

LTEP Update

Multi-Ministry Meeting
June 19, 2017

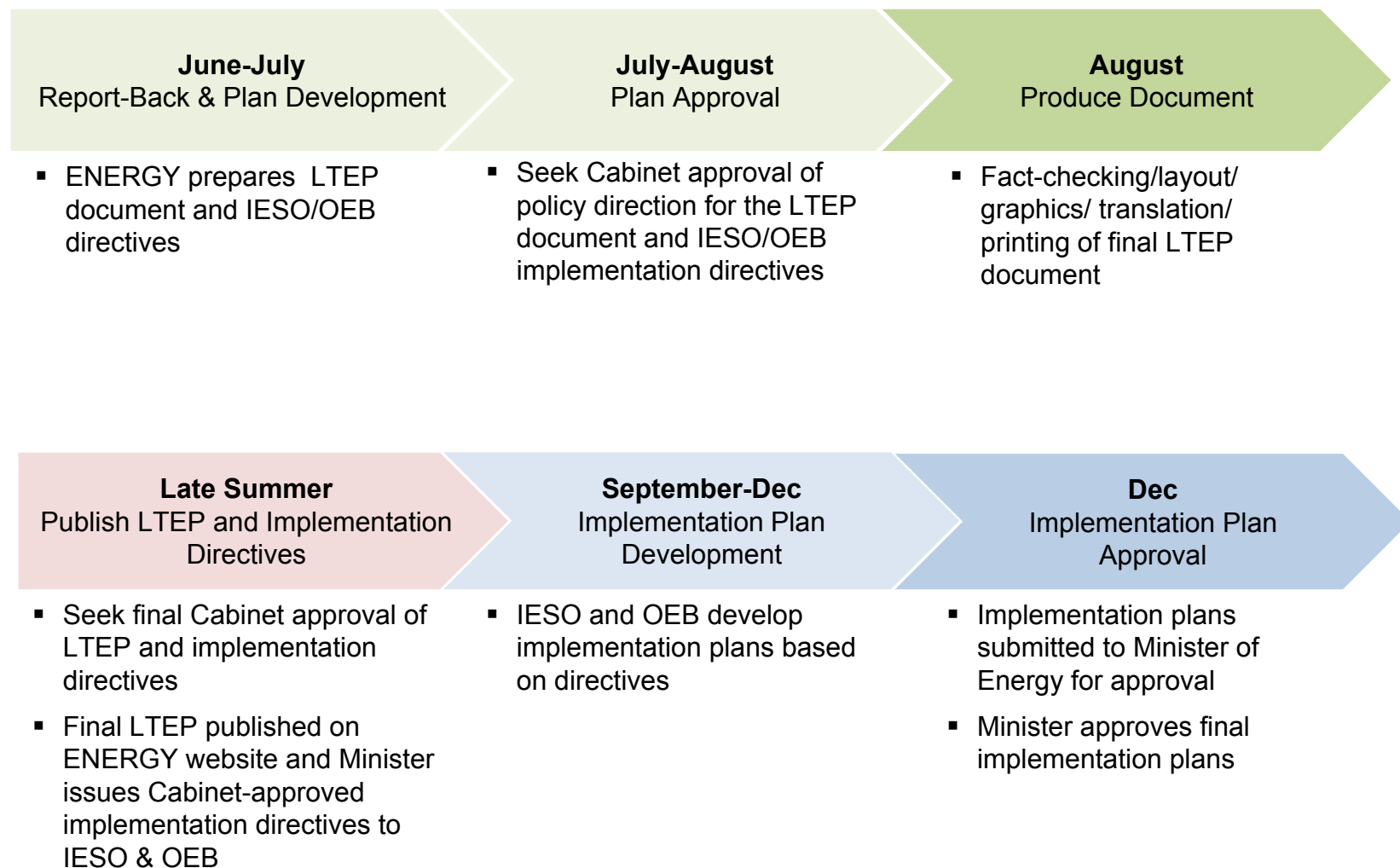
Context

- The Ministry of Energy continues to develop the next Long-Term Energy Plan (LTEP).
- ENERGY anticipates a late summer release given the outstanding work on LTEP development **and the implementation of the Ontario Fair Hydro Plan**.
- This presentation provides an update on the following:
 1. LTEP Timelines and Process
 2. Recent Developments – Ontario Fair Hydro Plan
 3. LTEP Modelling
 - FTR Overview
 - OPO Overview
 - Modelling Update
 4. LTEP Themes
 5. Next Steps

Timelines and Process Overview

Timelines

- Below is a timeline based on receiving Cabinet approval and a late-summer release.



LTEP Documents

- There are three tools for the creation and implementation of the LTEP: the LTEP document, implementation directives, and implementation plans.
- Each document will work together to ensure the policy vision is articulated clearly, the IESO/OEB have operational flexibility to determine the best course of action, and for intended outcomes to be measureable and evaluated.

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
Identifies the required direction to the IESO and the OEB for implementation of the LTEP.	ENERGY	CABINET
		
Implementation Plans	Author	Approval
Outlines the steps the IESO and the OEB will take to meet the expectations set out in the directives.	IESO/ OEB	MINISTER

LTEP Document

Legislated Process, Electricity Act, 1998

The Minister shall, subject to Cabinet approval, issue a long-term energy plan setting out and balancing the Government of Ontario's goals and objectives respecting energy.

- The LTEP document will provide a narrative on Ontario's energy sector as well as a vision ~~of what the Province envisions~~ for the future.
- The document will highlight new initiatives as well as work already underway.
- The LTEP will include electricity and fuel sector outlooks (e.g., demand, emissions, costs). The next LTEP will not include targets for certain supply-mix technologies as the government moves towards technology-neutral planning.
- The document itself will focus on intended outcomes, leaving the detailed processes, engagement activities, and timelines up to the IESO and OEB implementation plans.
- The LTEP requires Cabinet approval.

Implementation Directives

Legislated Process, Electricity Act, 1998

The Minister of Energy may issue Cabinet-approved directives to the IESO and/or OEB setting out the government's requirements for LTEP implementation and the date by which the IESO and/or OEB must submit an implementation plan to the Minister.-

- When the LTEP is released, ~~the Minister of Energy-Cabinet~~ will ~~approve~~ ~~issue~~ directives to the IESO and/or OEB requiring them to submit implementation plans.
- The directives will identify expected outcomes, report-back timelines, and expectations for the implementation plans (~~e.g., engagement requirements~~).
- As described in legislation, the directives are expected to be broad and less prescriptive compared to previous LTEPs, providing the agencies the flexibility to create detailed implementation plans.
- Not all LTEP initiatives will be included in the directives (i.e.- initiatives already underway or fall outside the IESO/OEB's mandates).
- The directives require Cabinet approval prior to being issued by the Minister. Any subsequent amendments to the directives also require Cabinet approval.

Implementation Plans

Legislated Process, Electricity Act, 1998

The IESO and/or OEB shall, within the time specified in the directive, submit to the Minister an implementation plan containing an outline of the steps the IESO and/or OEB intends to take to meet the requirements set out in the directive.

- The implementation plans will describe the process the IESO and/or OEB intend to undertake to address the requirements in their respective directives.
- The implementation plans will include clear timing and report-backs, as necessary, on select initiatives.
- The plans will describe how the agencies will engage with the public, Indigenous communities and councils, and key stakeholders including electricity generation, transmission and distribution companies, and large power consumers.
- The implementation plans require approval from the Minister of Energy.

Recent Developments

Ontario's Fair Hydro Plan

- On June 1st, Bill 132, Ontario Fair Hydro Plan Act, 2017, received Royal Assent enabling ~~On May 31, 2017, the government passed legislation to enable~~ the full implementation of Ontario's Fair Hydro Plan (OFHP), which will reduce electricity bills by an average of 25% for residential consumers.
- As many as half a million small businesses and farms will also benefit. The plan includes the 8% rebate introduced in January 2017 and builds on previously announced initiatives to deliver broad-based rate relief on all electricity bills.
- The OFHP includes the following components:
 1. Refinancing the Global Adjustment (GA);
 2. Helping vulnerable electricity consumers:
 - Expanding the Ontario Electricity Support Program (OESP);
 - Enhancing the Rural or Remote Rate Protection (RRRP) program;
 - Providing an First Nations Delivery Credit; and
 - Establishing an Affordability Fund.
 3. Expanding the Industrial Conservation Initiative (ICI);
 4. Improving Sector Efficiency; and
 5. Modernizing Ontario's Electricity Market.

OFHP Impacts on LTEP Scenarios

- The OFHP will lead to significant and immediate rate relief. The cost of refinancing will be recovered from ratepayers in later years.
- There is an **imperative need** to identify measures to reduce system costs in the long term **in the LTEP**.
 - Identifying cost-cutting measures in the LTEP leads to further policy decisions that ENERGY will need direction on.
- In an assessment of the IESO's Market Renewal Initiative prepared by the Brattle Group, estimated benefits **of up to range from \$2.2 to** \$5.2 billion (10-year NPV).
- ENERGY will require more time to consider additional measures to reduce system costs prior to the release of LTEP.
- Any measures identified would need to be incorporated into the cost curves that would be included in the final public document. The IESO, in collaboration with ENERGY staff, is currently updating its demand, cost, and emissions outlooks to reflect recent developments in the energy sector.

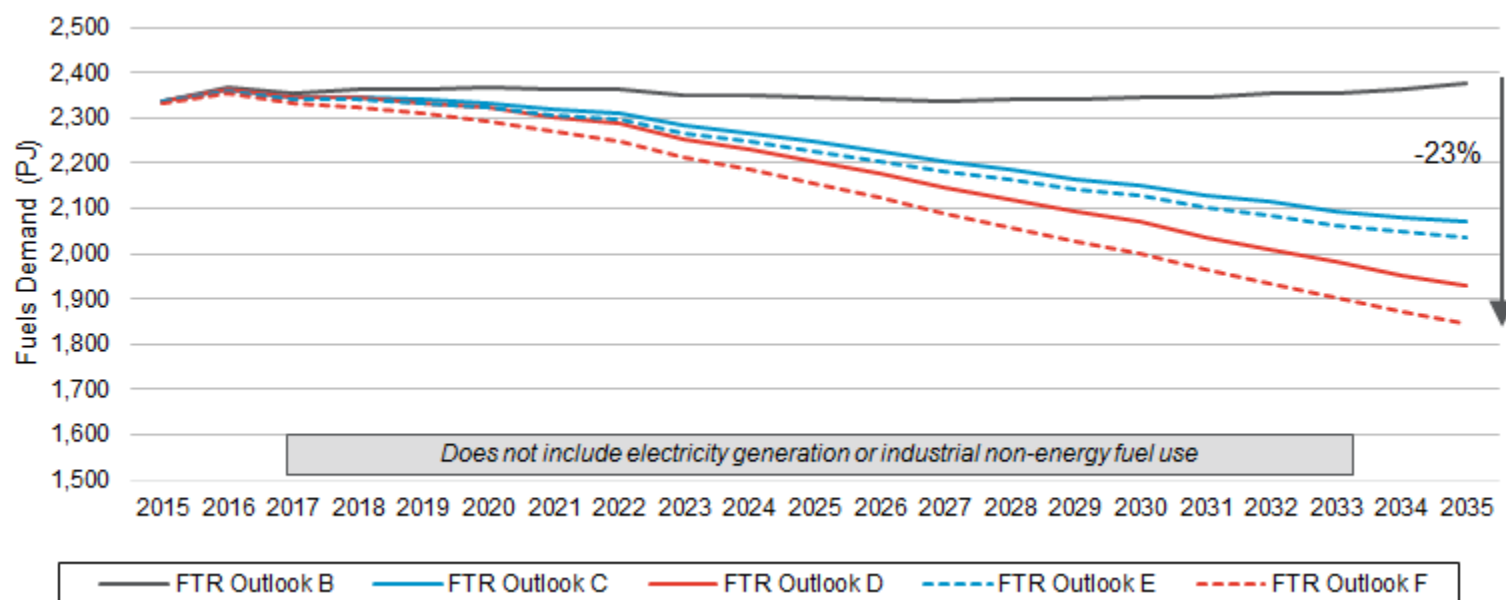
LTEP Modelling

Fuels Technical Report Overview
Ontario Planning Outlook Overview
Modelling Update

Fuels Technical Report Overview

Fuels Sector Outlooks

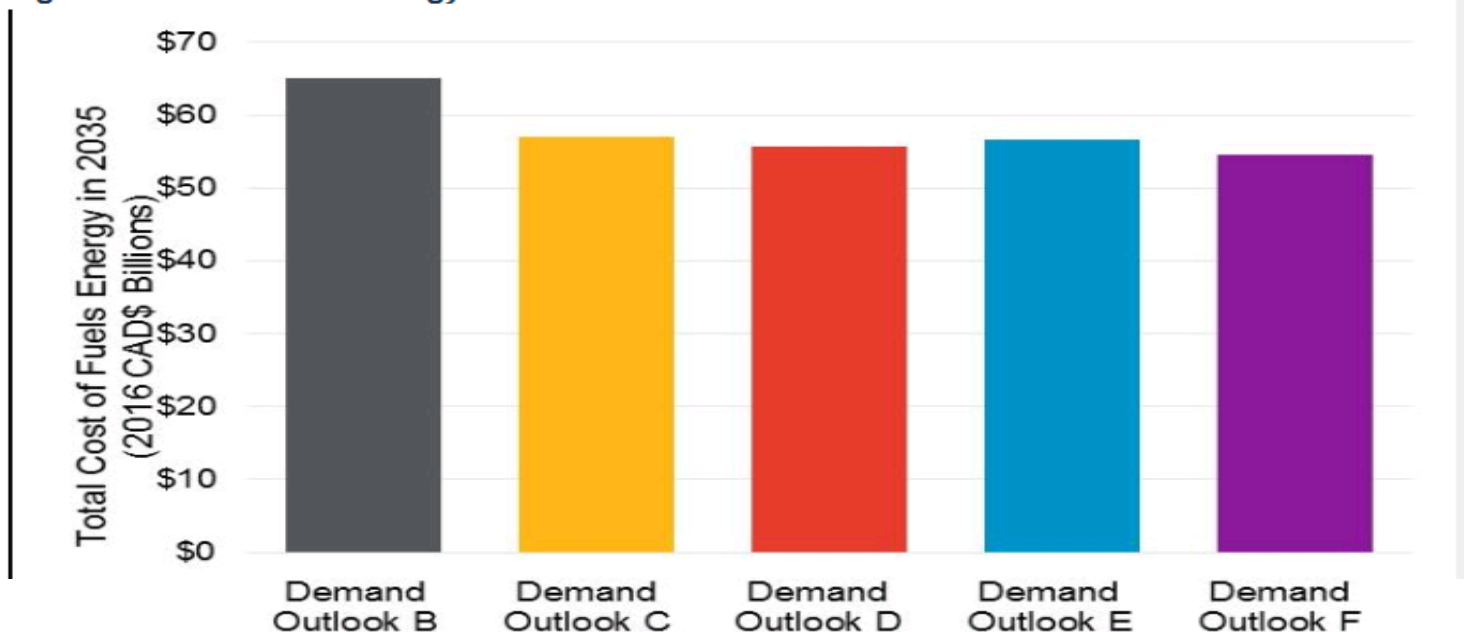
- The Fuels Technical Report (FTR), released on September 30, 2016, includes a review of fuels consumption and a set of twenty year outlooks for demand, supply, costs and GHG emissions.
- The report includes five demand outlooks. Changes in demand are a result of electrification, as well as conservation and uptake of alternative fuels.
- Recent developments in the electricity sector may impact the fuels sector with regards to fuel switching between electricity and gas.



Fuels Sector Supply and Costs

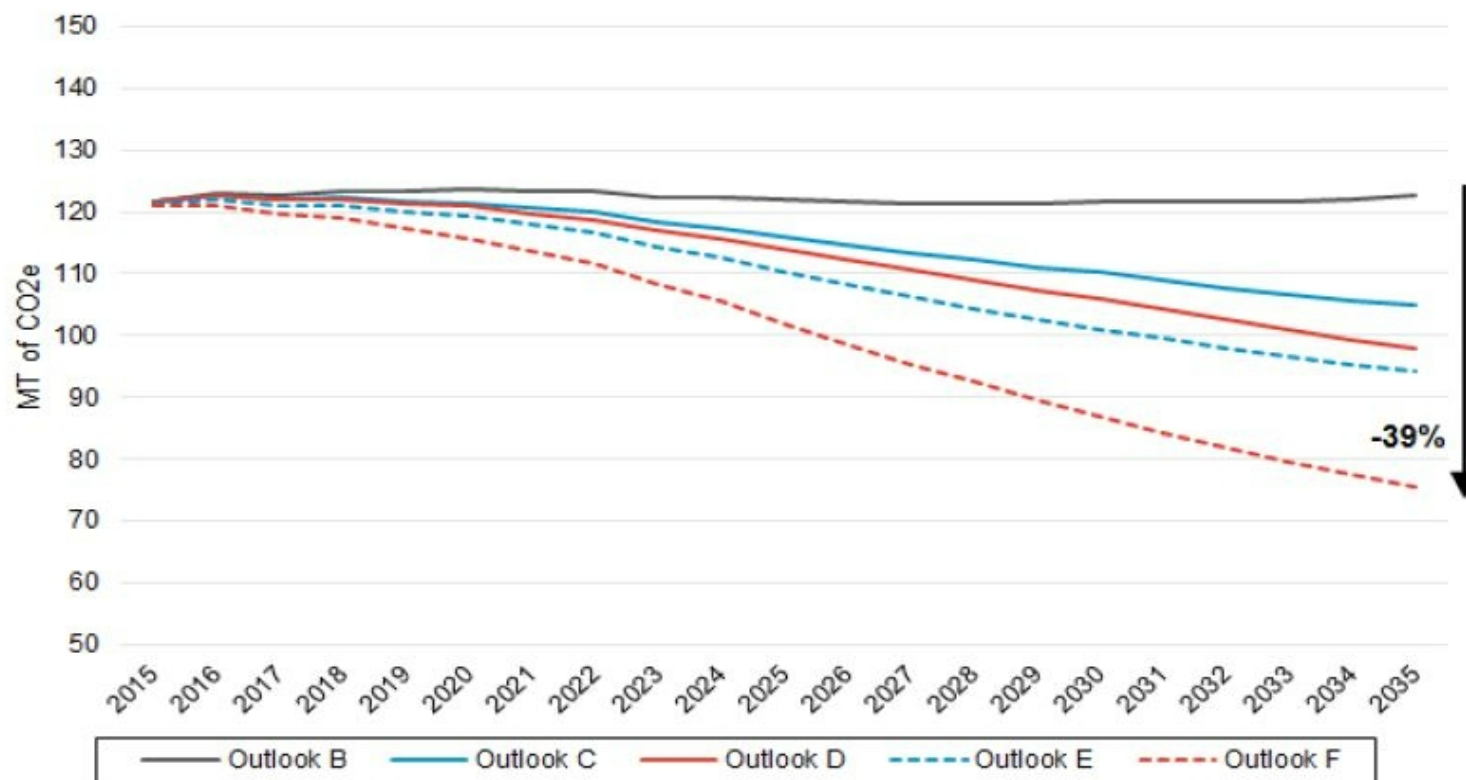
- In all scenarios, the supply outlook is expected to provide sufficient quantities of product to meet Ontario's demands for conventional fossil fuels. Where outlooks see demand growth for alternative fuels, new investment in infrastructure and new imports of alternative fuels may be required
- Fuel costs in the LTEP will be revised to reflect updated carbon price forecasts.

Figure 43: Cost of Fuels Energy Across Demand Outlooks



Fuels Sector Emissions Forecast

- In most demand outlooks, the fuels report projects that emissions from Ontario's fuels sector are expected to decline as a result of electrification, as well as conservation and update of alternative fuel-switching.



Source: CanESS & Navigant Analysis, 2016

Ontario Planning Outlook Overview

Modelling Update

LTEP Themes

LTEP Initiatives

- The Ministry of Energy identified a number of policy initiatives based on the issues raised during LTEP engagement and Ministry policy analysis.
- ~~Ministry staff have briefed the Minister of Energy his staff, and Premier's Office on these initiatives.~~
- The following slides describe the narrative and initiatives for each theme.

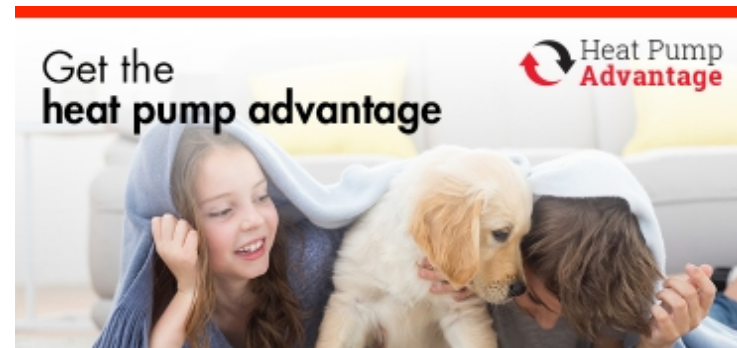
Preliminary LTEP Themes

1. Encouraging Greater Customer Choice
2. Enhancing Commitment to Conservation
3. Fuels
4. Electrification
5. Innovation
6. Supporting Indigenous Capacity and Leadership
7. Maximizing Existing Assets

Encouraging Greater Customer Choice

Narrative/ Message

- The energy sector is moving towards a more customer-centric approach.
- ENERGY is working with the OEB to give customers more choice in their electricity price plans.
- Ontario offers a suite of conservation and energy efficiency programs that provide choice and help customers manage their energy use and costs.
- Once launched, the Green Ontario Fund will provide a streamlined, customer-focused approach to additional conservation and low-carbon technology programs.



Marketing for Hydro One's Heat Pump Advantage Pilot, which is now evolving into the province-wide Heating and Cooling Incentive Program

Proposed Initiatives

- **Regulated Price Plan pilots:** The OEB is testing new time-of-use price structures through pilots across Ontario.
- **New Rate Structures for medium sized consumers:** OEB to investigate innovative rate designs to provide a better price signal and/or increase consumer choice for non-RPP Class B consumers.
- **Industrial Conservation Initiative (ICI):** ICI has been expanded to allow more consumers to opt in. **ENERGY Ontario Chamber of Commerce** to assist in providing greater awareness of ICI amongst eligible customers.
- **Net Metering:** ENERGY is broadening access to net metering, which can enable customers to generate their own renewable power and reduce their electricity bills.
- **Enhanced Utility Performance Expectations:** OEB will examine how utilities can be more accountable to consumers' for their performance on critical metrics, including potentially financial reimbursement for failure to meet standards.

Enhancing Commitment to Conservation

Narrative/ Message

- Ontario will enhance its conservation first commitment to support affordability and choice for people and communities.
- LTEP will explore opportunities to increase conservation without **causing increases costs for impacting the** rate-payers, and expand efficiency programs across all energy sources.

Proposed Initiatives

- **In Front of the Meter Conservation (IFMC):** Allow LDCs to count electricity savings from IFMC projects toward their conservation targets, and ask OEB to report back with an approach to encourage LDCs to pursue energy efficiency on the distribution system.
- **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).

- **Long-term electricity reduction target:** Reaffirm commitment to the long-term target of 30 TWh in 2032, and commit to exploring options to enhance the system value of conservation investments.



Enhancing Commitment to Conservation (cont'd)

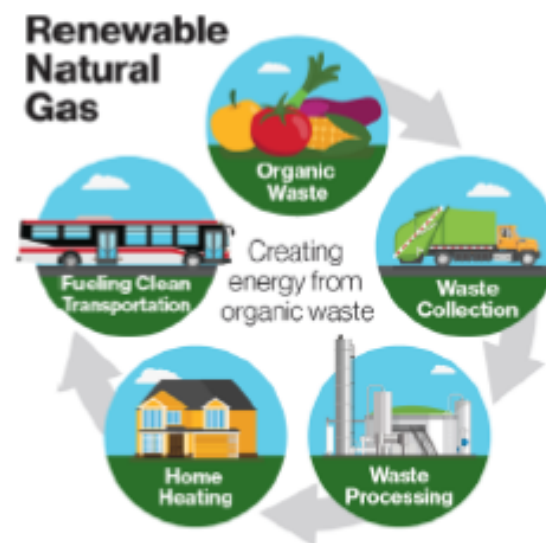
Proposed Initiatives (con't)

- ~~**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).~~
- **Energy efficiency standards:** Reaffirm commitment to advancing energy and water efficiency standards. Continue to work with other provinces and the federal government to improve and harmonize efficiency standards across Canada
- **Smart Thermostats:** Work with the IESO and MOECC to standardize incentive offerings and ensure smart thermostats incentives exist for homeowners across the province.
- **Green Button Standard:** Report back to Cabinet this summer with a proposed approach for province-wide implementation of Green Button, and pending approval, amend legislation and develop a new regulation to mandate Green Button for electricity and natural gas utilities. ~~Reaffirm commitment to implement Green Button Standard province-wide for energy and water.~~
- **Program integration:** Post-2020, work with our agencies and MOECC to consider opportunities to move towards greater integration of conservation and low-carbon technology programs across fuels.
- **Long-term electricity reduction target:** LTEP can reaffirm Ontario's commitment to conservation and to continuing to explore options to enhance the system value of conservation investments.

Fuels

Narrative/ Message

- Ontario will seek to maximize the value of its existing fuels infrastructure while reducing GHG emissions through the adoption of lower-carbon energy solutions.
- The transition to lower-carbon solutions will emphasize consumer choice and avoiding costs to pay for under-utilized infrastructure (i.e., “stranded assets”).
- LTEP will highlight opportunities to lower GHG emissions in Ontario’s natural gas system and transportation sector, and make strategic use of fuels to support electrification.
- LTEP will also include outlooks for fuels sector supply and demand including a range of carbon price outlooks.



Proposed Initiatives

- **Introduce RNG into Ontario’s Natural Gas Supply:** “Green” the natural gas supply with RNG and similar innovations.
- **Lower-Carbon Fuels in Transportation Sector:** Help to lower GHG emissions via increased blending of ethanol, biomass and other “drop-in” renewable fuels, and the use of natural gas/RNG as transportation fuel.
- ~~**Support Electrification:** Make strategic use of fuels to support electrification, such as through the production of hydrogen from “off-peak” electricity for storage in the natural gas system, to provide peak electricity and heating demands.~~

Electrification

Narrative / Message

- The electricity sector accounts for only 2 percent of Ontario's GHG emissions. ~~is over 90 percent emission free.~~ Electrification of other uses (e.g. transportation) can drive further reduction in emissions.
- The 2017 LTEP will consider a base case electricity and fuels demand scenarios with aggressive uptake of electric vehicles (EVs), but modest electrification of space heating.
- The LTEP could consider hydrogen-based solutions that take advantage of Ontario's clean electricity system.

Considerations

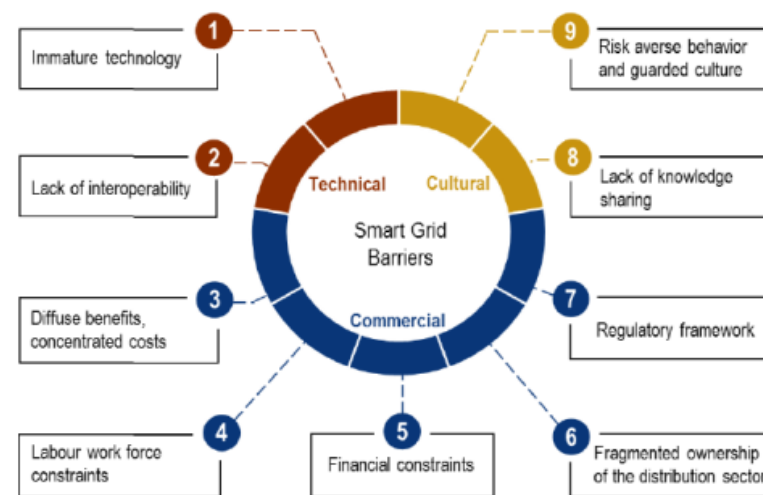
- As part of the 2017 LTEP process, two technical reports, the Ontario Planning Outlook and the Fuels Technical Report, were released to provide twenty-year outlooks on the electricity and fuels sector in Ontario. The reports also explored the implications of applying electrification measures.
- ENERGY analysis of the technical reports indicates that significant, fundamental and rapid change would be required for the energy sector to meet the measures described in the Climate Change Action Plan. ~~especially for scenarios that shift from natural gas to electric space heating~~
- These changes ~~would~~ could also substantially increase costs in the electricity system and may not be aligned to recent announcements including Ontario's Fair Hydro Plan

Innovation

Narrative/ Message

- New technologies can promote a more cost-effective energy system and improve reliability.
- These technologies will be the driving force behind modernizing the grid and enabling customer choice.
- The LTEP will create conditions for grid modernization and encourage a culture for innovation.

Figure 5. Barriers to the Development of a Smart Grid



Source: Navigant

Proposed Initiatives

- **Grid Modernization:** Create the means for LDCs to promote grid visibility, data-based decision making, customer control, and the optimization of new technologies such as storage and EV's.
- **Culture of Innovation:** Infuse innovative thinking within LDC business visions and capital planning, and between LDCs through information sharing.
- **Supporting Economic Development:** Exploring the use of Federal and Provincial infrastructure dollars for electricity transmission and distribution infrastructure.
- **Smart Distributed Generation:** The Ministry / IESO will facilitate innovative, renewable distributed generation (DG) projects that demonstrate and quantify impacts and value to the grid of DG and DERs.
- **Nuclear Innovations:** The Ministry will continue to assess the feasibility and potential of nuclear innovations (e.g., small modular reactors, medical isotopes) as it relates to opportunities to support Ontario's nuclear sector.

Supporting Indigenous Capacity and Leadership



Narrative/ Message

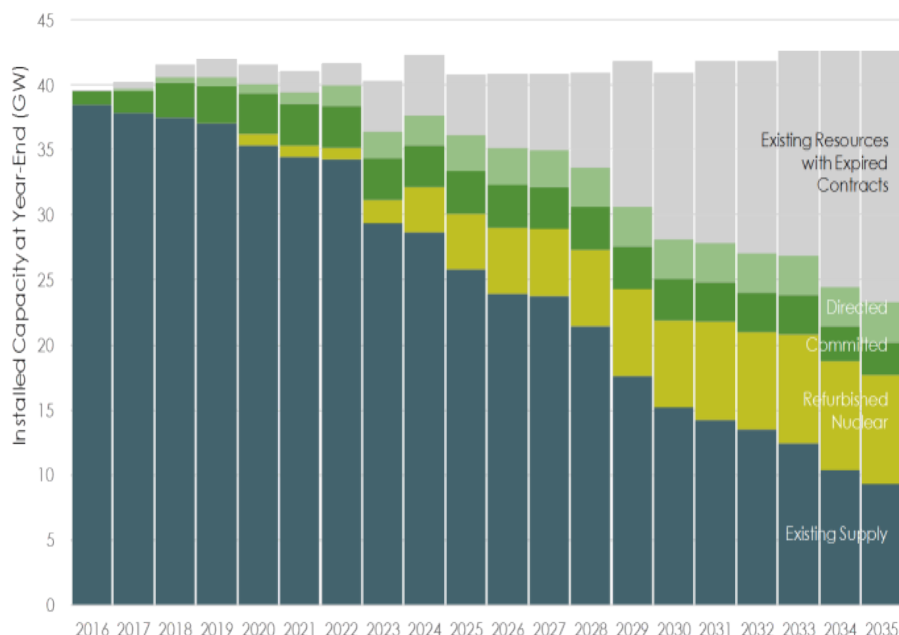
- The government is committed to ensuring that Indigenous communities are consulted on any energy activity that could potentially affect their Aboriginal or treaty rights.
- First Nation and Métis communities and councils have emerged as leaders in Ontario's energy sector – bringing unique perspectives, knowledge and influence to energy planning, projects and policies.
- The relationship between Ontario and First Nations has been strengthened through progress made through forums such as the First Nations-Ontario Energy Table and the Grievance Table process. This has seen positive movement on files such as First Nation ownership in Hydro One, the resolution of Constance Lake First Nation's grievance and the ongoing work with Six Nations of the Grand River to complete the Niagara Reinforcement Line.

Proposed Initiatives

- **First Nations Delivery Credit:** removal of the electricity delivery charge on bills of on-reserve First Nation residential customers.
- **Community Energy Plan Implementation:** the ACEP program will be expanded to include funding for the implementation of initiatives identified in community energy plans. (97 First Nation communities are participating in the ACEP program).

Maximizing Existing Assets

Installed capacity at year-end 2016-35



Narrative/ Message

- The electricity system is well-positioned to pursue emerging opportunities and to meet future challenges.
- The LTEP will review and enhance policies governing generation, transmission and distribution to ensure they deliver power, as efficiently as possible.
- LTEP will support IESO's work to move Ontario to more market-based structures for supply decisions.

Proposed Initiatives

- **Preserving Corridors:** Preserve transmission corridors to accommodate current and future needs, including the West GTA.
- **Enhanced Reliability:** Establishing customer reliability standards and ensuring utilities are accountable through penalties and/or incentives
- **Market Renewal:** The IESO is undertaking Market Renewal initiatives regarding how supply is procured and how generation gets scheduled.

Next Steps

Next Steps

- The Ministry continues to develop LTEP initiatives and explore opportunities to reduce costs in the sector.
- The Ministry of Energy will work closely with other ministries both where policy areas overlap, and also to ensure alignment with other government initiatives.
- ENERGY will share modelling results and specifics of each initiative through the LTEP ADMs' Forum.
- The Ministry will prepare to seek Cabinet approval of the LTEP and the implementation directives.
- **Announce / profile the LTEP with a multi-channel launch late summer 2017.**