Ontario

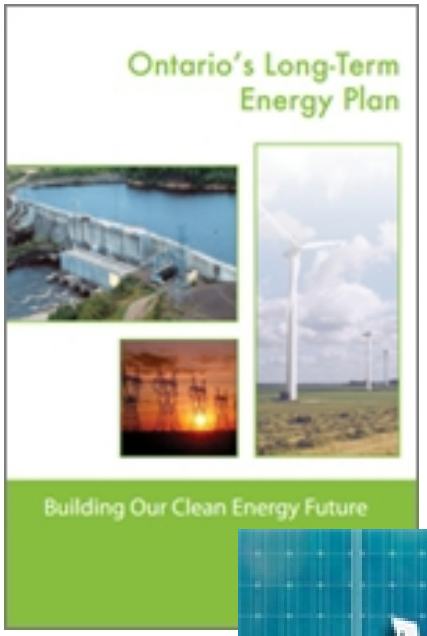
MINISTRY OF
ENERGY

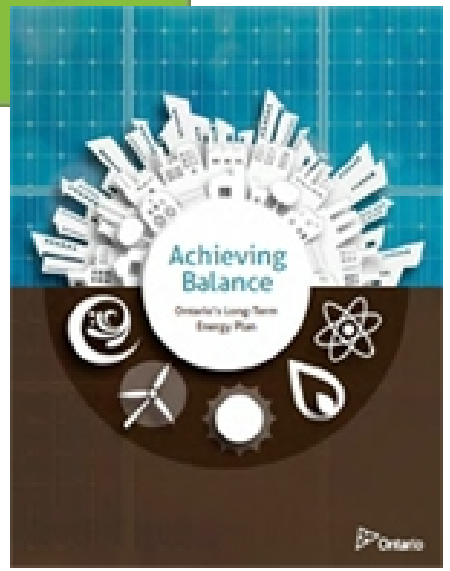
Long-Term Energy Plan Overview

Briefing for PO Deputy Principal Secretary
Monday October 17 ,2016

Introduction

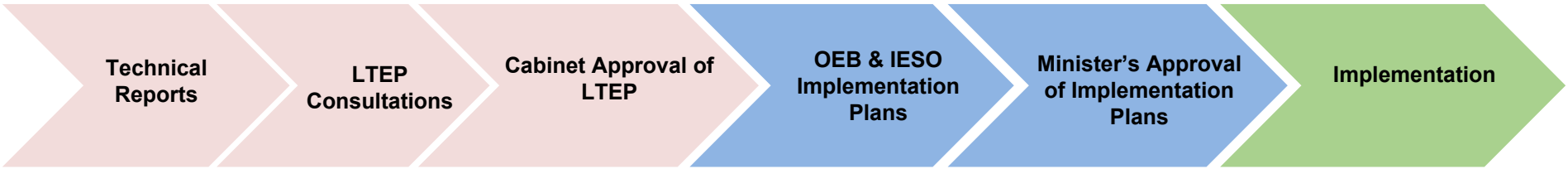
- The Long-Term Energy Plan (LTEP) is the energy sector's roadmap, with a focus on integrated policy and setting the direction for Ontario's energy future.
  - The 2013 LTEP included content on both Ontario's electricity as well as fuels sectors.
- Developing the LTEP is a highly collaborative process in which ENERGY and IESO directly engage with stakeholders, indigenous communities and the public.
- The Ministry is currently developing the next LTEP and will be holding in-person engagement sessions from mid-October to early-December.
- The Ministry posted a Discussion Guide, Environmental Registry Notice, and engagement session schedule on October 13, 2016.
- The following presentation provides an overview of the LTEP process.





New Energy Planning Process

- The development of the next LTEP will follow the energy planning process outlined in the Energy Statute Law Amendment Act . This legislation was passed in June 2016 and came into force on July 1, 2016.
- The planning process is based on the one used by the Ministry to develop the 2010 and 2013 LTEP's. The next LTEP will follow this planning process. The process will include:



Creating the LTEP

- LTEP process begins with an IESO technical report and fuels technical report, both released in September 2016.
- ENERGY leads LTEP development & 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 Planning Process

Timing of LTEP Milestones

Q2-Q3 2016
Early Engagement

- Early engagement meetings with key stakeholders
- Multi-Ministry Meetings in May and August
- ADMs Forum in Sept

July - Sept
Technical Reports

- IESO published its Ontario Planning Outlook (OPO) on Sept 1,16.
- The Ministry publishes the Fuels Technical Report (FTR)

Oct- Dec
LTEP Consultations

- Consultations will include in -person sessions; online tools and *Environmental Bill of Rights (EBR)* posting.
- Report to Cabinet as part of consultations
- ENERGY works with IESO to start Conservation First Framework Mid-Term Review (Fall 2016)

Dec 2016-Mar 2017
Development & Approvals

- ENERGY develops LTEP based on consultations
- Seek Cabinet approval of LTEP & Implementation Directives

Q2 2017
Publish LTEP

Q2 2017
Issue Directives

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

Q2 2017
Implementation Plan Development

- IESO and OEB develop implementation plans based on directives

Q3 2017
Implementation Plan Approval

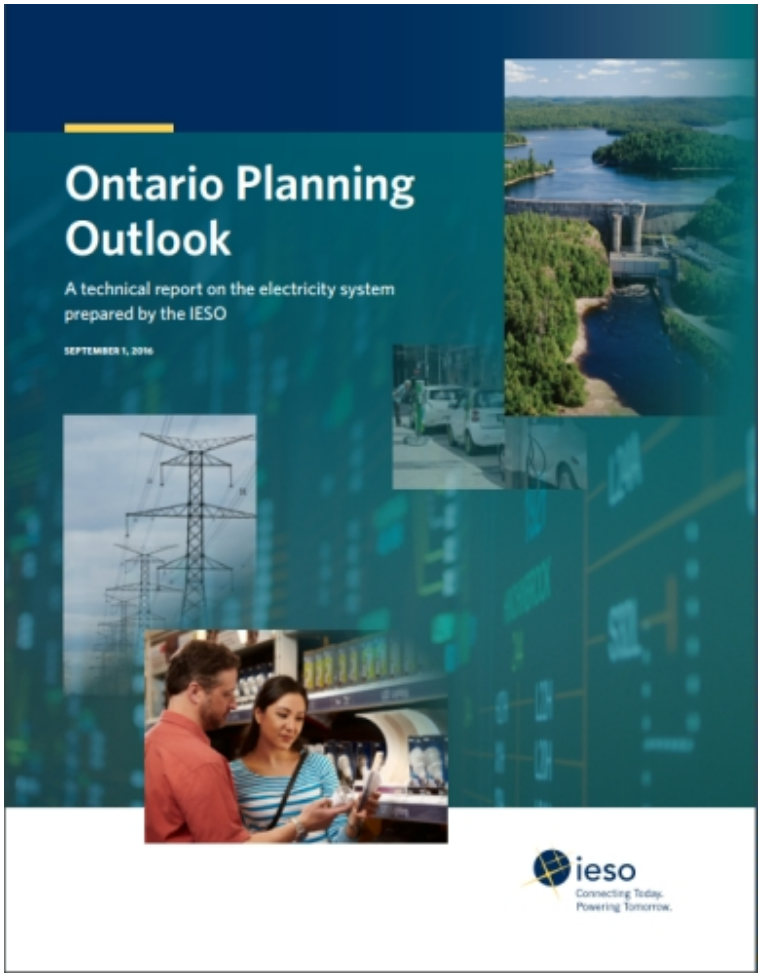
- Implementation plans submitted to Minister of Energy for approval

2017-2019
Implementation

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

IESO Ontario Planning Outlook

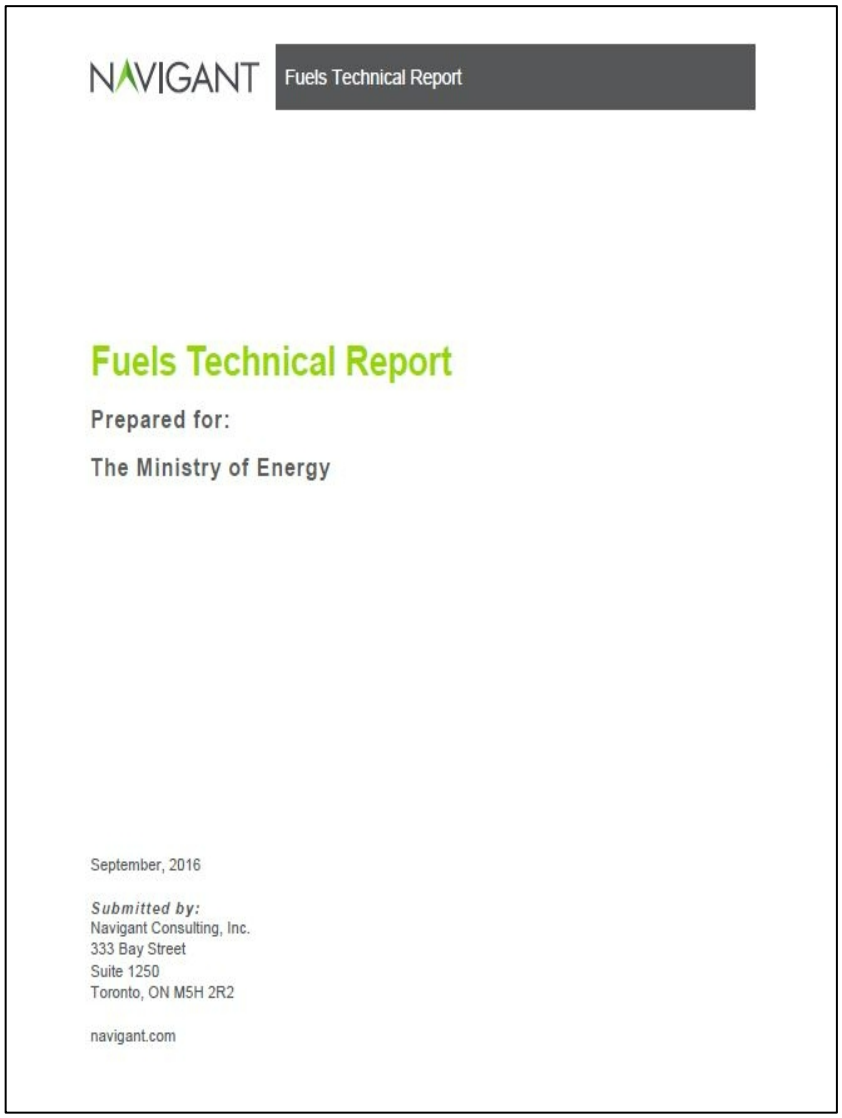
- The first step in the LTEP process was the release of the Ontario Planning Outlook (OPO) by the IESO on September 1, 2016.
- The OPO includes a ten-year review and a twenty-year outlook (to 2035) for electricity demand, supply, system costs, conservation and emissions.
- The purpose of the report is to allow the Ministry, Indigenous groups and communities and stakeholders to start from a common point of understanding in advance of LTEP consultations.
- The OPO considers other government commitments, including the Climate Change Action Plan, the *Climate Change Mitigation and Low-Carbon Economy Act, 2016.*



IESO Ontario Planning Outlook

- The OPO includes a range of four demand outlooks driven by varying degrees of electrification:
  - **Outlook A**: Low Demand
  - **Outlook B:** Flat Demand
  - **Outlooks C & D:** Higher Demand
- The outlooks are consistent with objectives in the CCAP to 2020. Long-term IESO projections reflect the near-term CCAP impacts. Demand projections are net of expected conservation, and are influenced by changes to Ontario's economy, and electricity use for transportation, space and water heating, and industrial processes (see assumptions in appendix).
- The IESO identifies a number of resource options that could be used to meet the various demand outlooks, however it does not propose a specific resource mix since this will be determined through the LTEP process.
- The IESO also considers the transmission/distribution, emissions and system cost impacts of the different demand cases.

Fuels Technical Report


NAVIGANT Fuels Technical Report

Fuels Technical Report

Prepared for:

The Ministry of Energy

September, 2016

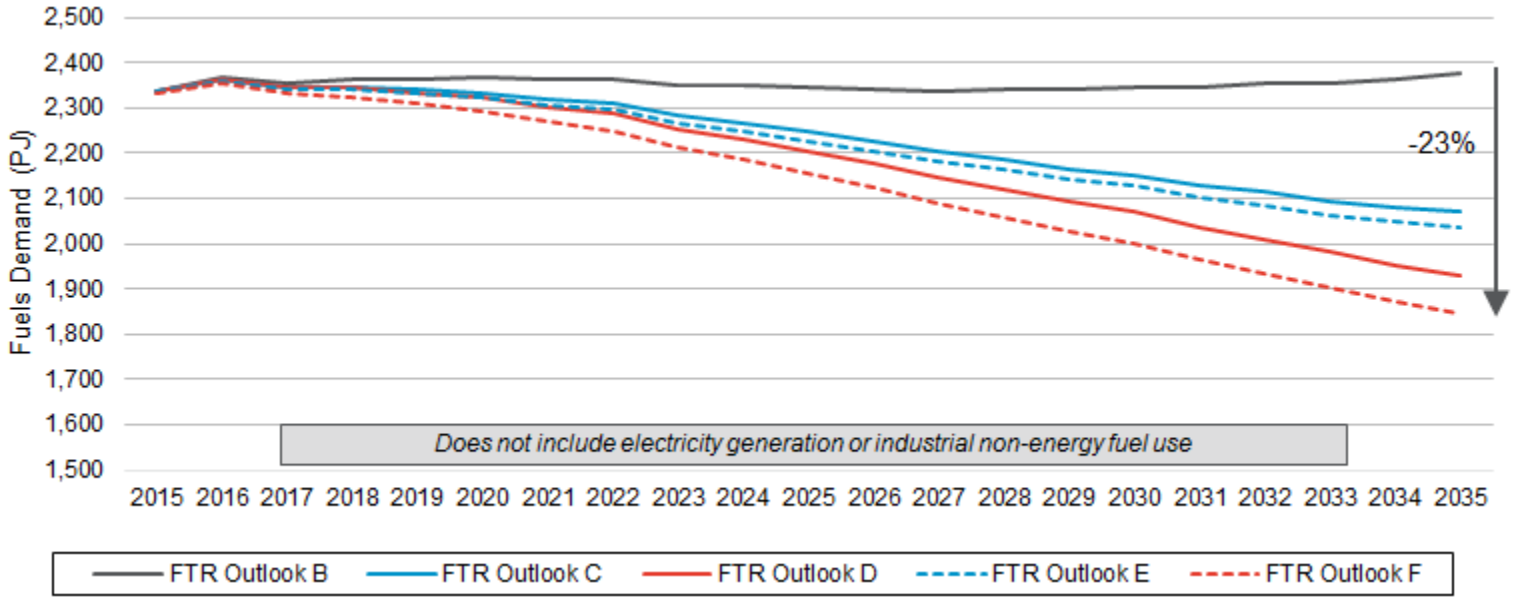
Submitted by:
Navigant Consulting, Inc.
333 Bay Street
Suite 1250
Toronto, ON M5H 2R2

navigant.com

- Fuels such as natural gas, gasoline, diesel, propane and biofuels supply three quarters of the province's primary energy use.
- Given the importance of the fuel sector to Ontario's quality of life and economy, Ontario is expanding its assessment of the fuels sector. This includes:
  1. On September 30, 2016, the Ministry released the **Fuels Technical Report** (FTR) on Ontario's fuels sector, similar to IESO technical report on the electricity sector. The report was developed by Navigant .
  2. Creating a **Fuels Sector Working Group** made up of companies and associations from Ontario's fuels sector. The group advised on the Fuels Sector technical report, and will provide input on policies and programs through LTEP consultations.

Fuels Technical Report

- The Fuels Technical Report (FTR) includes a review of fuels consumption and a set of twenty year outlooks for demand, supply, costs and GHG emissions.
- Like the OPO, the FTR is consistent with the assumptions in the Climate Change Action Plan (CCAP). The fuels and electricity technical reports share common assumptions on economic activity, demographic data and electrification of equipment and transportation.
- The report includes five demand outlooks. Changes in demand are a result of electrification, as well as conservation and uptake of alternative fuels.



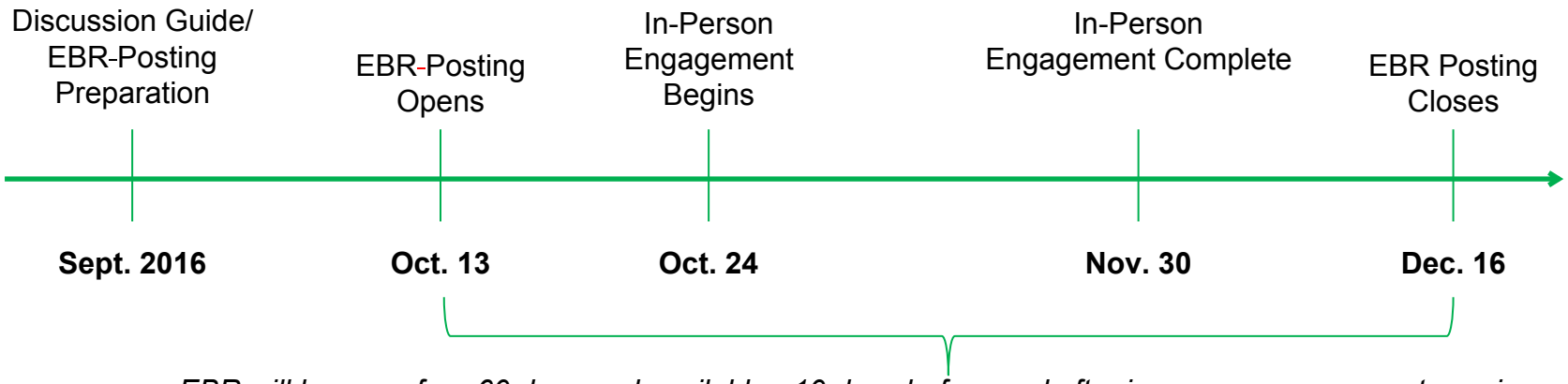
LTEP Engagement Process and Tools

- A comprehensive engagement process is supporting LTEP development.
- Stakeholders and Indigenous communities and groups are invited to submit formal submissions only through the EBR. The request for submissions was posted on October 13 and will be open until December to provide adequate time to allow for the submission of written comments.
- ENERGY is hosting engagement sessions for Indigenous communities in parallel with public consultations. LDCs are being engaged through separate sessions.
- LTEP engagement includes the following tools:
    - Environmental Registry submission
    - Stakeholders sessions
    - Indigenous engagement sessions
    - Public open houses
    - Telephone town hall sessions
    - Online survey and talks tool
    - Power play interactive game

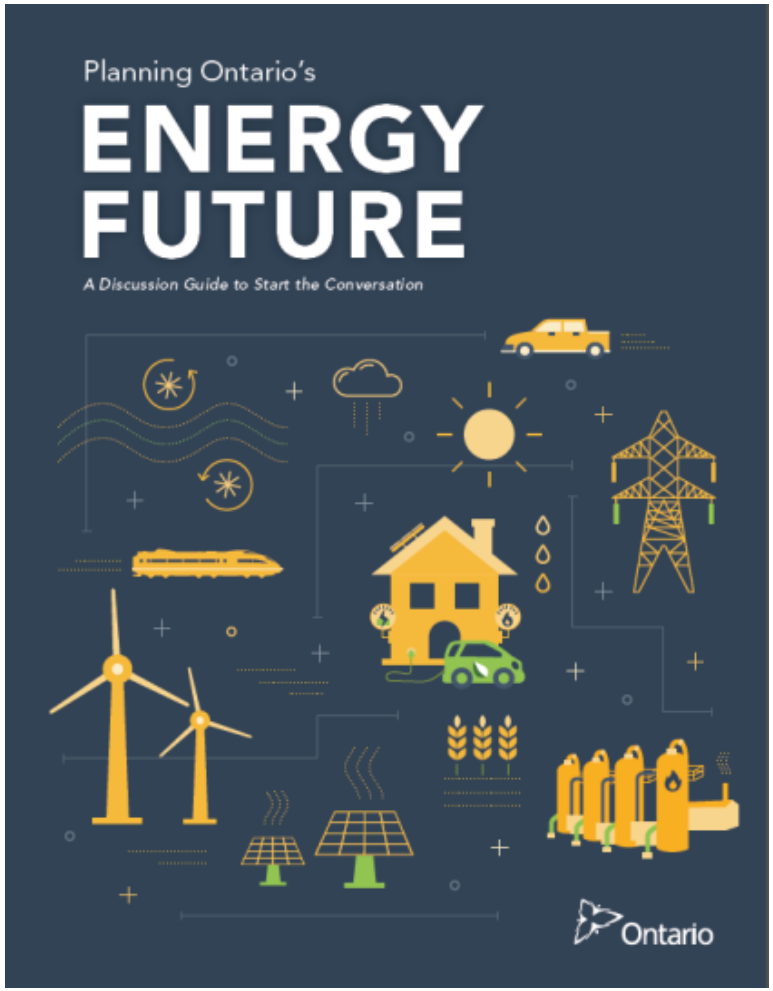
Locations for Engagement Sessions

Environmental Registry Posting

- The LTEP process, outlined in the *Electricity Act, 1998*, requires the Ministry to publish notice of consultations with relevant background materials on the environmental registry established by the *Environmental Bill of Rights, 1993*.
- Two weeks prior to consultation, the Ministry will post the notice of consultations, dates and locations on the EBR along with the discussion guide, indigenous workbook and links to the OPO and Fuels Technical Report.
- The EBR will serve as the formal method for stakeholders to submit feedback and recommendations as part of the LTEP process. Other consultation tools (e.g., in-person sessions; online survey) will be used to raise awareness about LTEP engagement and direct users to the EBR.



LTEP Discussion Guide



- The Ministry released a discussion guide in advance of LTEP consultations on Oct 13.
- The purpose of the discussion guide is to seek stakeholder input on the objectives that could be included in LTEP and how to best realise the policy objectives.
- The discussion guide includes
  - A description on the LTEP process;
  - A discussion on how the LTEP aligns with CCAP;
  - Information on Ontario's current energy supply mix and prices; and
  - Energy demand forecasts
  - Discussion questions on key sector topics to guide consultations

LTEP Indigenous Engagement

- The Ministry will host regional sessions on LTEP for Indigenous communities in parallel with other consultations. Subject to feedback from Political-Territorial Organizations (PTOs), communities and other appropriate organizations, Indigenous sessions will be held in 16 locations.
- Indigenous LTEP sessions invite stories about and showcase Indigenous successes in the energy sector, inform and get feedback about programs and funding for energy sector participation, educate about billing and the energy system, and empower Indigenous community members to become more involved in energy issues through targeted sessions with youth, business, and other key groups.
- Letters were sent in May, 2016, to First Nation Chiefs and leaders of PTOs, Tribal Councils and the Métis Nation of Ontario to inform them of the upcoming LTEP and to solicit input into the planning process.
- The Ministry met with the Chiefs of Ontario (COO) to provide an overview of and invite comments on its LTEP engagement plan. The IESO has also met with COO and is renewing its funding support for COO energy-focused staff.
- As with the last LTEP, an external facilitator will be retained for the First Nation sessions and eligible travel costs would be reimbursed for all participants.
- A workbook is being prepared to be used at Indigenous sessions along with the general LTEP discussion guide.

Next Steps

- LTEP consultations and Indigenous engagement from October to early December.
- JEP/Cabinet update in early November 2016
- LTEP development and Cabinet approval will take place following consultations.
- Target release for LTEP is Q2 2017.

Appendix

Public Engagement

Stakeholder and Community Sessions

Date	Community
Oct. 24/25	Toronto
Oct. 27	Sudbury
Nov. 1	Barrie
Nov. 1	Kenora
Nov. 2	Thunder Bay
Nov. 3	Peterborough
Nov. 15	Sault Ste. Marie
Nov. 16	Timmins
Nov. 17	St. Catharines

Date	Community
Nov. 21	Guelph
Nov. 22	Pembroke
Nov. 23	Ottawa
Nov. 24	Kingston
Nov. 28	Windsor
Nov. 28	Kitchener
Nov. 29	London
Nov. 30	Toronto

Indigenous Engagement

Community Sessions

First Nation Sessions	
Date	**Session Location**
Oct-20	Fort William First Nation
Oct-26	Ochiichagwe'babigo'ining Ojibway Nation
Nov-02	Nigigoonsiminikaaning First Nation
Nov-03	Fort Severn First Nation
Nov-09	Mattagami First Nation
Nov-17	Matawa FNs (Thunder Bay)*
Nov-24	Mohawks of the Bay of Quinte First Nation
Nov-29	Atikmesheng First Nation
Nov-30	Manitoulin Island
Dec-06	Algonquins of Ontario
Dec-07	Aamjiwnanng First Nation*
TBD	Sandy Lake First Nation

Métis Sessions*	
Date	**Session Location**
Oct-25	Kenora
Nov-08	Timmins
Nov-16	Thunder Bay
Nov-22	Sault Ste. Marie
Dec-02	Owen Sound
Dec-02	South Hampton
Dec-08	Toronto

*Tentative Scheduling

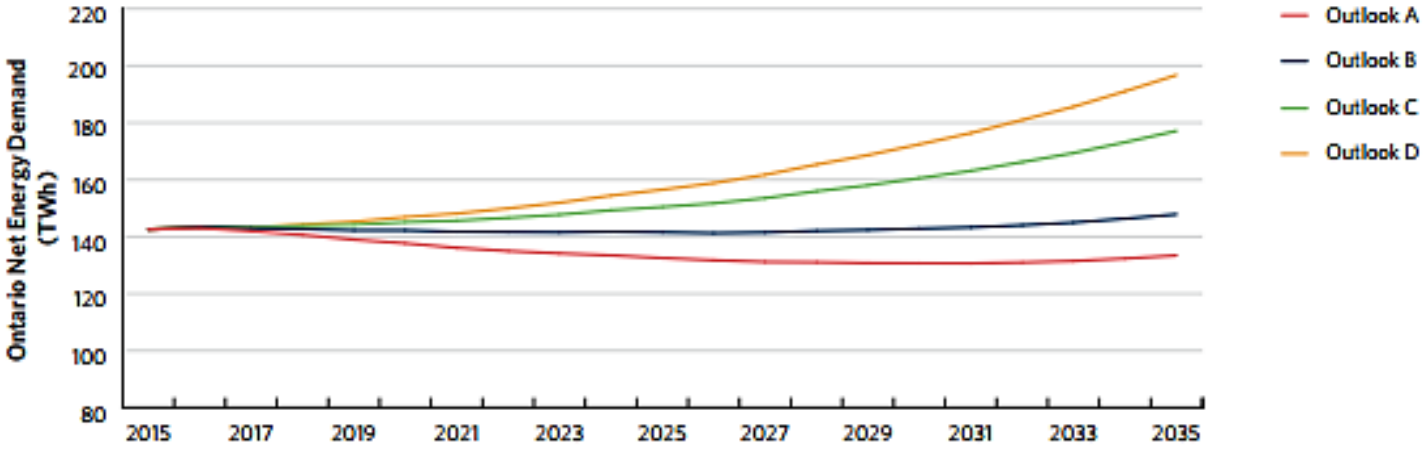
IESO Assumptions Across OPO Demand Outlooks

Sector	Outlook A	Outlook B	Outlook C	Outlook D
Residential (52 TWh in 2015)	48 TWh in 2035	51 TWh in 2035	Oil heating switches to heat pumps, electric space and water heating gain 25% of gas market share (58 TWh in 2035)*	Oil heating switches to heat pumps, electric space and water heating gain 50% of gas market share (64TWh in 2035)
Commercial (51 TWh in 2015)	49 TWh in 2035	54 TWh in 2035	Oil heating switches to heat pumps, electric space and water heating gain 25% of gas market share (63 TWh in 2035)	Oil heating switches to heat pumps, electric space and water heating gain 50% of gas market share (69 TWh in 2035)
Industrial (35 TWh in 2015)	29 TWh in 2035	35 TWh in 2035	5% of 2012 fossil energy switches to electric equivalent (43 TWh in 2035)	10% of 2012 fossil energy switches to electric equivalent (51 TWh in 2035)
Electric Vehicles (<1 TWh in 2015)	2 TWh in 2035	3 TWh in 2035	2.4 million electric vehicles (EVs) by 2035 (8 TWh in 2035)	2.4 million EVs by 2035 (8 TWh in 2035)
Transit (<1 TWh in 2015)	1 TWh in 2035	1 TWh in 2035	Planned projects, 2017-2035 (1 TWh in 2035)	Planned projects, 2017-2035 (1 TWh in 2035)
Other**	5 TWh	5 TWh	5 TWh	5 TWh
Total* (143 TWh in 2015)**	**133 TWh in 2035**	**148 TWh in 2035**	**177 TWh in 2035**	**197 TWh in 2035**

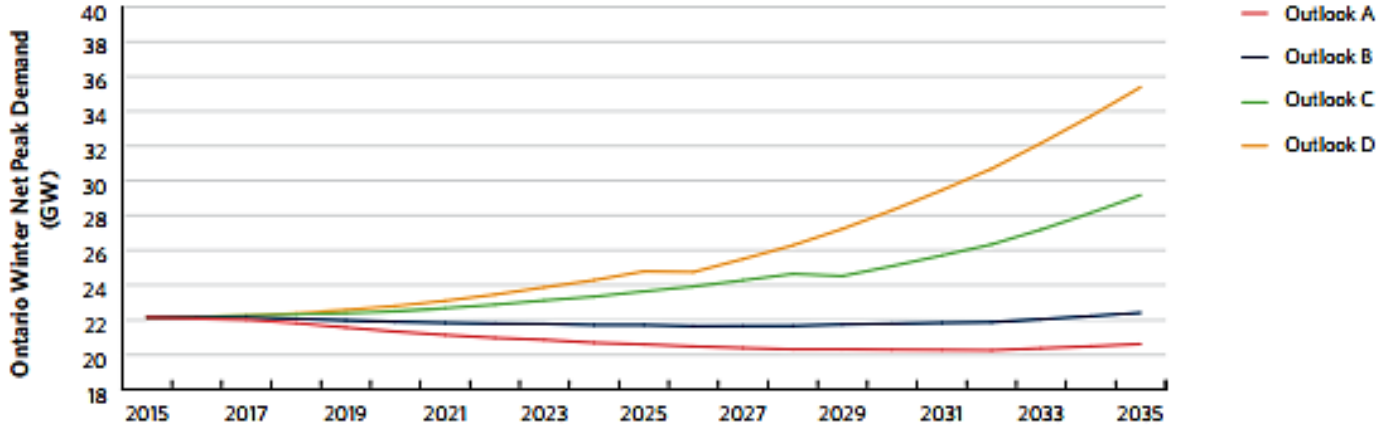
Note: Outlooks C and D assume the same economic drivers as Outlook B.
* By 2035, of the number of natural gas fuelled space and water heating equipment being sold in Outlook B (due to existing equipment reaching end of life and new additions driven by growth in the residential and commercial sectors), 25 percent of this stock in Outlook C and 50 percent in Outlook D is replaced with air-source heat pumps.
** Others = Agriculture, Remote Communities, Generator Demand, IEI and Street Lighting
*** Total may not add up due to rounding

OPO Demand Outlooks

Total Electricity Demand by Outlook



Ontario Net Winter Peak Demand across Demand Outlooks



OPO Outlook for Available Supply at the Time of Peak Demand