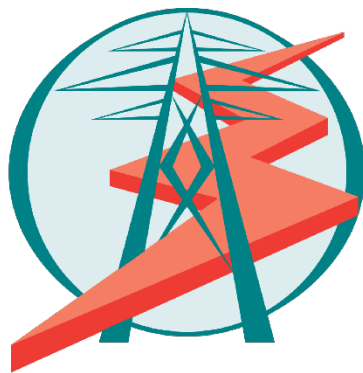


ONTARIO'S ELECTRICITY SYSTEM'S RISKS AND MITIGATION A RECAP AND TAKING STOCK

Power Workers' Union (PWU), January 2025



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The People Who Help Keep The Lights **ON.**

INTRODUCTION

Over the last year, the Power Workers' Union (PWU) published a series of discussion papers on the emerging critical risks facing Ontario's electricity system and potentially better ways for Ontario to meet its growing electricity demand with lower carbon emissions and in a more reliable, affordable and timely manner.

SUMMARY

Ontario's Powering Ontario's Growth (POG) report laid out a pathway to ensure Ontario has the energy needed to power economic growth and electrification over the next three decades while maintaining its clean electricity advantage.

The discussion papers contend that the current approach to procuring the needed resources fails to achieve this objective and as a result Ontario's delivery system infrastructure will be challenged to meet the growing demand.

The PWU presented options for mitigating these risks in three areas:

1. Mitigating **Reliability Risks** through better planning in light of the rapidly growing demand for electricity in the province
2. Mitigating **Affordability Risks** by refocusing the procurement approach on the nature of consumer driven hourly demand and the most cost-effective way to supply it; and,
3. Mitigating **Deliverability Risks** by better enabling innovations that buy time to enable the building up of electricity system infrastructure to catch up with demand.

The highlighted **Reliability Risks** include the following:

- Ontario demand continues to increase faster than planned for by the IESO with the emerging risks concealed by the conservatively low demand forecast in its 2024 APO;
- These planning shortfalls are exacerbated by the reliance on outdated electricity market mechanisms (energy and capacity). These market mechanisms have misaligned performance criteria that will not mitigate an energy shortfall, do not align with the needs of the energy system and do not work for predominately fixed cost, non-emitting resources;
- Ontario needs a better planning and procurement approach for securing dispatchable power to provide either 24x7 baseload or intermediate flexible supply capable of meeting the variable daily, weekly and seasonal demand patterns;

- Ontario urgently needs low-carbon baseload infrastructure and procurements that emphasize baseload supply and reduce the acquisition of higher cost flexible and intermittent resources that are mismatched with demand and may eventually be stranded.

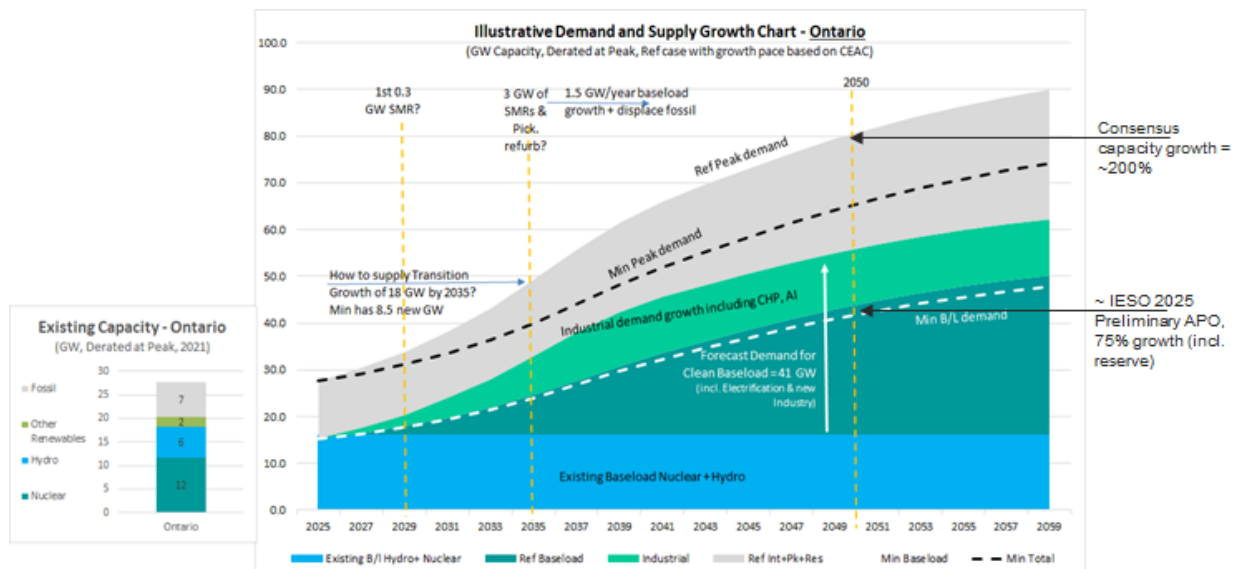
The highlighted **Affordability Risks** include:

- There is no real accountability for over-all affordability in Ontario's electricity system planning and the current procurement approach neglects total system costs, drives up rate payer and taxpayer costs, ignores critical socio-economic impacts and under-values regional engagement. The markets-based capacity and energy procurement approach and conservative demand forecasting are needlessly increasing Ontario's electricity costs.
- Achieving the most affordable supply mix as directed by the POG requires that the RFPs consider explicit rated criteria for the total system cost to both rate payers and taxpayers. This should include: transmission implications; socioeconomic impacts e.g., GDP and tax revenues; more effective regional planning engagement; and minimizing long-term costs.

The highlighted **Deliverability Risks** include:

- The rapid growth in electricity demand exceeds Ontario's ability to build the necessary transmission and, most importantly, distribution system infrastructure, creating the risk of localized brownouts/blackouts; and,
- The best opportunities for risk mitigation exist in the distribution system, but require a paradigm shift in the planning approach for the delivery system of the future
- Innovations are critically needed to incent consumer behind-the-meter (BTM) technology adoption choices that support grid performance and enable AI-powered aggregated demand side management (DSM). In that light, the PWU recommends that the mandates of the LDCs, the OEB and government include such provisions but continues to critically question the IESO's ongoing procurement of grid scale storage.

Additional, clear, proactive government measures are required to achieve meaningful improvements in Ontario's energy planning approach. Ontario is facing an electricity crisis driven by rapidly growing demand that is: driven by consumer behavior and industry imperatives; independent of provincial policy; and hampered by unachievable infrastructure development timelines.



The Ontario Government is Providing a Path to Powering Ontario's Growth

Ontario's government has taken several proactive actions to chart an achievable path for the province's energy future. These include: (1) Directing the urgent development of the energy resources that Ontario needs; and, (2) Producing a vision paper, *Ontario's Affordable Energy Future: The Pressing Case for More Power*. The latter clearly links the importance of Ontario's energy system to the province's future economic prosperity.

The government has directed accelerated action on many resource development activities based on the POG report's recognition of the higher demand scenario from the P2D report. The directed procurement activities would not otherwise be enabled by the IESO's current resource adequacy framework and associated procurement approach:

- Four SMR units at Darlington, Bruce C evaluation and Pickering refurbishment;
- Small hydro upgrade program;
- Extension of the operation of Atikokan to mitigate reliability risks in the North;
- Exploration of the potential new hydro in Ontario;
- Acceleration of Ontario's bulk system planning to address the pending transmission bottlenecks in and around the GTA;
- Evaluation of how nuclear capacity might meet the needs of the IESO's P2D report
- Recent direction to leverage existing OPG-owned legacy energy sites to host new nuclear facilities to achieve the P2D report's scenario for 17.8 GW of additional nuclear capacity – while keeping the door open for additional site development options.

Forward looking actions such as these will position Ontario to achieve its clean energy future. These actions will unlock tens of GWs of new supply, while the IESO pursues marginal incremental capacity and energy procurements such as 14 TWh from 6 GW of unreliable intermittent renewable energy that will be significantly curtailed before 2035 and provide inadequate system reliability after that.¹

The gap between the government directives and the IESO's conservative procurement approach means that, despite public opinion against ongoing natural gas generation development and the current federal government's desire to shut down the use of natural gas for electricity generation, Ontario will be facing the development of significantly more than the IESO's current 1.6 GW target for new natural gas capacity by 2035. The recently released government energy future vision paper sets out objectives *"to guide the build out of an affordable, reliable and clean energy system to meet the exceptional growth needs of Ontario."* Specifically, the paper outlines the government's vision to create the province's first integrated energy resource plan for meeting future energy needs and keeping our clean energy system affordable, reliable and abundant over the long term. The government has asked for stakeholder feedback on the development of its long-term energy planning approach.

The PWU commends and supports the government's initiative. The PWU has consistently expressed that the risks facing Ontario's energy future are real and significant and supported by independent analyses and has recommended actions that should be taken to mitigate these risks for rate payers and taxpayers. The PWU cautions that the government is at risk of not realizing its objectives for: (1) abundant affordable reliable and clean energy; and (2) Ontario becoming an energy superpower.

The PWU has responded to the government's consultation leveraging its 2024 Discussion Papers and its 2021 Submission to the Ministry of Energy, Northern Development and Mines (MENDM) *Review of Ontario's long-term energy planning framework*. To ensure that, in the Minister's words, *"Ontario does not fail due to a lack of ambition"*, the PWU has recommended five strategic imperatives:

1. Establish the evidence-based, validated, and risk-informed energy demand forecast ranges required to enable effective and sustainable energy planning by all stakeholders for a reliable and affordable system;
2. Evolve the sector's governance to align accountabilities for achieving the vision's objectives as the transition progresses;
3. Develop and build new clean, baseload generation assets as quickly as prudently possible;
4. Nurture innovations to help smooth demand as close to load as possible; and,
5. Develop the lowest cost, most economically beneficial transition pathway to the reliable clean energy system required to meet Ontario's growth and electrification needs.

¹ Targets identified by December press release from the Ontario Government. Analysis provided in the PWU's discussion papers.

CLOSING

There is evident urgency to creating an effective energy planning framework for Ontario. Unlocking the opportunities identified in the government's vision paper requires an urgent reform of Ontario's long- term planning framework and revised roles and accountabilities for the Ministry, the IESO and the OEB.

The PWU has a successful track record of working with others in collaborative partnerships. We look forward to continuing to work with the Ministry 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.