

IESO Modelling Update

Long-Term Energy Plan Multi-Ministry Meeting

June 19, 2017



Electricity planning process

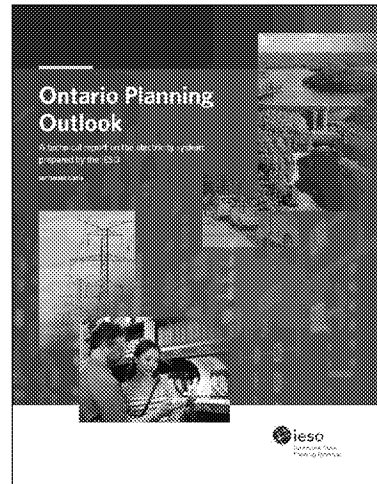
Bill 135, the
*Energy Statute
Law Amendment
Act, 2016*

Received Royal
Assent on June
9, 2016

IESO Technical Report,
"Ontario Planning Outlook"

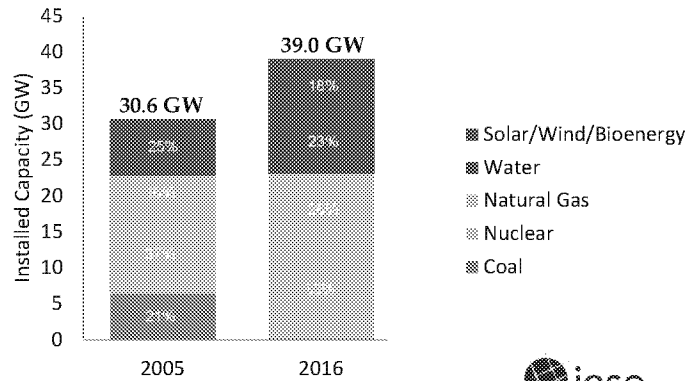
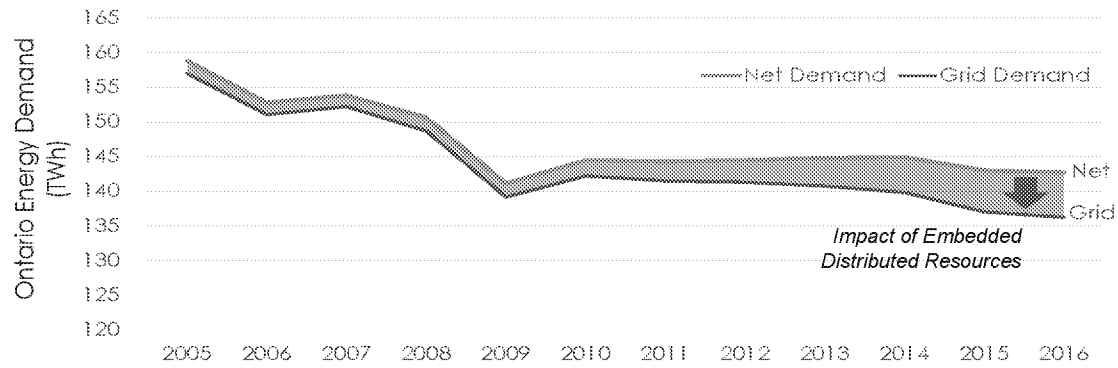
Ontario Government's Long-
Term Energy Plan (LTEP)

IESO Implementation Plan



The report, supporting modules,
and data tables can be found on
the IESO's website: www.ieso.ca

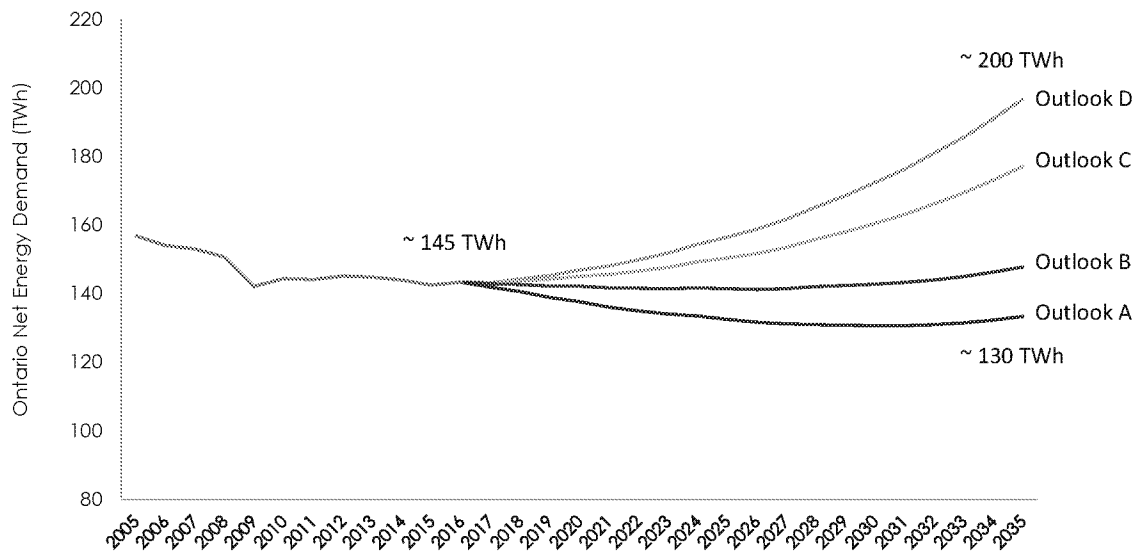
Ontario's electricity system over the past decade



The bar charts include embedded distributed resources.

Four energy demand outlooks considered in the 2016 Ontario Planning Outlook

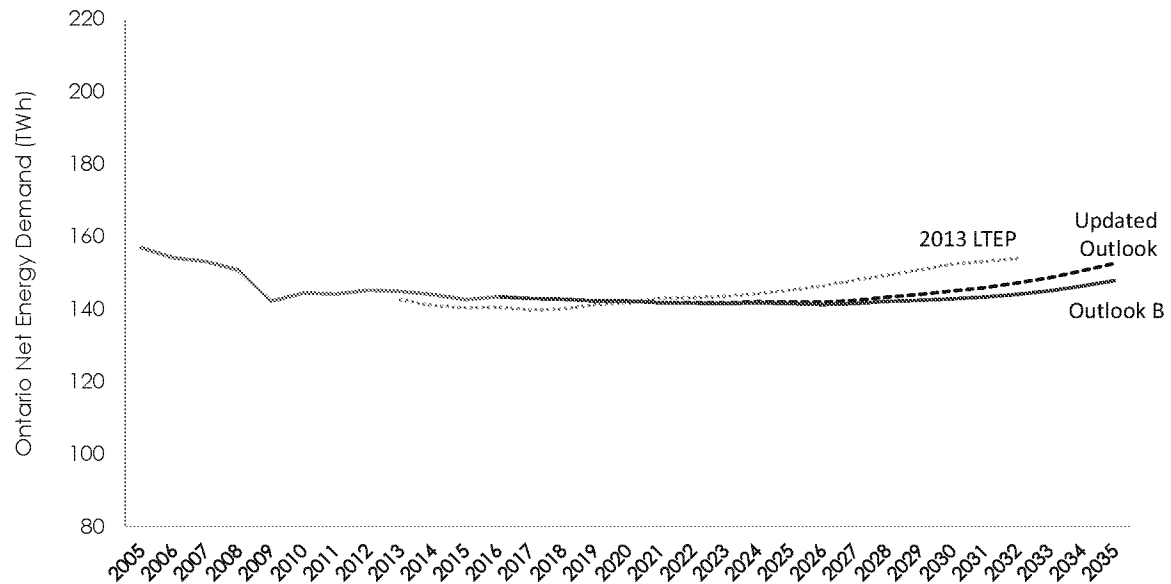
- Outlook A (or “low demand outlook”) explored the implications of lower electricity demand
- Outlook B (or “flat demand outlook”) explored a level of long-term demand that roughly matches the level of demand that exists today
- Outlooks C and D (or “higher demand outlooks”) explored higher levels of demand



Outlooks A through D per 2016 Ontario Planning Outlook report.

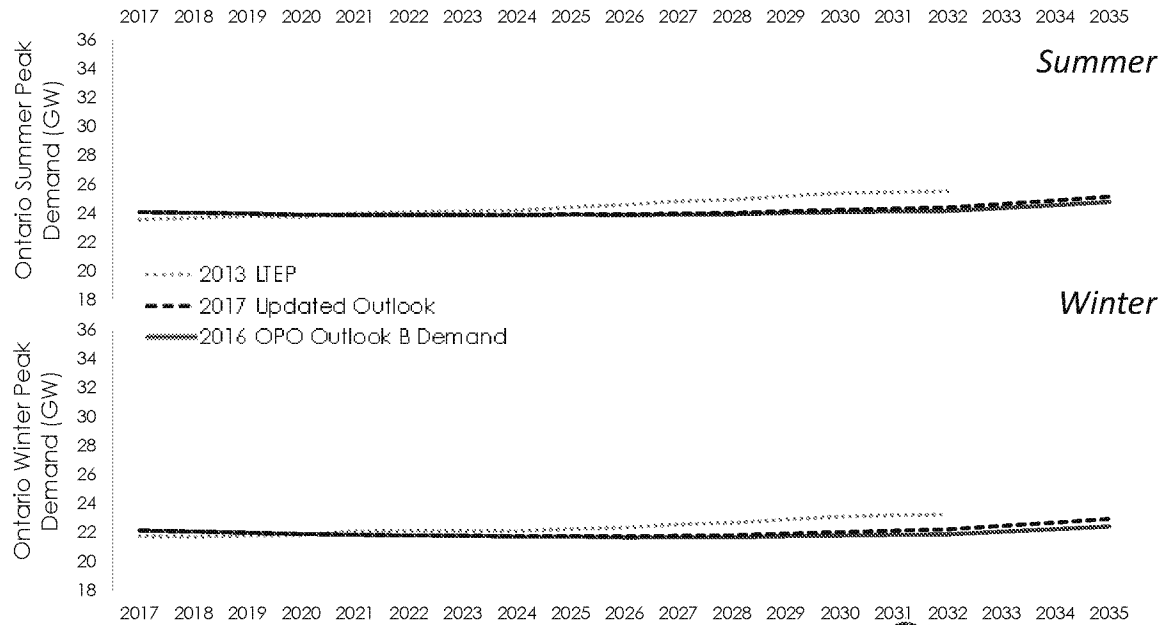
Updated energy demand outlooks

- Updated energy demand outlook is about 5 TWh higher than the OPO Outlook B, by 2035. The updated outlook reflects an accelerated increase in electric vehicles.

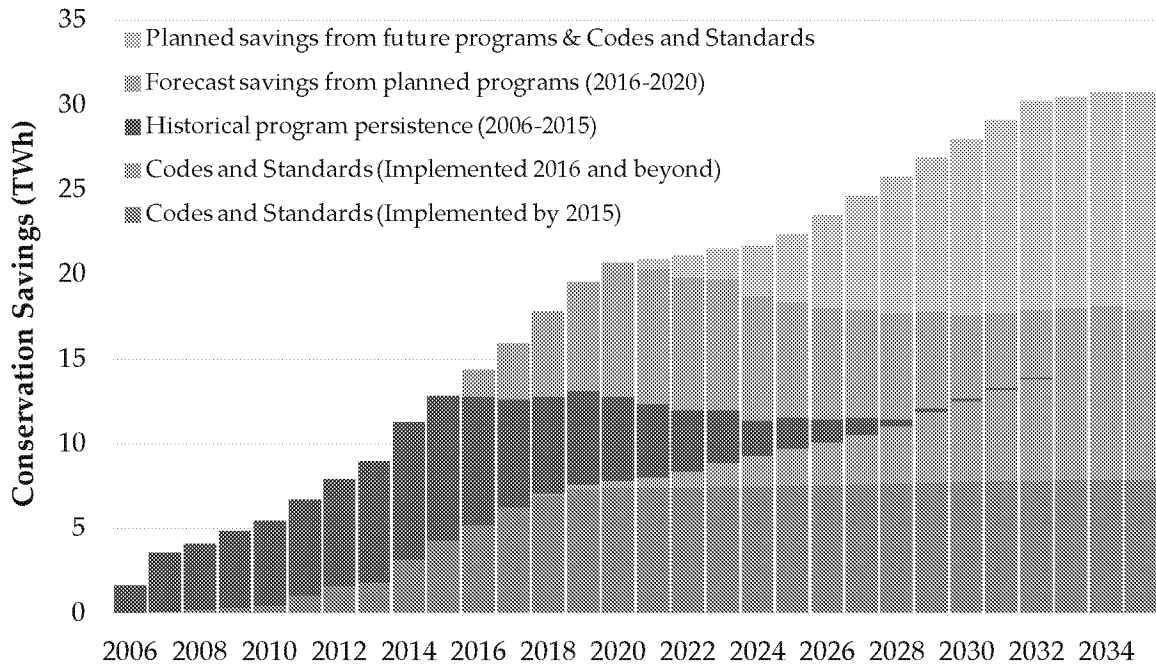


Updated peak demand outlooks

- Relative to OPO Outlook B, the updated outlook sees peak increase by about 400 MW in the summer and 500 MW in the winter due to higher demand from electric vehicles

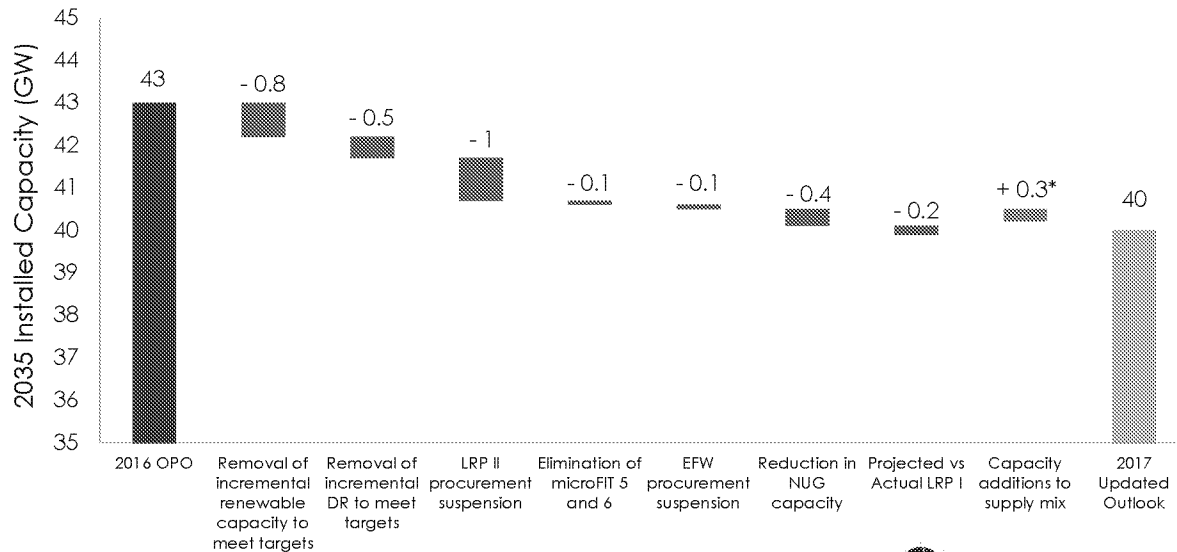


Ontario electricity conservation outlook



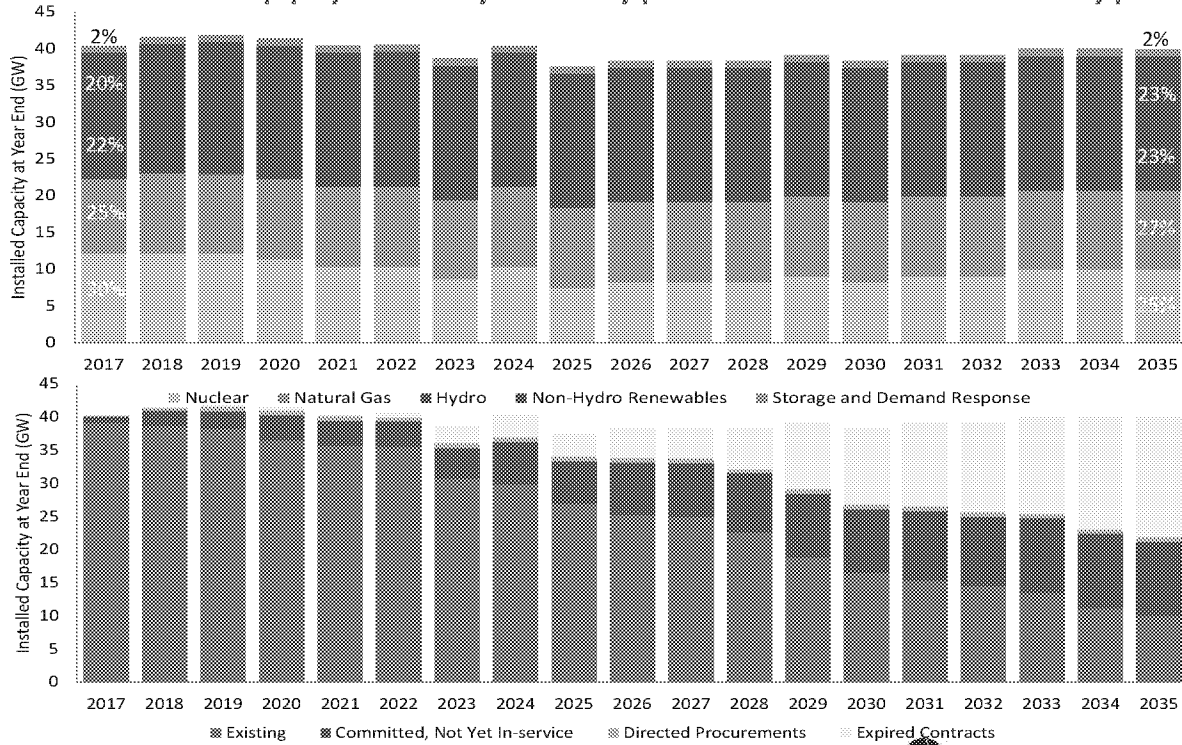
Updates to the supply mix since the 2016 Ontario Planning Outlook

- Since the 2016 OPO, there has been a 3 GW reduction in supply resources, driven by changes to the outlook for procurements and resource targets



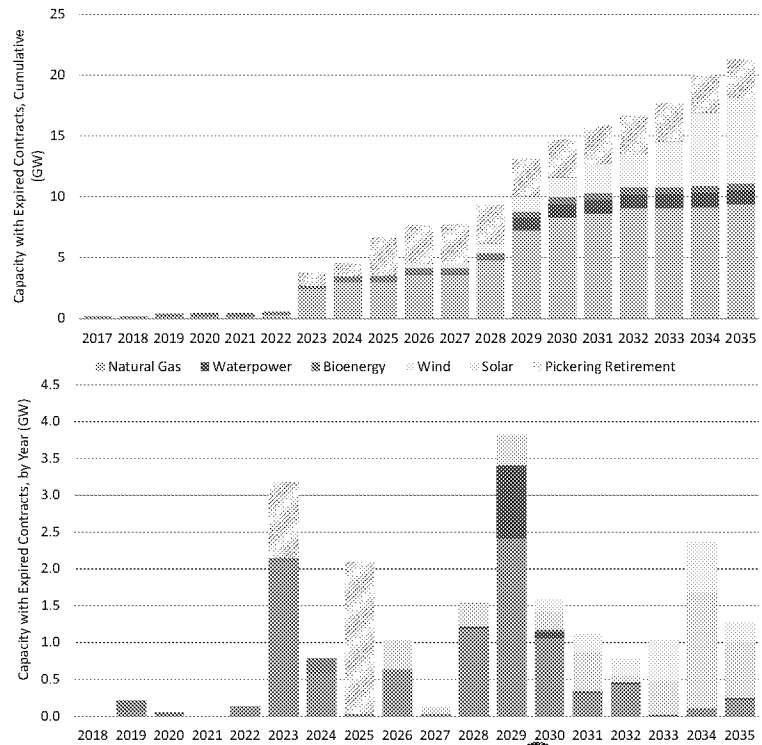
*0.3 GW of capacity additions is comprised of the in-service of renewable resources and capacity updates since the 2016 OPO.

Installed supply mix by fuel type and commitment type



Resources with expired contracts and nuclear retirements

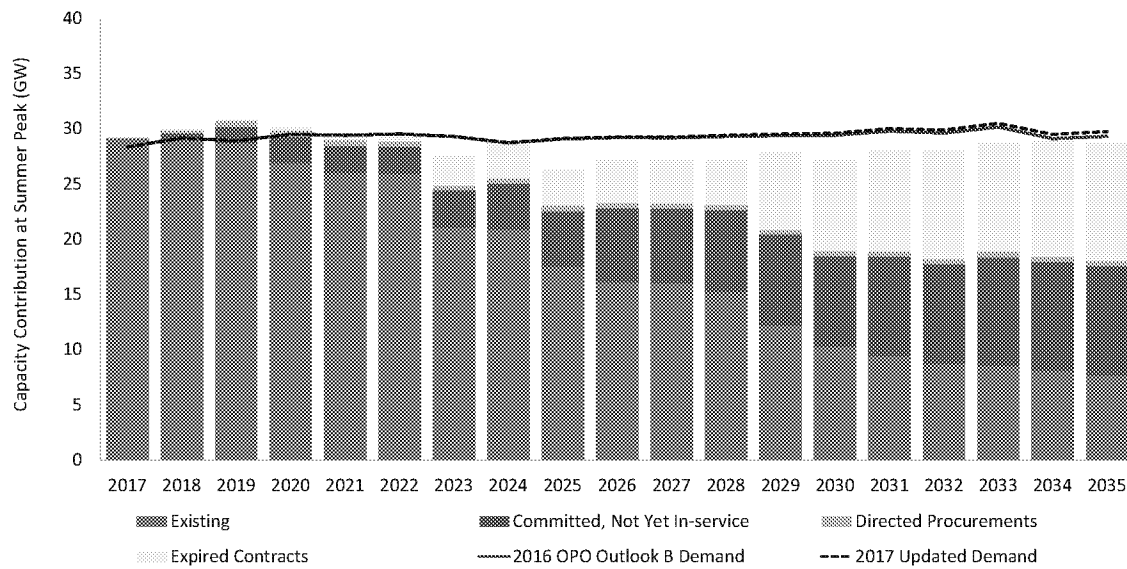
- 18 GW of supply resources will reach the end of their contract term by 2035
- These resources provide opportunities for adaptation should, for example, demand trend lower or as better opportunities arise.
- In addition, 3 GW of nuclear (Pickering) capacity is retired in 2022/2024



Capacity shown is at year-end.

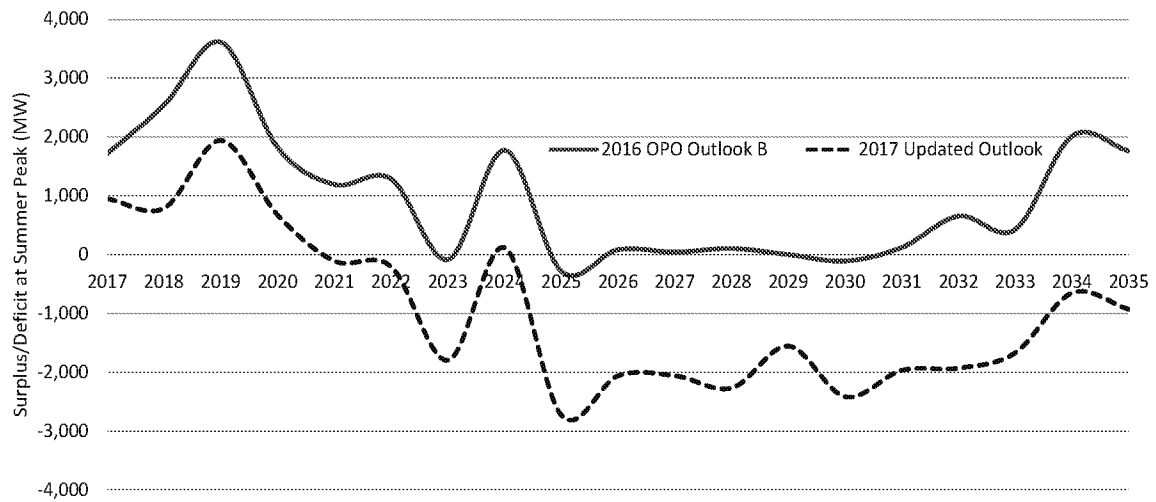
Available supply at time of peak relative to resource requirements

- The OPO Outlook B saw Ontario having sufficient resources to meet demand throughout the planning outlook. In the updated outlook, Ontario sees a need for additional resources in the early 2020s.



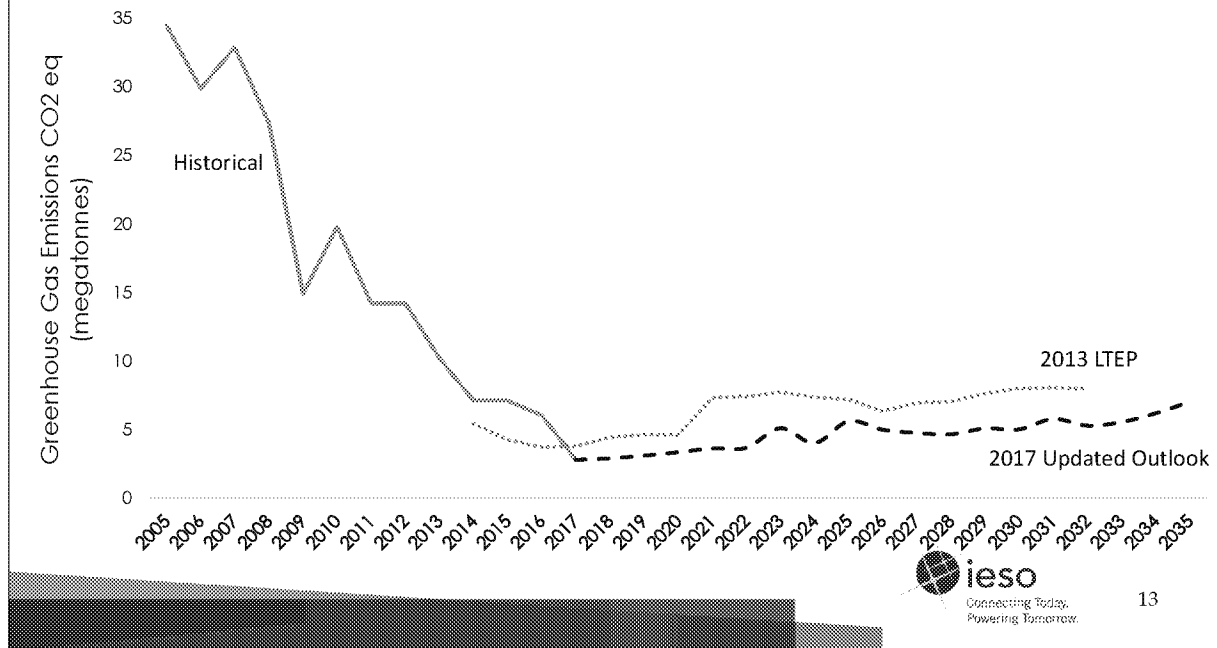
Capacity surplus and deficit at time of peak demand

- Ontario is expected to have sufficient supply to about the early 2020s after which time there may be a need for additional resources



Outlook for greenhouse gas emissions

- With the retirement of the coal plants, we've seen GHG emissions in Ontario's electricity sector decline by over 80% in the past 10 years. Today, Ontario's electricity sector GHG emissions represent about 2% of Ontario's overall economy wide GHG emissions and that trend of lower emissions continues over the planning outlook.



Outlook for the total cost of electricity service

- Outlooks for the total cost of electricity service have been trending lower with each iteration of the outlook

