

Power Workers' Union (PWU) Submission on the Role of Natural Gas

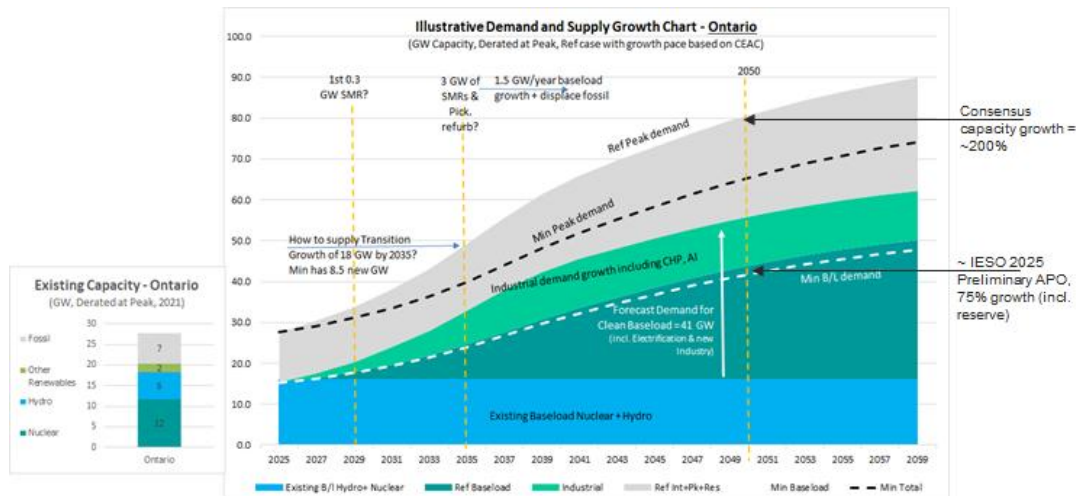
ERO 019-9501, January 16, 2025

The Ministry of Energy and Electrification (ENERGY) is seeking feedback on how the continued role of natural gas should be reflected in a Natural Gas Policy Statement to be included in Ontario's integrated energy plan in 2025.

Context

The PWU's submission on Integrated Energy Resource Plan (IERP) identified the potential for peak electricity demand to triple by 2050 as shown in the figure below.¹ This is almost three times the 75% growth forecast in the IESO's 2025 APO preliminary demand forecast² and a conclusion supported by many other submissions.³ The pace of the electrification of Ontario's economy is a key driver of this demand growth. The recently announced subsidies for EVs and heat pumps for space and water heating⁴ can be expected to accelerate adoption and electrification demand growth as illustrated below.

The analysis supporting the PWU's 2024 discussion papers argued that the pace of demand is rapidly outpacing Ontario's ability to provide new supply and recommended ways to mitigate electricity system reliability, affordability, deliverability and governance risks.⁵ This will be a significant challenge over the next 10 years while some of the low-carbon Pickering Nuclear Generating units are being refurbished. Furthermore, this gap between demand and the required supply of new clean energy resources will continue to widen after that – even with the recently announced intention to build larger scale nuclear projects.⁶



¹ PWU Submission to the Integrated Energy Resource Plan Consultation, ERO-019-9285, Dec 13, 2024.

² IESO, 2025 Annual Planning Outlook Demand Forecast Information Session, Oct 16, 2024.

³ [Ontario makes plans to expand its electricity grid as demand soars](#), National Observer, December 12, 2024. However, experts think the forecasted 75 per cent increase in demand is underestimated. "Lots of modellers expect to see a doubling of electricity demand or a tripling even in some cases by 2050," Scott MacDougall, at the Pembina Institute.

⁴ [Ontario Launches New Energy Efficiency Programs to Save You Money](#), Ontario Newsroom, Jan 7, 2025.

⁵ PWU discussion papers available at PWU.ca.

⁶ <https://news.ontario.ca/en/release/1005403/ontario-generating-more-energy-to-meet-soaring-demand>.

This demand growth challenge presents significant implications in three areas for Ontario's continued use and potential expansion of the province's natural gas infrastructure:

- 1 – Local natural gas distribution network to energy consumers;
- 2 – Use of natural gas in electricity generation; and,
- 3 – A transition vehicle enabling reductions in Ontario's energy consumption emission intensity.

Recommendation #1 – Ontario should maintain and expand the availability of natural gas to Ontario's energy consumers to help support the province's cost-effective transition to a future net zero economy.

This recommendation responds to the ERO question:

- *“What role should natural gas play in supporting energy affordability and customer choice in residential and small commercial applications (e.g., space and water heating)?”*

The PWU has previously expressed support for the adoption of dual fuel heat pumps augmented by Artificial Intelligence (AI)-powered Behind the Meter (BTM) Demand Side Management (DSM).⁷ Dual fuel heat pumps are key to moderating peak demand growth at the electricity system distribution level, and avoiding blackouts caused by either bulk system transmission or distribution level constraints in the electricity system. As well, they would help defer the need to upgrade the local electricity distribution system thereby buying time to address the ubiquitous demand growth across Ontario's entire network.

Ontario's Clean Home Heating Initiative (CHHI) has already piloted dual fuel heat pumps across the province.⁸ This program has been provided to more than 1500 households in St. Catharines, London, Peterborough, Sault Ste. Marie, Barrie, Pickering, Ajax, and Whitby. The results from these pilots should be made available and considered when developing Ontario's policy. Additionally, the merits of AI-powered BTM DSM capacities on the performance of heat pumps for water heaters should be incorporated.

This represents a pragmatic approach to Ontario's pursuit of a net zero economy.

Recommendation #2 – Ontario should plan for additional natural gas-fired electricity generation capacity to help ensure a reliable supply to meet future demand, including support of intermittent renewables.

This recommendation responds to the ERO question of:

- *“What role should natural gas play in supporting power system security and resiliency?”*

The analyses supporting the PWU's reliability risk mitigation discussion paper concluded that not only would Ontario's existing gas-fired generation be required but also that its fleet would need to be expanded to maintain reliability.⁹ The analyses showed that Ontario would need to develop

⁷ PWU Discussion Paper, Ontario's Electricity System's Deliverability Risks Require Innovations in the Distribution System, September 2024.

⁸ Ontario, Powering Ontario's Growth: Ontario's Plan for a Clean Energy Future, 2023.

⁹ PWU Discussion Paper, Mitigating the Reliability Risks of Ontario's Electricity System Planning Approach requires a Paradigm Shift, May 2024.

about 5 GW of gas-fired generation by 2035 just to meet the demand forecast in the IESO's 2025 APO.

Yet, the PWU discussion papers show that Ontario's demand growth will be larger and that it is increasing faster than shown in the IESO's 2025 APO, as also illustrated in the figure above.

Ontario could need 18 GW of new generation by 2035, even if all of Ontario's existing resources are renewed. Only 3 GW of new nuclear could be available in that time frame and the IESO only plans to procure 1.6 GW of new capacity.¹⁰ Much of this is anticipated to come from new natural gas-fired generation given the RFP requirements.¹¹ While new renewables can provide energy and reduce the generation output from gas-fired generation, they will provide little peak demand mitigation and/or reduction in the need for natural gas-fired generation capacity.

This potential 13 GW shortfall by 2035 may have to be largely supplied by new gas-fired generation. Demand growth will continue to accelerate after that point with few identified options for how it may be supplied even after considering the potential nuclear developments recently indicated by the government.¹²

The eventual transition off the use of natural gas-fired generation will take a well-planned, coordinated and sustained build strategy over several decades for the future required carbon-free baseload infrastructure. This will require both the provincial and federal governments to continue their extensive planning and preparatory work for these resources with greater complexities and longer development timelines. Specifically, the underway reengineering of the approval processes for essential nuclear, hydroelectric and transmission projects will provide more efficient and cost-effective outcomes.¹³

Recommendation #3 – Clear policies are required to mitigate and allocate any additional costs to rate payers and/or taxpayers resulting from ongoing innovations in emission reductions, including those that are cost-effectively enabled by the natural gas system.

This recommendation responds to the ERO question of:

- *“What are the challenges and opportunities for enhanced energy efficiency, adoption of clean fuels (e.g., RNG, Hydrogen) and emission reduction methods (e.g., carbon capture and storage) to lower emissions in the natural gas system?”*

The aforementioned demand forecast shows that natural gas infrastructure will be needed by Ontario for many decades. As a result, the ongoing development of innovations that help reduce emissions from the use of natural gas will continue to be required. All of the items included in the question above are currently the subject of pilot projects and other initiatives already under study in Ontario.

¹⁰ IESO, LT2 RFP Webinar materials, December 2024.

¹¹ [“Doug Ford's government just supercharged its power plan. But have the green goalposts been moved?”](#), December 11, 2024 - Toronto Star.

¹² <https://news.ontario.ca/en/release/1005403/ontario-generating-more-energy-to-meet-soaring-demand>

¹³ PWU, Made-In-Ontario Electricity Lights the Way for our Environment and Economy, Toronto Star, November 29, 2024.

All of these innovations will add costs to Ontario's electricity system. The cost effectiveness of these innovations should be demonstrated via transparent cost/benefit analyses that compare the options in support of government policy development. This will help the government identify, evaluate and arbitrate emission reduction priorities, the impacts on affordability and the fair allocation of costs to rate payers and taxpayers. For example, the impacts of carbon price policies should be evaluated for such impacts. Industrial consumers that export to other jurisdictions such as the U.S. may struggle to absorb these costs and remain competitive if the U.S. does not value similar policies.

The PWU's previous IERP submission stated that to best serve the interests of Ontario rate payers and taxpayers the process for developing the best pathways to a clean energy economy should be based on the full system cost to supply the corresponding type of demand. It should also incorporate a comprehensive socio-economic benefit decision framework to help guide the optimum assessment of the pathway options. Total cost assessments would include all the supporting elements (such as storage) for the solution to meet the baseload, intermediate or peak needs as well as the transmission and distribution system requirements.

Challenges include the evident lack of transparency and public clarity with respect to the costs and technical viability of Ontario's future energy system alternatives. As recommended in the PWU's IERP submission,¹⁴ providing peer reviewed transparent analyses on costs of Ontario's energy options and the viability of various pathway strategies will help policy makers provide the public clarity around why natural gas will remain a critical element of Ontario's energy transition for quite some time.

Problems that must be addressed include a lack of cost discussion in the IESO's APO; the need for storage and natural gas back up requirements for renewables; misinformation associated with the potential for DER in Ontario;¹⁵ and, the degree to which consumers want customer choice if they actually have to pay for that choice.

Since the natural gas system will remain in place for quite some time, regardless of current and/or near-term policies, ongoing developing of innovations in natural gas system emissions reduction should continue to be supported such that, as policies evolve, commercial deployment of these innovations will be more readily available to support them.

Closing

There is an evident need to sustain and expand the province's use of natural gas as Ontario progresses to a clean energy economy. Dual-fuel heat pumps, expanded natural gas-fired generation and investments in alternative fuels are all critical elements of this transition.

We believe these recommendations are consistent with, and supportive of Ontario's objective "*to build-out of an affordable, reliable and clean energy system to meet the exceptional growth needs*

¹⁴ PWU Submission to the Integrated Energy Resource Plan Consultation, ERO-019-9285, Dec 13, 2024.

¹⁵ OEA, From Small to Mighty: Unlocking DERs to Meet Ontario's Electricity Needs, Dec 12, 2024, that relies on a previous IESO-sponsored DER Potential Study critiqued by the PWU.

of Ontario.” The PWU looks forward to discussing these comments in greater detail with the Ministry and participating in the ongoing stakeholder engagements.

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.