CCRE Commentary

MAY 2026

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Growing the Economy:

Ontario's Clean Electricity Supply Crisis that Could Last Generations

Ontario is facing a supply shortage risk. The Ontario government's *Energy for Generations* integrated energy plan offers "*to ensure Ontario's energy system remains affordable, reliable, secure, and clean – not just today, but for decades to come*".[1]The latest Annual Planning Outlook (APO) from the Independent Electricity System Operator (IESO) forecasts demand growth of 65% by 2050 that underpins their planning and procurement activities. Yet, most analyses suggest that almost three times greater demand growth would better reflect the *Energy for Generations* ambitions. Relying on the APO reference case is creating significant supply risk given the magnitude of emerging needs, the development timelines involved, and the limited options available. Contingency planning for the larger baseload and flexible supply capacity development could avoid the evident shortfalls and costs that will otherwise hamper Ontario's economy for generations.

BUILDING CANADA STRONG AND ENSURING ENERGY FOR GENERATIONS MEANS MORE POWER

Available affordable and reliable electricity is a recognized imperative for Canadian federal and Ontario provincial government ambitions.[2]The Federal government is developing a national electricity strategy[3] to address the doubling of electricity demand identified by both Natural Resources Canada and Environment and Climate Change Canada.[4]Ontario's recent *Energy for Generations* integrated energy plan advances Ontario as the strongest economy in the G7: "*Energy keeps Ontario's economy growing and people working. The choices we make about energy policy today will determine our success for generations*". Furthermore, the Ontario-led *National Energy Corridor Agreement*[5] is underpinned by assumptions of unprecedented, rapid, and sustained growth in electricity demand across Canada.[6]

Government growth ambitions rely on adequate electricity supply

The anticipated growth in electricity demand is significant, well understood, and being witnessed the world over as new sources of demand emerge: electrifying the economy, industrial expansion, data centre proliferation, and developing critical minerals.[7] The North American Electric Reliability Corporation (NERC) is highlighting critical reliability shortfalls across the northeast, including Ontario and Quebec.[8] Unprepared utilities across North America are aggressively investing to expand grids. To mitigate supply and cost to rate-payer risks, policy makers are intervening. Environmentalists are concerned about the mammoth amount of new natural gas-fired generation being proposed.[9] In Canada, Quebec has run out of export capacity and, along with BC, is turning away large domestic loads.[10]

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[1] Government of Ontario, Energy for Generations: Ontario's Integrated Plan to Power the Strongest Economy in the G7, Jun 2025.

[2] Ontario's economic future hinges on energy investment, iPolitics, Mar 17, 2026.

[3] Canada will soon release new electricity and nuclear strategy, minister says, Reuters, Mar 5, 2026.

[4] Environment and Climate Change Canada, Accelerating Canada's clean power advantage, Nov 9, 2025; Natural Resources Canada, Powering Canada's Future: A Clean Electricity Strategy, Aug 13, 2025.

[5] Ontario Secures Groundbreaking National Energy Corridor Agreement, Ontario Newsroom, Mar 4, 2026.

[6] Google AI search on " Demand assumptions in the national energy corridor agreement", Mar 26, 2026.

[7] CNA, Outlook for Nuclear Energy in Canada, Sep 2025.

[8] Canada's power grid is under pressure amid rising demand, watchdog warns, Global News, Feb 7, 2026; NERC forecasts peak demand to rise 24% on new data center loads, Utility Dive, Feb 4, 2026.

[9] Multiple articles reported in Utility Dive, Mar 2026.

[10] Cold Snap Exposed Limits of Quebec-New England Power Deal, The Energy Mix, Feb 12, 2026; How Canada squandered its most valuable national asset, National Post, Feb 9, 2026; Why B.C. is rewriting energy rules to decide who gets power and who doesn't, Business in Vancouver, Nov 21, 2025.

ONTARIO DEMAND WILL BE MUCH HIGHER THAN THE ANNUAL PLANNING OUTLOOKS SUGGEST

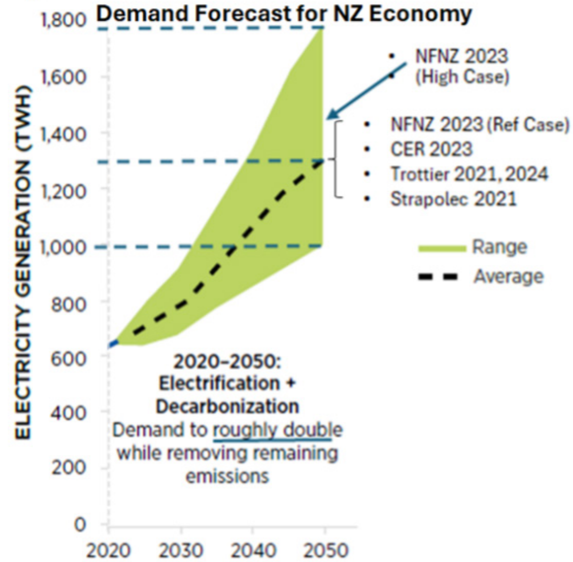
Nowhere is this challenge more evident than in Ontario. The *Energy for Generations* plan responds to the APO forecast growth, albeit with a nod to the potentially greater electrification demand discussed in the IESO's 2022 Pathways to Decarbonization (P2D) report.

However, IESO's projections do not reflect the national consensus on electrification demand, the province's economic development goals, and the implications of Canada's Clean Electricity Regulation (CER).

Decarbonizing the Economy Entails Much More Electricity

The impacts of electrification have been known for a decade[11] – with recurring third party estimates of long-term electricity demand remaining relatively stable. The 2024 Canada Electricity Advisory Council (CEAC) report presented a range of available demand estimates for electrifying the economy – pointing to a doubling of demand [Figure 1]. A 2025 Canadian Nuclear Association (CNA) report assessed these and other sources, observing a remarkably tight alignment and a tripling of Ontario's demand[12] consistent with an independent 2021 Ontario forecast[13] and Canada's Energy Regulator recent forecast.[14]

Figure 1 – CEAC and CNA Evaluated Electrification Demand Forecast for NZ Economy



Ontario's demand will see three times the growth of the IESO'S APO

In contrast, absent policy direction, the IESO has stated its exclusion of many electrification assumptions in its APOs (e.g. building heating) and the P2D (e.g. industry and heavy-duty transportation). It is notable that with each successive APO since 2019, the IESO has incrementally added elements of electrification demand [Figure 2]. The latest remains below the consensus of Canadian experts.

Furthermore, the most recent 2026 APO *reduced* the reference case for planning purposes by 10% while providing an illustrative high case requested by the government[15] – and referenced in support the *National Energy Corridor Agreement*.[16] The IESO has suggested next year's 2027 APO might include additional partial industry and hydrogen electrification assumptions, but still exclude most building heating electrification.[17] Adding these to the P2D forecast [Figure 2] approximates the *New Minimum Reference* for a Net Zero (NZ) economy.

[11] Ontario Planning Outlook, A technical report on the electricity system, IESO, Sept, 2016; Ontario's Long-term Energy Plan: Understanding Carbon Emissions, the Role of Nuclear, and Electricity Trade with Quebec, Council of the Great Lakes Region, Dec 2016.

[12] CCRE Commentary: Toward a National Energy Vision: Case Study: Electricity System Implications for Ontario and Quebec, June 2022.

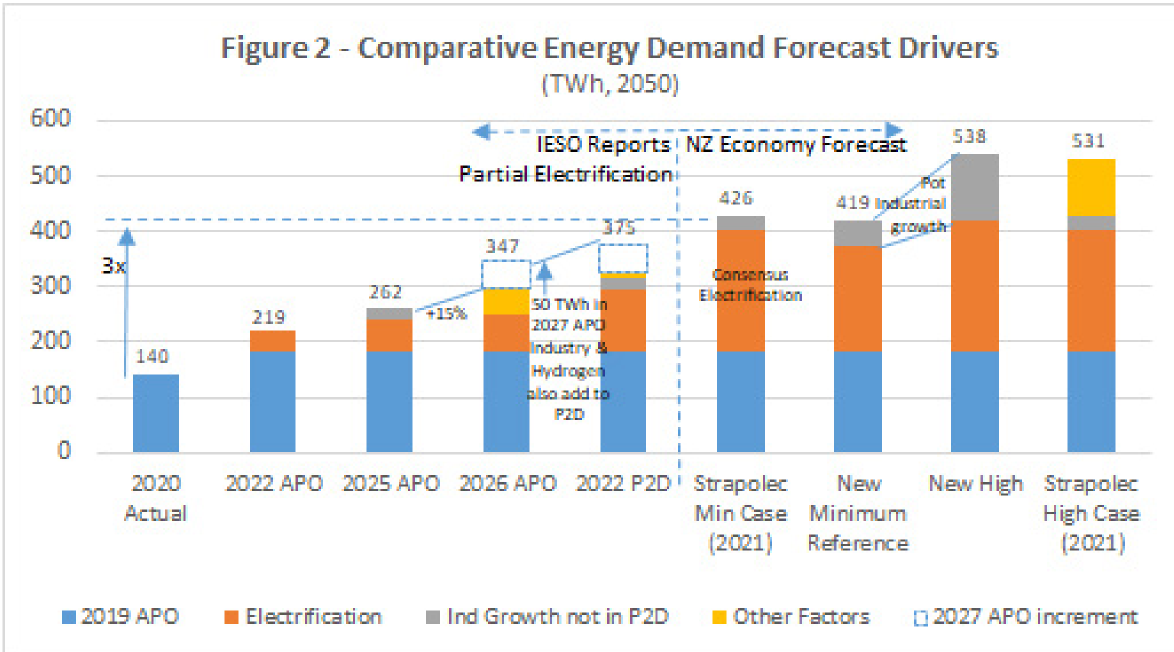
[13] CNA, Outlook for Nuclear Energy in Canada, September 15, 2025; Submission for the Ministry of Energy, Northern Development and Mines review of Ontario's long-term energy planning framework, Green Ribbon Panel, 2021.

[14] Canada's Energy Future 2026: Energy Supply and Demand Projections to 2050, Canada Energy Regulator.

[15] 2026 Annual Planning Outlook, IESO, March, 2026.

[16] Ontario Secures Groundbreaking National Energy Corridor Agreement, Ontario Newsroom, Mar 4, 2026.

[17] Annual Planning Outlook (APO): 2026 Demand Forecasts & 2027 Demand Scenario, Nov 18, 2025.



Note: 2019/2022 APO forecast to 2050 using CAGR for last few years; Full economy electrification High Cases, may be post 2060+.

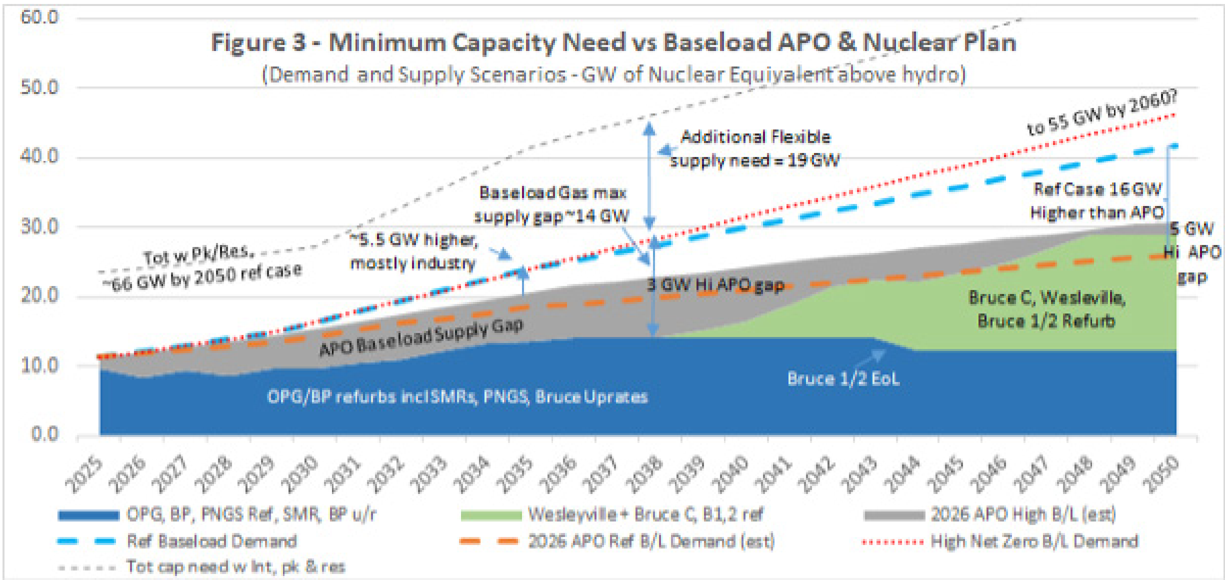
Energy for Generations Economic Development Imperative is More Ambitious

Analysis of APO assumptions reveals a near term firm economic growth focus, with limited industrial growth assumed beyond 2030. While the 2026 APO reflects increased demand for data centres,[18] it has reduced economic development provisions for most other areas, such as the auto sector. For example, there are no provisions for critical minerals/Ring-of-Fire development, higher population growth that would accompany Ontario becoming the G7's fastest growing economy, or the proposed high-speed rail to Montreal.

SUPPLY SHORTFALLS ARE EMERGING AND DESPITE GOVERNMENT INITIATIVE ITS AMBITIONS ARE AT RISK

A consensus-based baseload growth profile illustrates how demand may exceed APO planning by material amounts within the next 10 years [Figure 3]. The APO offers no contingency plans for its high case which needs 2-3 GW more baseload in 2035. As the aforementioned demand realities emerge, it will become increasingly evident that development timelines will create supply shortfalls.

[18] Sharing the load: How collaborative data centre expansion could lead to a better grid, Mars, Mar 2026.



Source: APO 2025, APO 2026; Energy for Generations, 2025; Strapolec Analysis.

Ontario has Unveiled a Bold Nuclear Development Program

The government's 17 GW nuclear program is a start, but it is not enough

Fortunately, the Ontario government is moving ahead with a long-term plan for a nuclear program. *Energy for Generations* supports Small Modular Reactors (SMRs), Pickering refurbishment, Bruce C and Wesleyville, largely predicated on the 17 GW of new nuclear identified by the P2D. The government is also having OPG's Nanticoke and Lambton sites evaluated. Yet these are not enough. Projected long-term demand could be 15 to 20 GW beyond those identified nuclear capacities.

Furthermore, the timelines of advancing nuclear development leave undersupply risks in the medium-term that will be difficult to address and will be sustained for many decades.

Conservatively Low Demand Forecasting Presents Risks to Policy Makers

a) Mitigating demand growth may not be desired or possible

The identified supply shortfall risks reflect an assumed pace of demand growth. Ontario may be loath to abandon its *Energy for Generations* economic objectives, favouring more aggressive economic growth. In contrast, discouraging electrification in the medium-term could mitigate some supply shortfalls, as the APO assumes – but face innovation-induced organic electrification adoption and political risks around Ontarian's sentiment on global climate imperatives.

b) The nuclear program could get challenged

If the 2026 APO is to be relied upon as the formal basis for planning, then the Government's nuclear program could be criticized as too aggressive – by almost 5 GW in 2050 (e.g. Bruce C is not needed).

Timelines show more natural gas is needed

c) More natural gas, and its emissions, are inevitable

Demand growth will arrive before much new nuclear could be built, implying a substantial increase in Ontario's gas-fired fleet over the next 10-15 years. The inevitable ongoing demand growth from electrification then dictates Ontario will rely on this new supply for decades, even generations, as demand continues to outpace alternative supply option development. The associated growth in emissions may create additional political risk.

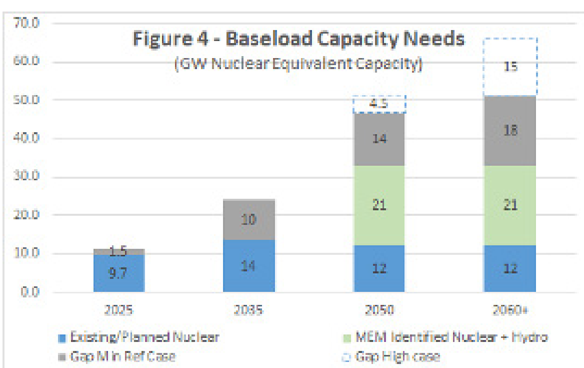
CONTINGENCY PLANS ARE NEEDED TO ADDRESS TIME-SENSITIVE DEVELOPMENT CHALLENGES

Relying solely on the APO reference case for new generation procurement is creating significant development risk given the potential magnitude of the emerging needs, the development timelines involved, and the limited options available. Contingency planning is warranted to identify how the higher demand might be addressed, for both 24x7 baseload supplies and flexible supply solutions whose output can match hourly, daily, weekly, and seasonal variations in demand.

The infrastructure Development Challenge is a Doubling of All Planned Supplies

The baseload supply capacity in 2035 is 10 GW short of the needs to meet the *Energy for Generations* economic development objectives [Figure 4]. This gap of unserved baseload grows to 14 GW by 2050, potentially 19 GW under the high demand scenario. Post 2050, this gap could be 33 GW beyond currently contemplated 21 GW nuclear and hydro programs.

Ensuring adequate flexible supply is equally challenging [Figure 5], with a projected 5 GW shortfall by 2035. If flexible supplies must address unserved baseload, the 2035 flexible supply shortfall could be 13 GW, an amount not in the IESO's procurement strategy. Even if long-term baseload supply is addressed, Ontario could need 12 GW more flexible supply than the APO contemplates.



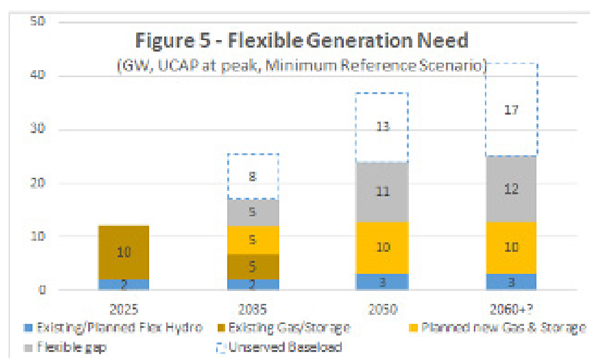


Figure 4 reflects nuclear equivalent name plate capacity; Figure 5 represents UCAP, derated capacity available at peak demand times; Illustrated existing Gas/Storage in 2025 includes all other resources; Source: IESO 2025 APO supply scenarios, Strapolec analysis.

Building Natural Gas is No Longer the Easy Path to Chose

Ontario should get ahead of the race between demand and development

Relying on natural gas as an easy plug to short term reliability risks has unravelled:

a) Canada's Clean Electricity Regulation (CER) prohibits significant operation of new unabated natural gas fired-generation post 2035. This operational risk may inhibit natural gas-fired generation investments. Ontario may not have cost effective flexible generation solutions – even with significant rollouts of renewables and carbon capture, which are also currently unplanned. Furthermore, while not endorsing the CER, the IESO says the 2025 APO provides a pathway to a zero emissions grid by 2050. However, under the identified demand growth, *it does not*.[19]

b) Emerging supply chain bottlenecks may handcuff Energy for Generations ambitions. The world has recognized the growing demand implications, including as AI data centers compete to build gas-fired generation.[20] The US is embracing the need for significant new generation. Commercial interests are securing turbine supplier contracts but facing 5-7 year wait times.[21] Despite turbine vendors investing in manufacturing capacity upgrades, order backlogs are not shortening and some costs could triple.[22]

c) The ability to otherwise mitigate the province's 2035 need for flexible capacity is low. New renewables and storage may intermittently reduce emissions but cannot materially reduce needed gas-fired generation capacity. Even 24-hour storage only modestly reduces gas capacity needs.[23]

d) Turbine supply chain constraints will spill onto nuclear projects. While different in design, steam turbines for nuclear are manufactured by the same global supply chains: Siemens, Mitsubishi, GE- Vernova, and Hitachi. Many countries are advancing nuclear plans – for example, the US has announced $80B investments for new Westinghouse reactors.[24]

Sustaining conservative demand forecasts defers decisions on new projects and the chosen technologies, pushes Ontario further behind in the supply chain order book and undermines the ability to secure the options needed to sustain the province's growth objectives.

CLOSING – A CALL TO ACTION FOR INFORMED DEMAND FORECASTING

Policy makers need risk informed forecasts and resource options to accelerate investment decisions

The world is recognizing that countries with electricity will attract investment and win the economic development race.[25] Government must understand demand risks to respond with policies around strategic procurement alternatives and move Ontario closer to the front of global supply chain queues.

To do so and achieve a planning direction at lowest cost, Ontario needs validated risk-informed demand scenarios with associated resource portfolio alternatives. A consensus around these forecasts will help identify procurement strategies, preferably in lockstep with Canada, to align a national electricity strategy, and enable the urgent policy decisions to accelerate site selections, project identification and investment strategies to secure Ontario's energy future.

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[19] Patchworking Canada's Energy Transition, CCRE Energy Roundtable, Oct 2023, M.Brouillette.

[20] Global Energy Outlook 2026: How the World Lost the Goal of 1.5°C, Resources for the Future, Apr 7, 2026.

[21] US-driven gas turbine crunch may speed global clean power uptake, Reuters, Feb 3, 2026; 5-year waits and rising costs: How demand is redefining the gas turbine market, Utility Dive, Mar 23, 2026; US gas-fired turbine wait times as much as seven years; costs up sharply, S&P Global, May 20, 2025.

[22] Gas turbine prices soar 195% as market faces supply-demand crisis, Wood Mackenzie, Apr 1, 2026;

[23] Patchworking Canada's Energy Transition, CCRE Energy Roundtable, Oct 2023, M.Brouillette.

[24] Westinghouse megadeal set to revitalize nuclear supply chain, Reuters, Jan 26, 2026.

[25] Access To Electricity Will Determine Economic Success Or Failure, Says Magwood, NUCNET, Mar 20, 2026.