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2020 Annual Planning Outlook

Preliminary Insights

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Executive Summary

System Needs

- System needs are primarily for capacity
- Needs in the longer term continue to be driven by Pickering retirement
- In the near term, needs are lower than previously forecast driven by changes to demand and supply

Executive Summary

Demand

- Near-term demand forecast continues to be uncertain as consumption patterns evolve and economy adapts to and recovers from pandemic
- In the near term, demand forecast is lower
- In the longer term, forecast is higher as remote work increases, greenhouse markets grow and investments in transit accelerate

Executive Summary

Supply

- Available supply forecasts are higher as nuclear schedules evolve and outage schedules are optimized
- Nuclear operators have worked with IESO to help manage the impact of refurbishment schedules and major outages
- Operators have adapted their major maintenance schedules to minimize needs in the 2023-2024 timeframe

Executive Summary

Sources of Uncertainty

- The APO uses two scenarios to account for significant uncertainty over the next five years
- Demand forecast is dependent on the pace of economic recovery
- Policy decisions at the provincial and federal level have potential to impact both supply and demand
- Pickering extension to end of 2025 is dependent on regulatory approval, creating significant uncertainty in 2025

Annual Planning Outlook (APO) Scenarios Overview

- Two 2020 APO scenarios are both extension and refinement of Interim APO scenarios
- Scenarios continue to represent “bookends” of likely future conditions, with greater clarity in assumptions:
 - Supply: revised nuclear refurbishment schedules reveal less disruption than previously expected
 - Demand: about four months of additional demand data have shed light on changing demand patterns

Demand Forecast – Scenarios and Assumptions

- Both scenarios project lower demand in the near term and higher demand in the long term compared to the 2019 APO
- Forecast recovery to actual 2019 energy levels:
 - Scenario 1 by end of 2022; Scenario 2 by end of 2024
- Both scenarios reflect the Ministerial Directive for 2021-2024 Conservation and Demand Management (CDM) Framework, which the IESO received on September 30, 2020
- **Note:** for 2020 APO and beyond, the Industrial Conservation Initiative has been repositioned as a supply side resource

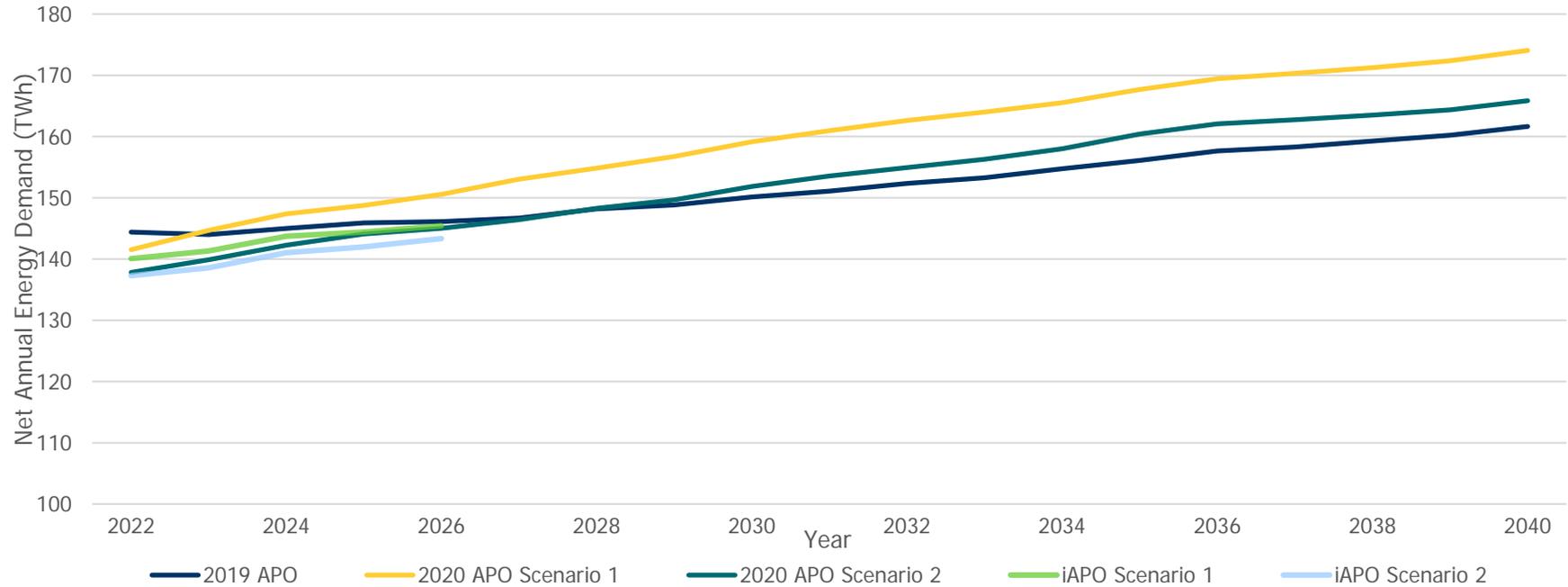
Demand Forecast – Major Updates

- **State of the Economy:** Near-term recession leads to lower near-term electricity demand followed by a multi-year recovery
 - Economic restructuring will lead to long-term changes in sectoral composition of electricity demand
- **Residential sector:** Household count projections, end-uses (e.g., HVAC) lead to higher demand in long term
- **Agriculture:** Greenhouse growth in Windsor-Essex is expected to increase winter demand by 950 MW by 2033 or 2036 (scenario dependent)

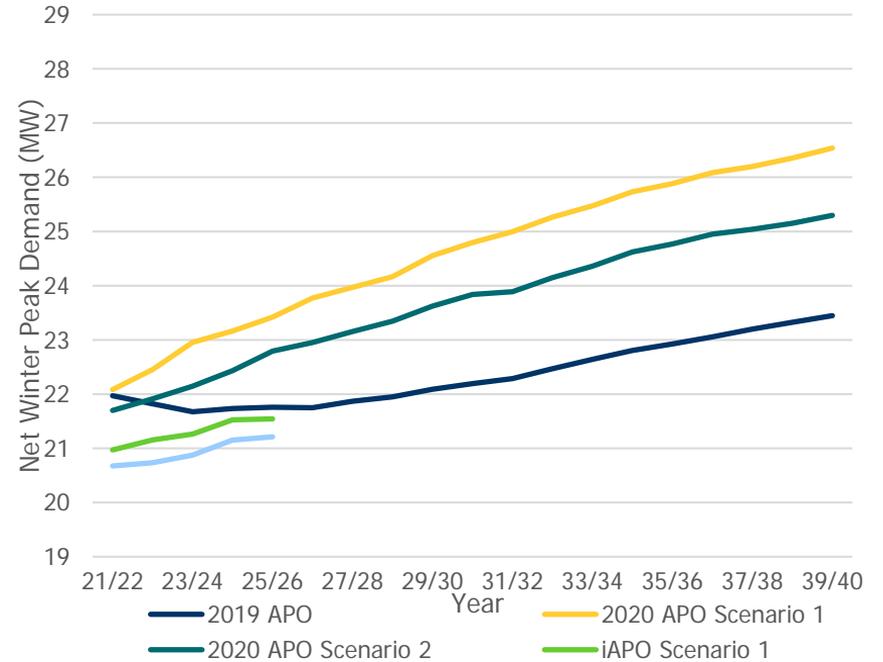
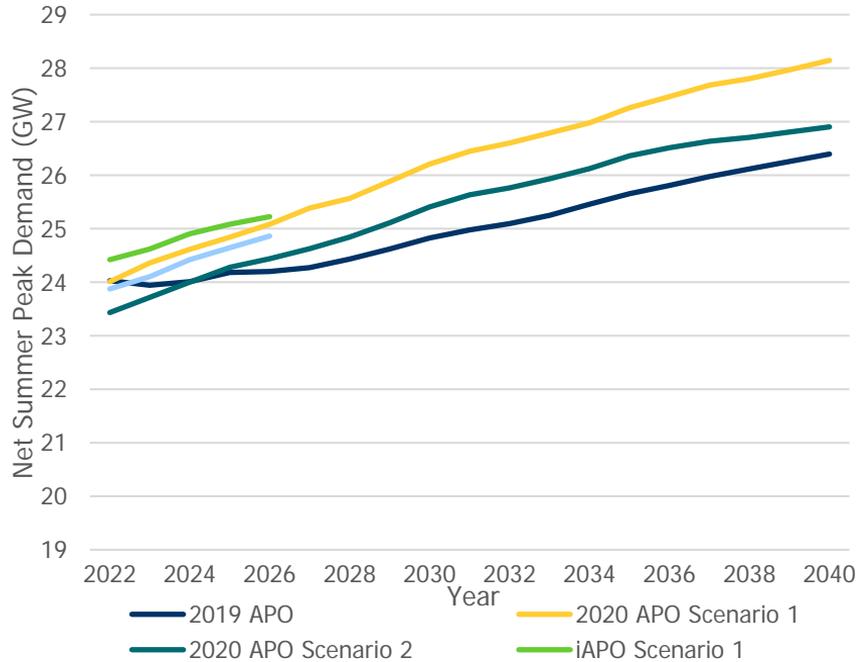
Demand Forecast – Major Updates (cont'd)

- **Commercial sector:** will be most negatively affected; however, it is more likely to rebound over time
- **Industrial sector:** has faced minimal pandemic impacts to date and has been surprisingly resilient and stable
- **Increased transit electrification**
- **Updated Price forecast:** lower long-term electricity rates influence increased electricity demand

Energy Demand Forecast



Seasonal Peak Demand Forecast



Supply Outlook

- Supply outlook is relatively unchanged from previous outlooks (2019 APO and iAPO)
- Slightly higher resource availability in the early 2020s is the result of Ontario Power Generation's deferral of nuclear refurbishments and the Pickering extension
- Due to the refurbishment and retirement of the nuclear fleet, total installed capacity varies between 38 and 40 GW during the 2020s, levelling off at 40 GW in the 2030s

Supply Outlook (cont'd)

- Turnover in nuclear supply/capacity continues through the 2020s, as refurbishments proceed. Pickering retirement creates long-term reduction in available supply.
- Over the course of the outlook period, many contracts held by existing resources reach end of term
- Most contracts that expire in 2020s are gas; wind, hydroelectric and solar contracts begin to expire in the 2030s

Summer Resource Adequacy Outlook

- Continue to see a need to acquire resources for the summer in the near term across the two demand scenarios
- Capacity need emerges in 2022 similar to 2019 APO and 2020 iAPO. However, a need for new resources emerges in 2025
- Near-term need is lower, largely due to a lower near-term demand forecast and Pickering extension
- Long-term summer capacity need is consistent with 2019 APO and higher in Demand Scenario 1

Winter Resource Adequacy Outlook

- A winter capacity need emerges in 2022/2023 consistent with the 2019 APO (year earlier than in 2020 APO). Need for resources beyond what existing resources can provide emerges in 2025/2026
- In the near term, the winter capacity need is consistent with the 2019 APO, but higher than in the 2020 iAPO due to higher winter demand
- In the long term, the 2019 APO saw a temporary need for new winter capacity during the refurbishment period. Although this is generally still the case for Demand Scenario 2, a long-term persistent need for new resources is observed under Demand Scenario 1