (Minute item #76), and a single portal for energy-related social benchmarking programs (Minute item #77).

# PROPOSED CABINET MINUTE

- Cabinet directs the Ministry to prepare for approval an implementation directive to IESO having the following content:
  - Independent Electricity System Operator to submit an implementation plan no later than December 1, 2017 to the Minister of Energy that outlines the steps the IESO intends to take in the development of the following:
    - In alignment with the Mid-Term Review of the CFF, a report, informed by engagement with Indigenous communities, on options to improve conservation programs for First Nations and Métis communities, including improving availability with consideration for, but not limited to, programs offered under the CFF and the Demand Side Management (DSM) Framework.
    - An evolution of the suite of energy support programs currently offered to Indigenous communities and organizations by the IESO. This evolution should be informed by engagement with Indigenous communities, and should seek to better align programming with community needs and interests and current opportunities including but not limited to activities related to the implementation of community energy plans.
    - An assessment of the electricity system impacts of increased net metering deployment including the technical and economic limits on the electricity system that impact net metering deployment; and opportunities to enhance the local and system value of distributed energy resources under a net metering framework.

# PROPOSED CABINET MINUTE

- Working with the Ministry of Energy, a program to support the strategic deployment of innovative distributed energy resource projects, including near-term virtual net-metering demonstration projects, that would inform grid modernization and net metering policies; support grid interoperability; and align with market renewal.
- Working with the Ontario Energy Board to review market rules, industry codes, and regulations to identify any remaining issues that may prevent energy storage from competing equitably with other technologies in the delivery of services, and identify appropriate mitigation strategies to address these any such issues.
- A formal integrated bulk system planning process that ensures solutions are identified transparently as needs materialize.
- As part of the formal integrated bulk system planning process, a coordinated, cost-effective, long-term approach to addressing the need to replace transmission assets at end of life. This will better align investments with power system and market conditions and needs, including with respect to system operability and resilience, integration of distributed energy resources and customer reliability. In doing so, the IESO shall request information it deems necessary from transmission asset owners.

# PROPOSED CABINET MINUTE

- A competitive transmitter selection or transmission procurement process that is transparent, efficient and able to respond to changing policy, market and system needs.
  - In addition to other details the IESO considers appropriate, the IESO shall include the following in its implementation plan:
    - The identification of specific pilot projects, if any , that will be subject to a selection or procurement process. The projects should be selected in consideration of how their scale, scope and need date make them suitable for a competitive selection or procurement process.
    - An implementation strategy including milestone dates and key objectives of the selection or procurement process design taking into consideration competitive tension, transparency, supporting participation of Indigenous communities in the electricity sector and other such factors the IESO considers appropriate. The IESO should also give consideration to developing a tiered transmitter selection or procurement process that is scaled to the complexity of project, if appropriate.
  - The IESO shall identify to the Ministry any amendments to policies, statutes, regulations, or programs that would support the implementation of proposed transmitter selection or procurement processes.

# PROPOSED CABINET MINUTE

- In consideration of the objectives for customer reliability outlined in the Ministry of Energy's Long-Term Energy Plan, a review of the technical criteria used to assess customer reliability for the purposes of identifying and evaluating the need for and effectiveness of local area enhancements. In doing so, the IESO shall consider:
  - Improvements to existing customer load restoration criteria, including for locations in remote areas
  - Options and considerations regarding the cost and funding for any proposed changes to the criteria, including consideration of:
    - The impacts on existing electricity consumers, if any; and
    - The impacts on Ontario's electricity distribution and transmission utilities and other stakeholders, if any.
    - The implementation plan shall describe how the IESO will engage with the public, including Indigenous Communities, and key stakeholders including electricity transmission and distribution companies and large power consumers.

# PROPOSED CABINET MINUTE

- Working with the Ontario Energy Board (the “Board”), a review of the regional planning process, taking into account lessons learned from the first cycle of planning, and report back with joint options and recommendations to address challenges and opportunities.
  - In doing so, the Board and IESO shall identify:
    - Barriers to the implementation of cost effective non-wires solutions such as conservation and demand management and distributed energy resources (such as distributed generation) and options to address those barriers, including any regulatory or legislative changes,  and options to address LDC capacity, such as through guidelines and tools
    - Options to better integrate regional planning with bulk system, distribution and community energy planning, as well as ensure alignment with market-based approaches;
    - Options to streamline the regional planning process
    - Options to better integrate regional planning with the need to replace transmission assets reaching end of life
  - The IESO, working with the OEB, shall consider leveraging existing processes and working groups, as well as other stakeholders or experts the IESO may deem appropriate

# PROPOSED CABINET MINUTE

- Cabinet directs the Ministry to prepare for approval an implementation directive to OEB

# PROPOSED CABINET MINUTE

Cabinet agrees

**CDM DIRECTIVE**

**Amending Direction to Ontario Energy Board – Conservation**

- On March 26, 2014 Minister Chiarelli issued a Directive the Ontario Energy Board (OEB), to enable the OPA six-year Conservation FirstFramework beginning in January 2015, replacing the 2010-2014 Conservation and Demand Management Framework.

- The March 26, 2014 direction established the definition of Conservation and Demand Management in Section 3.ii:
  - *that CDM shall be considered to be inclusive of activities aimed at reducing electricity consumption and reducing the draw from the electricity grid, such as geothermal heating and cooling, solar heating and small scale (i.e. <10MW) behind the meter customer generation. However, CDM should be consider to exclude those activities and programs related to a Distributor's investment in new infrastructure or replacement of existing infrastructure, any measures a Distributor uses to maximize the efficiency of its new or existing infrastructure, activities promoted through a different program or initiative undertaken by the Government of Ontario or the OPA, such as the OPS Feed-in Tariff (FIT) Program and micro-FIT program and activities related to the price of electricity or general economic activity.*

- Under Minister Thibault's authority given by subsections 27.1 and 27.2 of the *Ontario Energy Board Act, 1998*, the following amendment to the March 26, 2014 direction is proposed to enable two key LTEP initiatives:
  1. 1. Section 3 of March 2014 Directive is amended by adding a new 3.iii) and 3.iv) [current 3.iii becomes 3.v]:
     - 3.iii) Notwithstanding the Definition of CDM established in Section 3.ii., behind the meter customer generation projects that use supplied fossil fuels as a primary fuel source will be excluded from eligible CDM activities, where the application for the project is received on or after July 1, 2018. Projects that use recovered energy that would otherwise be wasted, including fossil fuels, will continue to be eligible.
     - 3.iv) Notwithstanding the definition of CDM established in Section 3.ii., allow reduced electricity consumption resulting from any measures a Distributor uses to maximize the efficiency of its new or existing infrastructure to count towards a Distributor's CDM Target for the purpose of the Distributor being eligible to receive the tiered performance incentives described in Section 1.6(i) of the March 31, 2014 direction to the OPA (now IESO) at the end of the 2015-2020 Conservation First Framework.

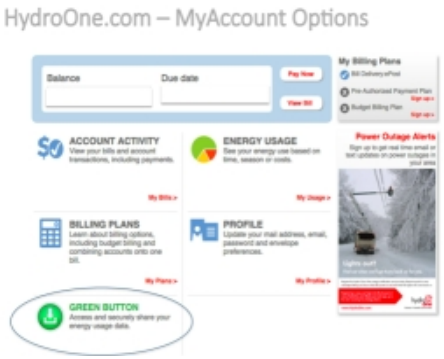
# Appendix

# What is Green Button: Download My Data (Part 1)

- Green Button Download My Data allows utility customers to manually download their own data from their utility's website directly to their own computer in a standard format, and if they choose, manually upload that data to third party solution provider (i.e. software/app).

## 1. Utility

**Utility makes customer data available in Green Button format on their website**




## 2. Customer

**Customer manually downloads their Green Button data from their utility's website**

## 3. Software/App

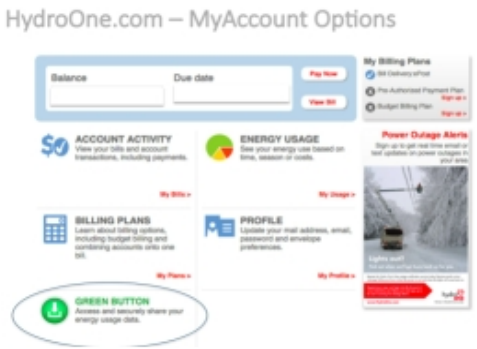
**Customer manually uploads data to third party solution provider for analysis**

# What is Green Button: Connect My Data (Part 2)

- Green Button Connect My Data allows utility customers to automate the secure transfer of their own data to authorized third party solution providers, based on customer consent and control.

## 1. Customer

**Customer chooses a third party service provider to share their data with and provides consent to their utility to automatically transfer their data**




## 2. Utility

**Upon receiving customer consent, utility automatically transfers data**

## 3. Software/App

**Third party service provider receives data from utility for analysis**

# Green Button: Cost-Benefit Analysis

- In 2016, ENERGY procured Dunsky Energy Consulting to undertake a cost-benefit analysis of multiple implementation scenarios for Green Button in Ontario, including requiring province-wide implementation of Green Button for electricity, natural gas and water utilities across all sectors (residential, commercial, institutional and industrial).
- Analysis showed key drivers of costs and benefits for implementing Green Button:
  - Key Costs: set-up costs associated with utilities preparing their IT systems to implement Green Button and annual costs for utilities to make Green Button available to their customers.
  - Key Benefits:
    - Simplified process for future large building energy and water reporting and benchmarking requirements.
    - Increased efficiencies in consumption, billing and generation data collection, validation and quality control processes.
    - Increased conservation in the Commercial and Institutional sector, including energy efficiency retrofits and behavioural changes.
- In addition, the study included indirect benefits of Green Button that were not quantified:
  - Increased energy efficiency awareness and education through Green Button apps; increased customer satisfaction; increased real estate value; innovation in CDM/DSM programs; economic development and innovation (i.e. integration with North American market); support government policy objectives, such as reducing fossil fuel emissions.

**Results***

- The cost-benefit analysis concluded that a net societal benefit of about $54M,** resulting in a cost-benefit ratio of 1:4.4, would accrue in the first five years if all electricity and natural gas distributors implemented Green Button through a multi-integrated implementation approach (i.e. allow utilities to choose from a limited number of Green Button platforms).
- Including water is cost-effective from a societal level only when combined with electricity and natural gas (cost-benefit ratio of 1:1.8). However, deploying Green Button for all water utilities in Ontario is not cost-effective on its own under most scenarios.

* The results should be interpreted as indicative only. The analysis was intended to determine whether the benefits of a Green Button implementation would outweigh the potential costs.



**$16,045,720 in costs and $70,270,632 in benefits.