

Power Workers' Union Submission on the IESO's 2023 Preliminary Annual Planning Outlook

January 10, 2024

The Power Workers' Union (PWU) is pleased to submit comments and make recommendations to the Independent Electricity System Operator (IESO) regarding the 2023 Preliminary Annual Planning Outlook (APO) forecasts and needs provided on December 13, 2023. The PWU remains a strong supporter and advocate for the prudent and rational reform of Ontario's electricity sector and recognizes the importance of planning for low-cost, low-carbon energy solutions to enhance the competitiveness of Ontario's economy.

The PWU appreciates the IESO's preliminary APO information that provides the underpinnings to its December 11, 2023, resource adequacy update to the Ministry of Energy entitled *Evaluating Procurement Options for Supply Adequacy*. The Minister had requested this update only four days before, on December 7, 2023, as a follow up to the guidance provided in its July *Powering Ontario's Growth (POG)* report which relied heavily on the IESO's *Pathways to Decarbonization* study (P2D) and the draft Federal *Clean Electricity Regulation (CER)*. The IESO has asked for general feedback on the preliminary APO information shared and for any recommendations for future outlooks.

The IESO's APO presents two scenarios. The first, Case 1, assumes existing and committed resources to the end of contract including: the first Small Modular Reactor (SMR) at Darlington; assumed capacity uprates from Bruce Power's major nuclear component replacement program; and, recent procurements. The IESO's Case 2 includes the government's POG assumptions for the continued operation of the Pickering Nuclear Station; three additional SMRs at Darlington, refurbishment of Pickering B; and, expanded nuclear capacity at Bruce C. The PWU has consistently advocated that the IESO frame Ontario's procurement challenge on the Case 1 assumptions and supports the IESO's recognition of the critical importance of Ontario's POG-identified nuclear capacity initiatives to resource adequacy.

Nevertheless, the PWU continues to be concerned that the IESO's approach for defining Ontario's resource needs does not adequately inform stakeholders and potential developers about the nature and magnitude of our province's energy needs and fails to mitigate several affordability and reliability risks.

The PWU recommends that the IESO:

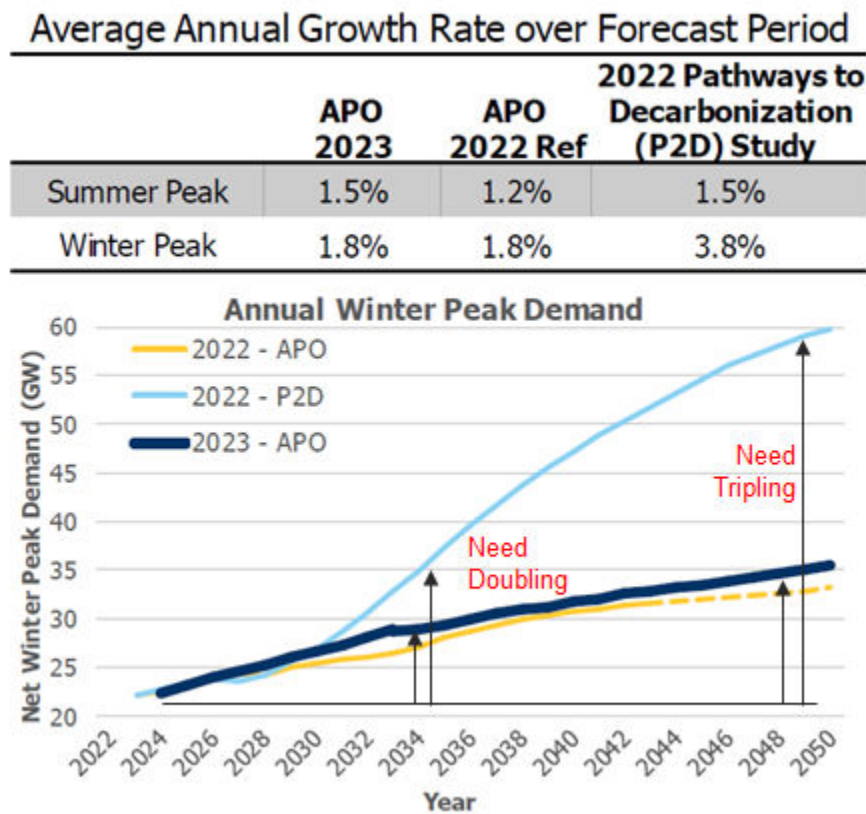
1. Address the winter heating implications, the largest risk to Ontario's system resource adequacy, that forecasts indicate could double the need for new supply resources in the medium term and triple it in the long term;
2. Clarify the system requirements in terms stakeholder understand – identifying baseload and intermediate requirements rather than the vague term "*unserved energy*";
3. Ensure that LT2 RFP objectives address the full unserved energy needs – which are not 5 TWh by 2030, but rather 5 TWh by 2029, ~7 TWh by 2030, and, ~12 TWh by 2031;
4. Strengthen the IESO's risk analysis and mitigation approach by producing high and low demand forecasts since the identified risk factors suggest that higher procurement targets would better mitigate risks; and,
5. Improve the integration of the APO with regional planning and transmission development given the importance of local municipal and indigenous support and the need to accelerate deliverability of new supply at the lowest cost and risk.

Recommendation #1 – Address the winter heating implications, the largest risk to Ontario’s system resource adequacy, that forecasts indicate could double the need for new supply resources in the medium term and triple it in the long term.

The Figure below, extracted from the APO webinar materials, contrasts the IESO’s P2D study forecast of Ontario’s electricity demand growth due to heating driven electrification, as compared to the preliminary 2023 APO forecast. The P2D study suggests that the potential growth in demand could require a doubling of new resource procurement in the medium term (which is the time frame for the upcoming LT2 RFP).

In response to webinar participant questions about managing this risk, the IESO indicated that it had insufficient information to quantify this demand and so have excluded it from their outlook. It is noteworthy that all published Net Zero electricity forecasts include substantial demand growth for winter building heating, e.g., the demand profiles for provinces with significant, existing electrical heating load such as Quebec and New Brunswick.¹ Furthermore, there are substantial policy incentives and subsidies available that are encouraging heat pump adoption.

The IESO should not continue to ignore this significant and material demand risk simply because they don’t know how to quantify it. The shrinking time constraints on new resource development will leave Ontario at risk of brownouts and blackouts.



¹ PWU Feedback on IESO’s Pathways to Decarbonization Study, Submission to the Ministry of Energy, ERO 019-6647, May 2023; PWU Submission on Canada’s Proposed Clean Electricity Regulations (CER), November 2023.

Recommendation #2 – Clarify the system requirements in terms stakeholder understand – identifying baseload and intermediate requirements rather than the vague term “unserved energy”.

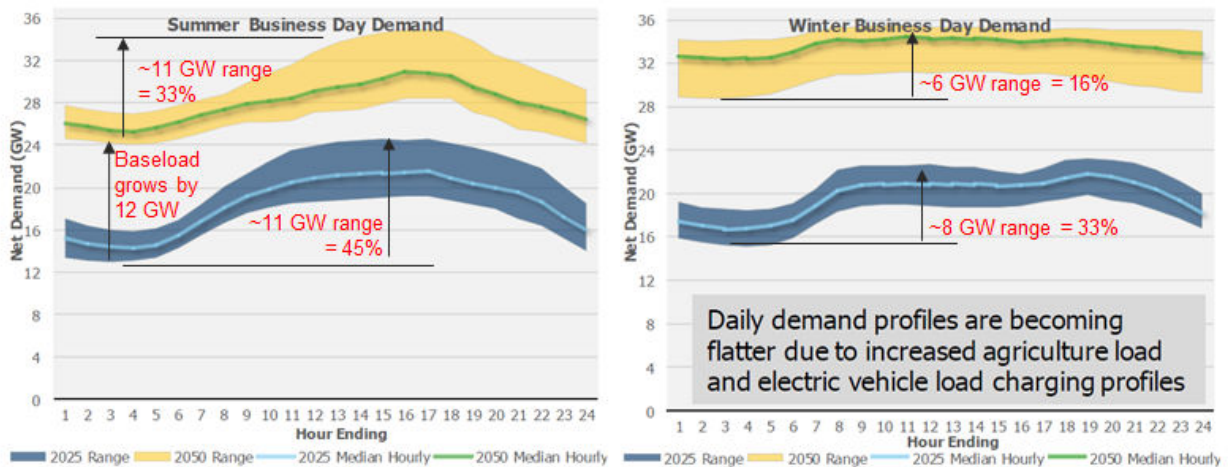
While the IESO’s portrayal of “unserved energy” effectively summarizes the system implications for the IESO and government, this vague term does not convey to developers the nature of the resources that need to be built to meet Ontario’s electricity demand.

The PWU has consistently advised the IESO to articulate the growing resource needs in terms of baseload and intermediate demand requirements as they provide better information for generation developers to plan their investments.²

This is particularly important as the IESO’s procurement strategy is to phase out the use of gas-fired generation over the long-term. As a result, Ontario’s planning should have two purposes: address the unserved energy need; and, displace the use of natural gas for meeting demand at other times.

Articulating the needed baseload and intermediate supply by year and region should be an imperative prerequisite for Ontario’s planning forecast. This is especially important as the IESO plans to continue its reliance on administered markets and the introduction of local market pricing with the IESO’s market renewal program. The Daily Demand Profiles shown below highlight the implications of the type of supply required given the forecast flat diurnal demand profile in winter and the smaller relative role of intermediate demand/supply types as the need for baseload effectively doubles.

Daily Demand Profiles



Analyses have shown that the IESO’s fixation on capacity type procurements with investments dependent on energy market revenues fails to meet Ontario’s need to develop the non-emitting supplies.³ These same analyses show that the risks the IESO seeks to mitigate are also better addressed by differentiating between the types of demand that need to be supplied.

² PWU submissions to IESO Resource Adequacy consultations in October 2020, November 2020, February 2021, April 2021, May 2021, June 2021, and November 2021.

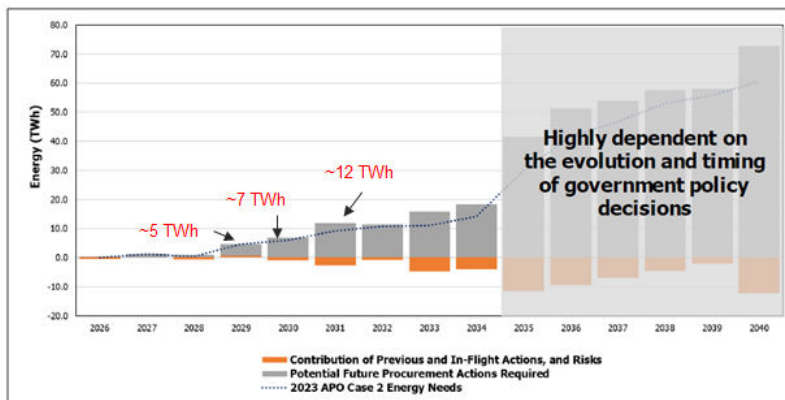
³ Strategic Policy Economics, “Electricity Markets in Ontario”, 2020.

The IESO acknowledged that its second LT RFP will examine the need to recognize energy value more closely.⁴ In the first LT RFP, the IESO identified that 45% of its identified capacity needs must supply energy for 8 to 16 hours (this reflects intermediate demand to be supplied). PWU-sponsored analyses show that the most appropriate mechanisms for recognising energy value is to define the demand profile that the desired resources must supply. Developers will better understand system supply needs and then offer innovative solutions that meet them.

Recommendation #3 – Ensure that LT2 RFP objectives address the full unserved energy needs – which are not 5 TWh by 2030, but rather 5 TWh by 2029, ~7 TWh by 2030, and ~12 TWh by 2031.

The preliminary APO webinar materials identify a need for 5 TWh by 2029 as shown below. Crucially, the materials state that the LT2 RFP will be seeking 2000 MW to deliver this electricity, but by 2030. Subsequent RFPs will seek energy resources for 2032. There is a clear gap between these plans and the unserved energy needs reflected in the IESO’s exhibit below. The IESO should better communicate how it will ensure that the 5 TWh needed in 2029 will be supplied as well as the total of ~ 7 TWh in 2030, and ~12 TWh in 2031. The 2031 needs are more than twice the amount forecast by the IESO for that time. The IESO should explain how the energy adequacy will be achieved under these extremely constrained timelines.

Integrated Energy Outlook – Remaining Needs



- Approximate need of **5 TWh** from energy-producing resources starting in 2029
- Long-Term 2 RFP needs to acquire 2,000 MW (installed capacity) of new energy-producing resources by 2030
- In tandem, re-commitment of existing resources will be required to help address needs
- Further long-term procurements are anticipated to target 1,500 MW of new-build resources to be in-service in 2032 and 2034 (totaling 5,000 MW for 2029 to 2034)

Ontario’s transition strategy also requires greater clarity and articulation given the dual role that resources will play in addressing the unserved demand and displacing natural gas generation over time. This will provide greater confidence for investors, ratepayers will know that their needs are being met and gas-fired generators will know the going forward requirements. Analyses show that renewables plus storage solutions will still need gas-fired generation to supply 30% of the energy needs.⁵

The IESO’s recognition of the implications of long lead time resource development in the LT2 RFP is notable. However, two challenges remain unresolved. Firstly, the IESO suggests any related capacity will

⁴ IESO, “LT1 RFP and Additional Mechanisms Engagement”, June 9, 2022.

⁵ PWU Response to the Ministry of Energy’s Request for Information (RFI) on Scoping a Cost-Effective Energy Pathways Study for Ontario, June 13, 2022.

be part of the identified resource capacity needs for 2030 even though they may not be available until 2034. This approach adds further risk that Ontario will face the spectre of insufficient supply by 2030.

Secondly, as the figure above illustrates, a large, unserved energy and capacity risk emerges in 2035, which, notably already considers the nuclear initiatives in the POG. Independent analyses have consistently shown that the long lead non-emitting resources not requiring natural gas-fired generation backup could need 10 to 15 years to develop.⁶ There is an urgent need for the IESO to articulate a procurement strategy and initiate the procurement of the additional resources necessary above of the actions outlined in the POG.

Recommendation #4 – Strengthen the IESO’s risk analysis and mitigation approach by producing high and low demand forecasts since the identified risk factors suggest that higher procurement targets would better mitigate risks.

The IESO listed a number of supply outlook risks and uncertainties as noted in the figure below. These risks all point to the potential need to procure more supply than identified in the IESO’s preliminary outlook.

Supply Outlook - Risks and Uncertainties

A number of risks and uncertainties related to existing resources, new resources, and the transmission system could result in a decrease in Ontario’s supply

Existing Resources and Transmission

- Aging generation & transmission assets, leading to decreased performance and more frequent outages
- Nuclear refurbishments and retirements
- Market exit of existing resources
- Uncertainty with the Clean Electricity Regulation and impacts on future participation of gas fleet & fuel security

New Resources and Transmission

- Procurement targets not met (e.g., lack of municipal support, deliverability challenges, lead time required to build new transmission and generation)
- Resources contracted through a procurement do not reach commercial operation
- In-service delays for new resources
- Unreliable operation of new resources and technologies during first years of operation

The IESO should effectively and transparently inform stakeholders of the underlying assumptions in the demand and supply outlook and provide these assumptions each time an update is provided. Note that the PWU will be submitting detailed data disclosure requirements on January 15, as requested at the IESO’s November 23 webinar.

More specifically, the PWU has consistently recommended that the IESO: develop low and high range demand forecasts; transparently, address the resource adequacy considerations relevant to both conditions; describe quantitatively the impacts of the associated risks on these ranges; and, quantitatively describe the impact of the IESO’s proposed risk mitigation strategies from its procurement strategies.⁷

Recommendation #5 – Improve the integration of the APO with regional planning and transmission development given the importance of local municipal and indigenous support and the need to accelerate deliverability of new supply at the lowest cost and risk.

⁶ Strategic Policy Economics, Electrification Pathways for Ontario, 2021.

⁷ PWU Submission on the IESO’s 2021 Annual Planning Outlook, February 17, 2022.

The IESO's recent report to the ministry states that:⁸

In order to maintain reliability, a significant level of development is required to meet emerging energy needs by the end of the decade. In order for this activity to be efficient, cost-effective and timely, the IESO, Ontario Government, and developers will need to work together to ensure effective and timely project development. It will also be critical that there is purposeful and regular engagement with and support from stakeholders, municipalities and Indigenous Nations.

There is a need for effective engagement with municipalities and communities to mitigate against the risks of a growing incidence of unwilling hosts as volume of development and deployment of electricity infrastructure increases.

At its recent webinar, the IESO downplayed the relevance of regional planning to the outlook indicating that this process is run by the local distribution companies. The PWU believes this represents a missed opportunity for better planning integration given recent municipal opposition to new gas-fired generation. The regional planning process should be rapidly reformed to serve the role of collaborative, integrated problem solving for meeting local and regional electricity infrastructure challenges that meet the needs of residents and businesses in those areas.⁹

Closing

The PWU believes that the IESO should better prepare Ontario to meet its emerging electricity system needs by: expeditiously focussing on the nature and magnitude of the demand to be supplied; recognising the risks of accelerated electrification, procurements, and resource development; and, ensuring project opportunities are properly defined and can be sited for development. The PWU has a successful track record working with others in collaborative partnerships. We look forward to continuing to work with the IESO and other energy stakeholders to strengthen and modernize Ontario's electricity system. The PWU is committed to the following principles: Create opportunities for sustainable, high-pay, high-skill jobs; ensure reliable, affordable, environmentally responsible electricity; build economic growth for Ontario's communities; and, promote intelligent reform of Ontario's energy policy.

We believe these recommendations are consistent with, and supportive of Ontario's objectives to supply low-cost and reliable electricity for all Ontarians. The PWU looks forward to discussing these comments in greater detail with the IESO and participating in the ongoing stakeholder engagements.

⁸ IESO, Evaluating Procurement Options for Supply Adequacy, December 11, 2023.

⁹ PWU Submission to the OEB Framework for Energy Innovation, January 2023.