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Outlook for Energy Supply and Demand in Ontario

Mike Risavy – Senior Manager, Resource and Plan Assessments
Vipul Agrawal – Senior Manager, Demand & Conservation Planning

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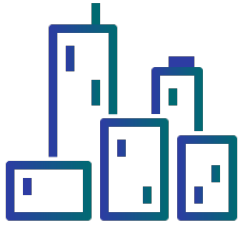
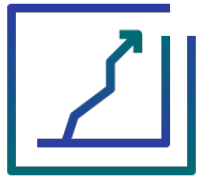
About the IESO



Operate Ontario's province-wide electricity system on a 24/7 basis



Oversee the electricity market, driving competition to maintain affordability

Plan for Ontario's future energy needs

Support innovation and emerging technologies

Work closely with communities to explore sustainable options

Enable province-wide energy efficiency

Planning in Public: Communicating System Needs

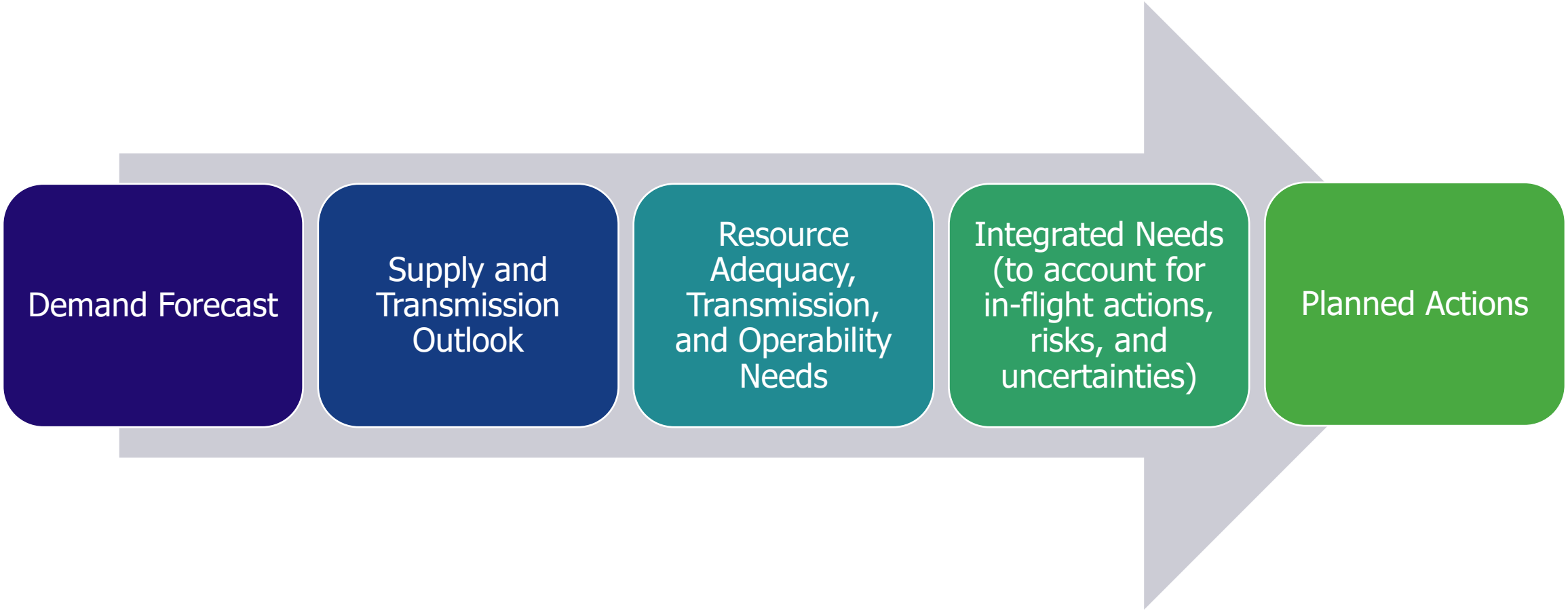
- The IESO publishes reports and plans to ensure the sector has a common understanding of expected system conditions to inform policy and provide Market Participants with the information they need to make investment and operating decisions
  - **Reliability Outlook** – An 18-month outlook, produced quarterly to support generation and transmission outage scheduling
  - **Annual Planning Outlook (APO)** – A 20+year forecast of electricity demand, resource adequacy and transmission adequacy to identify electricity system requirements
  - **Regional and Bulk plans** – Recommendations that ensure an adequate and cost-effective supply of electricity to existing and new customers, facilitate implementation of government policy, and improve the resilience of the power system

Purpose of the APO

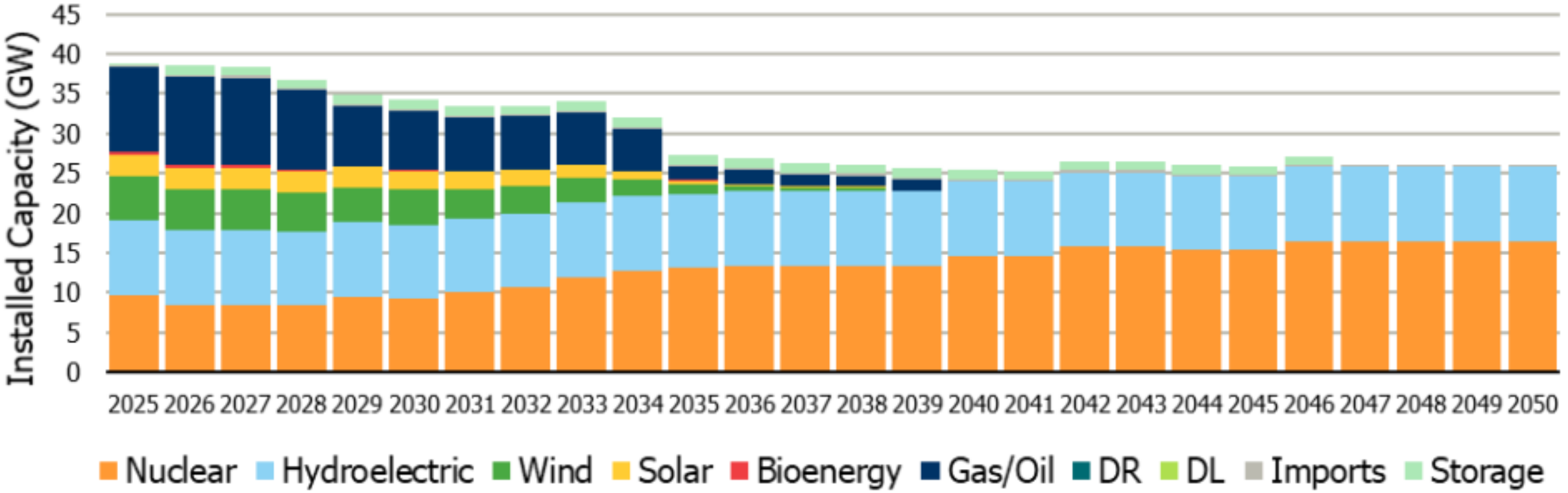
20+ Year Outlook to 2050

- Forecasts electricity demand; assesses reliability of electricity system; identifies capacity and energy needs
- Now merged with the Annual Acquisition Report; specifies acquisition targets and mechanisms to meet needs
- Provides sector with most current insights to guide investment decisions

Development of the APO

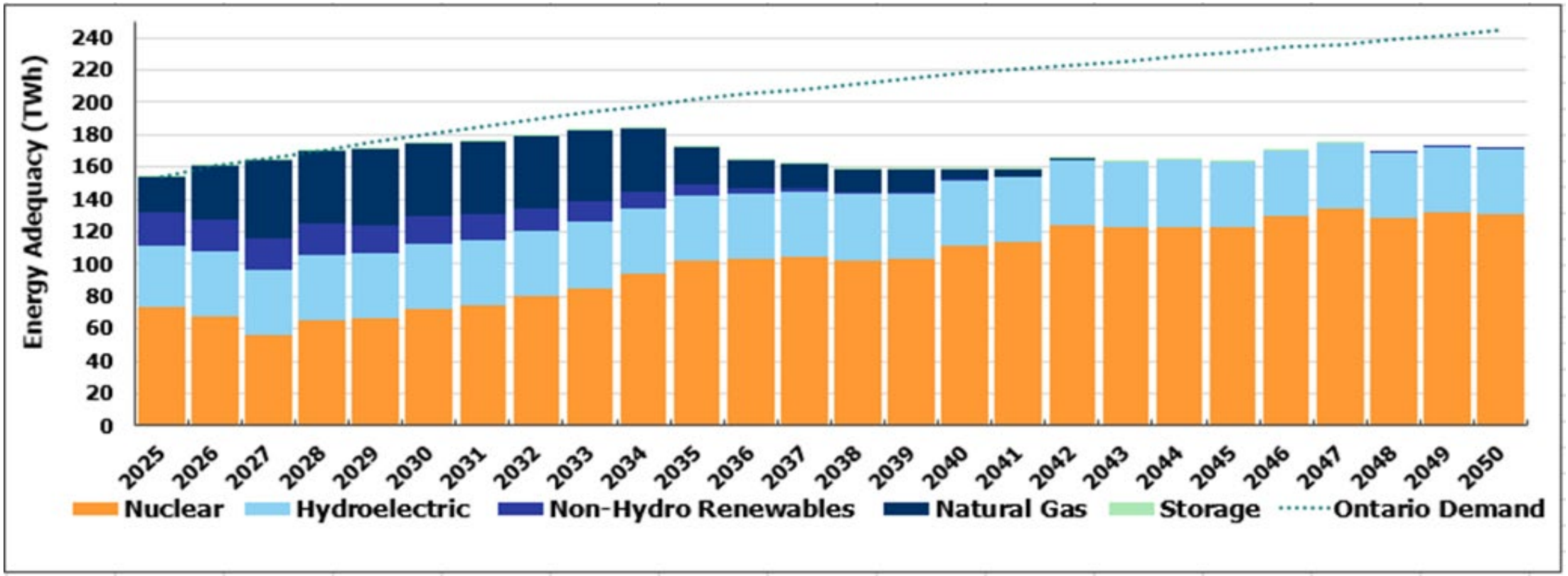


The supply mix could look very different in coming years



 *From 2024 Annual Planning Outlook (Figure 11)

2024 APO – Demand/Supply Outlook



Energy adequacy outlook is shown for 2024 APO High Nuclear

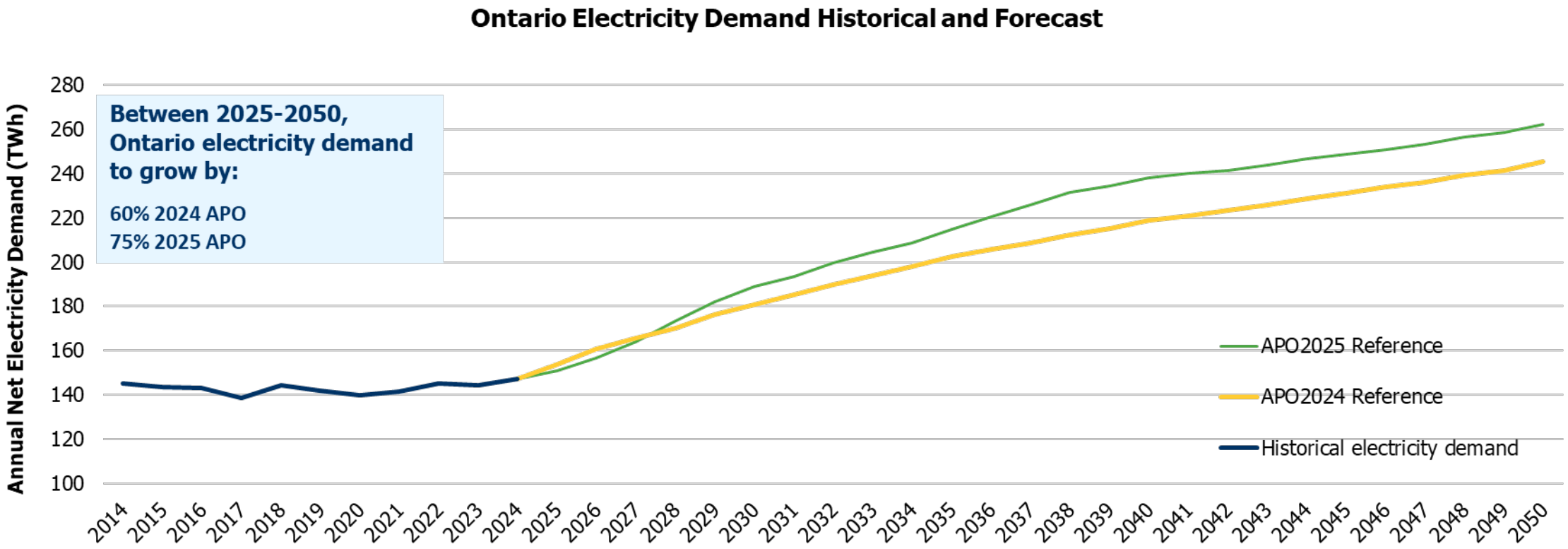
2025 APO Demand Forecast

Summary

- Electricity demand is forecast to increase 75% by 2050, 15% higher than previously forecast.
- Industrial sector and data centre growth are the primary new demand drivers.
- Commercial sector growth, increasing population, and electrification are also continuing to escalate electricity demand across the province.
- A procurement for new electricity generation and storage is being finalized, and targets and timelines will reflect faster demand growth.
- This work complements the many other actions underway, such as new nuclear, transmission, and demand side management programming.

Annual Energy Demand Forecast

- Electricity demand is forecast to grow by **75% by 2050**.

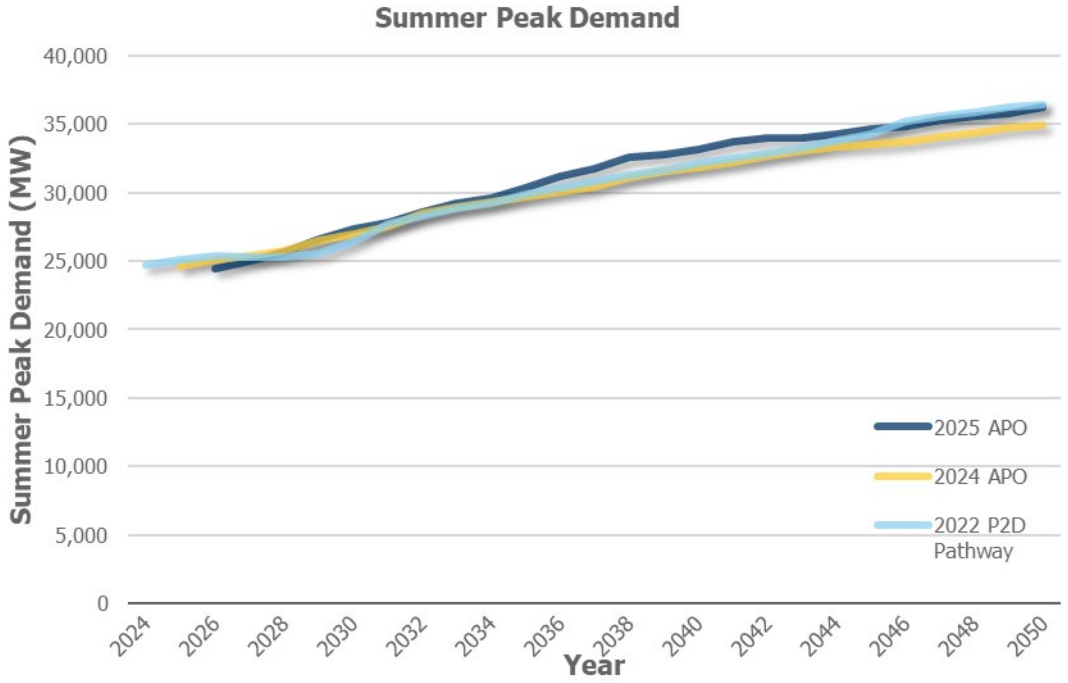


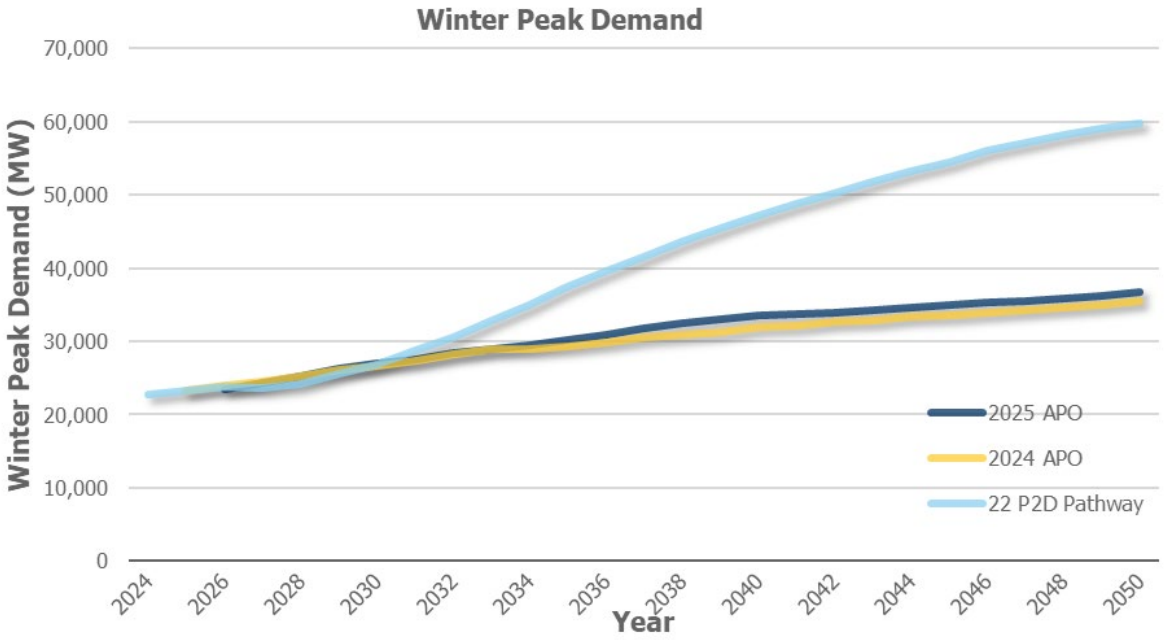
Seasonal Peak Demand

The system is forecast to become dual-peaking by 2030, with summer and winter peaks both around 27 GW

Average Annual Growth Rate Over Forecast Period

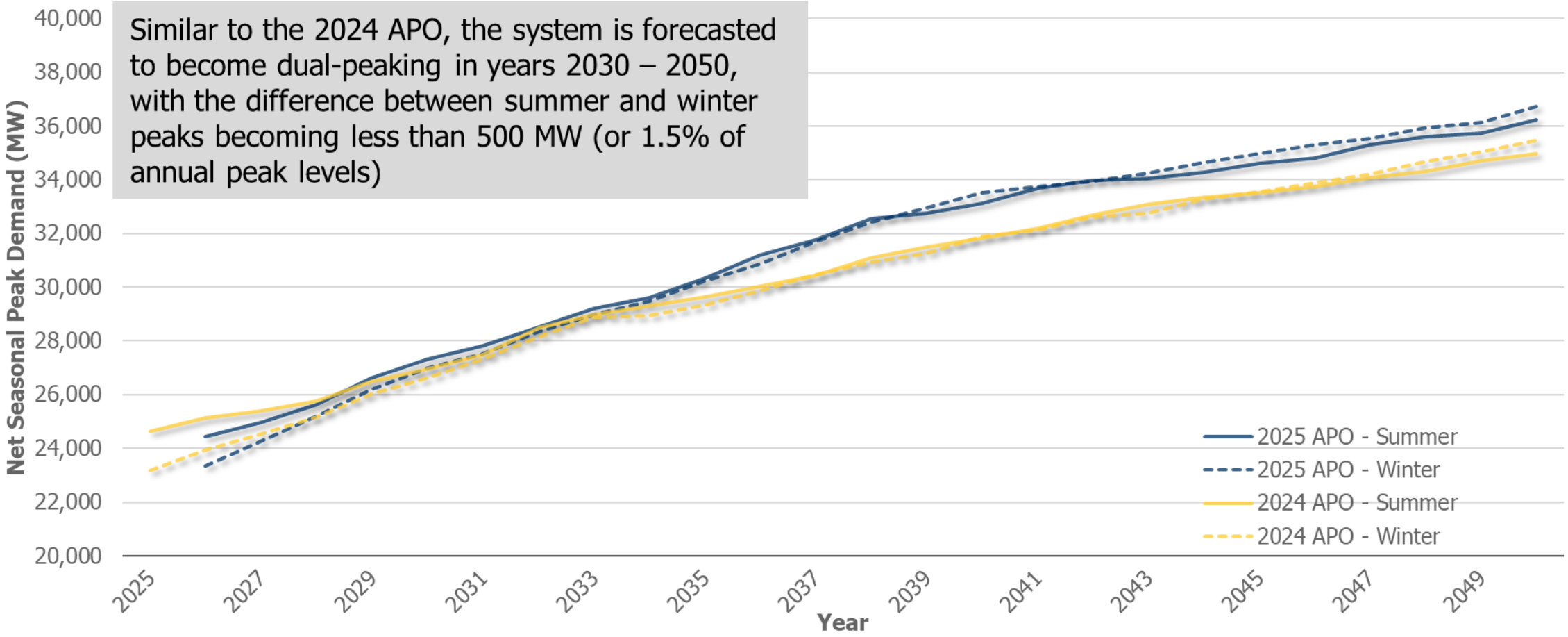
	2025 APO	2024 APO	2022 Pathways to Decarbonization (P2D) Study
Summer Peak	1.7%	1.5%	1.5%
Winter Peak	2.0%	1.8%	3.8%





Forecast Evolution – Dual Peaking System

Similar to the 2024 APO, the system is forecasted to become dual-peaking in years 2030 – 2050, with the difference between summer and winter peaks becoming less than 500 MW (or 1.5% of annual peak levels)



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Key Statistics & Drivers

2025 APO -

- **Energy:** grows 75%, from 151 TWh in 2025 to 263 TWh in 2050.
- **Summer Peak:** grows 50%, from 24,000 MW in 2025 to 36,240 MW in 2050
- **Winter Peak:** grows 60%, from 22,650 MW in 2025 to 36,740 MW in 2050

2025 APO vs 2024 APO -

- **Annual energy** is 12 TWh higher in 2035 than the 2024 APO
- **Summer peak** is 700 MW higher in 2035 than the 2024 APO
- **Winter peak** is 900 MW higher in 2035 than the 2024 APO

Demand Growth Overview

- The 2025 Forecast has higher demand growth in the near- and medium-term compared to the 2024 Forecast
- Demand growth influences are attributed to the following:
  - Specific commercial and industrial sector updates with significant new projects, and expected electrification at existing facilities (known as "Large Step Loads"), largely in the near- and medium-term
- Demand reduction influences are attributed to the following:
  - Updated Demand Side Management program savings
  - Decreased demand in the agricultural sector
- Significant uncertainties exist with many of these factors

2025 Forecast Updates – Factors Increasing Demand

Increases are attributed to:

- Inclusion of a substantial amount of new large potential and confirmed projects such as:
  - Data centres
  - Commercial sector building electrification
  - Industrial electric vehicle production and supply chain sub-sector
  - A small number of industrial sector economic development and decarbonization

  with commensurate level of increased uncertainty (project materialization, levels of demand, implementation timing, etc.)

2025 Forecast Updates – Factors Tempering Demand

Changes in 2025 APO throughout all years that temper increases:

- Agricultural sector – softening in West of London greenhouse sub-sector development
- Higher conservation program savings forecast based on updated program information and enhancements
- Increased Industrial Conservation Initiative response commensurate with forecasted increased industrial sector electricity demand
- Increased Peak Perks program demand savings forecasts based on first year results

2025 Forecast Updates – Previously Established Factors

Factors, drivers or sector electricity demand with no major variances with 2024 APO:

- Residential sector
- Commercial sector (excluding data centre sub-sector)
- Industrial sector demand (excluding automobile production updates; including northern Ontario mining long term development and electrification)
- Transportation sector
- Long term economic and demographic outlook

Uncertainties and Risks

- Current and near-term state of economy
- Long-term demographic, affordability and productivity trends
- Materialization of:
  - Commercial data centres, and cryptocurrency mining projects;
  - Industrial automobile production & supply chain sub-sector transition to electric vehicles
  - Hydrogen production
- Industrial mineral extraction sub-sector project development and electrification
- Electrification technology development & acceptance: buildings, vehicles, industry
- General decarbonization strategies: thermal storage & networks, distributed energy resources
- Climate change on weather sensitive load
- Policy changes

Next Steps

- Completing the 2025 APO Supply/Demand Balance to update system needs
- Update resource acquisition targets according to identified system needs
- The release of the 2025 APO is targeted for Q1 2025
- If you have any questions on the information shared today, please contact IESO Engagement at engagement@ieso.ca

Thank You

ieso.ca

1.888.448.7777

customer.relations@ieso.ca

engagement@ieso.ca

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