



Ontario's Uncertain and Costly Electricity Future

A billion here...a billion there... pretty soon we're talking real money

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ONTARIO'S UNCERTAIN AND COSTLY ELECTRICITY FUTURE

EXECUTIVE SUMMARY

The Ontario Independent Electricity System Operator (IESO) periodically publishes an updated electricity planning forecast. IESO's [2026 Annual Planning Outlook](#) projected that provincial electricity demand will rise by 65% to 2050, a major increase. Demand forecasts are important, because they set the targets that the utility and the government will endeavour to meet in terms of added electricity generation capacity.

Over-estimating electricity demand can have severe financial impacts for Ontario, leading to billions of dollars in hidden system costs. Because the grid must be capable of meeting maximum demand, over-forecasting demand results in over-building generation infrastructure. Consequently, ratepayers and taxpayers shoulder large financial burdens. The consequences of this can include billions of dollars in stranded assets, high and increasing taxpayer subsidies, and reduced economic competitiveness.

The stranded assets result when the province signs long-term contracts for generation that turns out to be excess to needs. Especially in the case of wind and solar power generation and the storage capacity needed to protect consumers from the unreliability of these generation sources, Ontario must pay above-market rates to producers even when the power is not needed. The industries that are most affected by higher electricity rates are the "energy-intensive, trade-exposed" ones like manufacturing (especially automotive and auto parts), iron and steel processing, pulp and paper, and mining.

IESO and its predecessors have a history of misjudging demand trends and justifying excessive investment in generation. Throughout most of the period since 2000, electricity planners have predicted higher levels of demand than actually occurred. The difference between what was predicted and what has happened reflects, in part, the uncertainty and risk underpinning the IESO forecasts.

Looking to the future, the pace and volatility of economic growth has generally been considered to be the most important factor in determining how much electricity Ontario consumers will demand in 2050. Environmental policy, and especially the pursuit by successive Ontario governments of greenhouse gas emissions reductions, also has had an increasingly important influence on electricity policy and planning. The pursuit of net-zero emissions has led to the politicization of electricity planning and regulation under successive governments. Ontario's electricity system is already 94% emissions-free and contributes only 3% to the province's GHG emissions.

Ontario's GHG emissions in 2022 were 157 million tonnes, or about 0.4% of the world total. The climate effects of eliminating them would be too small to measure. Yet, the Minister of Energy, the IESO and the Ontario Energy Board are all committed to support the net-zero goal. The checks and balances and regulatory oversight that should stand in the way of a single-minded approach to electricity policy and planning is missing.

The belief that the economy will increasingly electrify seems to be based more on political aspirations than on the actual trends. Electricity now accounts for roughly 18% of total end-use energy consumption, a decline from around 22% in 2010. The majority of the province's energy needs continue to be met by refined petroleum products and natural gas.

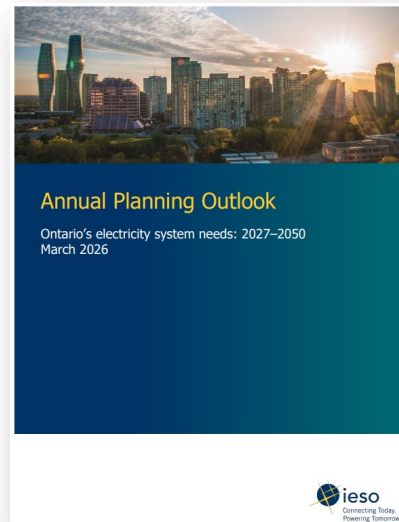
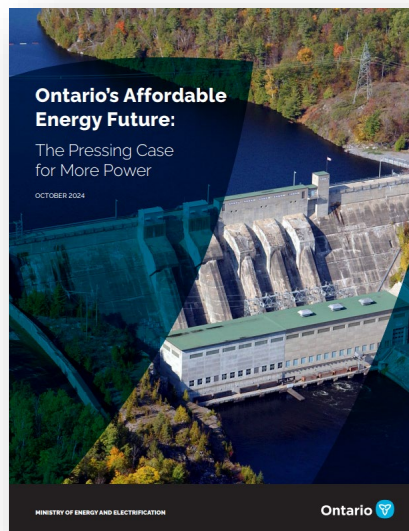
IESO's most recent Annual Planning Outlook assumes that there will be a major shift to "cleaner fuels" for vehicles to decarbonize the transportation sector. Overall, the Outlook projects transportation sector level net annual energy demand to grow from 3 TWh in 2026 to 44 TWh in 2050, an enormous increase of 41 TWh (i.e. 1,324 per cent) in just 24 years, with a compound annual growth rate of 11.9 per cent. IESO's projections verge on the impossible.

Unfortunately, neither the IESO Annual Planning Outlook nor any of its other publications provides an analysis or projection of how the unprecedented addition of generation capacity will affect the overall costs of the system or the rates that different classes of customers will pay. Similarly, no other organization of the Ontario government has provided a projection of the economic and financial costs that Ontario electricity ratepayers and taxpayers will incur. Voters will not know the truth about these matters until it is too late to voice their anger at the polls.

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On October 16, 2024, the Independent Electricity System Operator (IESO) released an updated electricity planning forecast. It envisioned provincial electricity demand increasing by 75% by 2050 due primarily to industrial expansion, a growing population and widespread electrification. For policy context, the Ford government's new vision, [*Ontario's Affordable Energy Future: The Planning Case for More Power*](#), marks an "ambitious" multi-decade plan for the province's energy sector. IESO's [*2026 Annual Planning Outlook*](#) reduced the utility's projection of 2050 electricity demand to 65%, but still a major increase. These demand forecasts are important, because they set the targets that the utility and the government will endeavour to meet in terms of added electricity generation capacity.



THE DANGERS OF OVERESTIMATING DEMAND

Over-estimating electricity demand can have severe financial impacts for Ontario, leading to billions of dollars in hidden system costs. Because the grid must be capable of meeting maximum demand, over-forecasting demand results in over-building generation infrastructure. Consequently, ratepayers and taxpayers shoulder large financial burdens.

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The stranded assets result when the province signs long-term contracts for generation that turns out to be excess to needs. Especially in the case of wind and solar power generation and the storage capacity needed to protect consumers from the unreliability of these generation sources, Ontario must pay above-market rates to producers even when the power is not needed.



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Further, the excess capacity often requires the province to export surplus generation to neighbouring utilities in the United States at distress prices. The resulting losses are shifted to Ontario ratepayers.

The industries that are most affected by higher electricity rates are the “energy-intensive, trade-exposed” ones like manufacturing (especially automotive and auto parts), iron and steel processing, pulp and paper, and mining.

Rising costs of electricity generation and transmission have served as a back-door way to burden Ontario taxpayers. To prevent consumer backlash against rapidly rising electricity rates, the Ontario government artificially reduces retail prices through massive, taxpayer-funded mitigation programs such as the Ontario Electricity Rebate, the recent cost of which was \$6.8 billion per year. As the government does not raise enough money in taxes to pay for all of its expenditures, the subsidies shift the financial burden from both the ratepayer and general taxpayer to the provincial deficit (i.e. future generations of taxpayers).

PAST FAILURES OF ELECTRICITY PLANNING

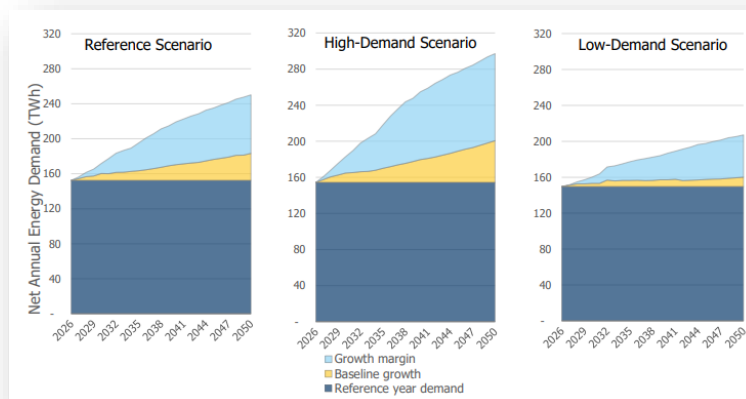
IESO and its predecessors that manage Ontario's electricity system have a history of misjudging demand trends and justifying excessive investment in generation.

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In 2000, electricity demand was 147 TWh. It gradually increased to 157 TWh in 2005. Demand declined for roughly ten years before flattening in 2015. Since 2015, total market demand (demand from within Ontario plus export sales) has averaged roughly 153 TWh per year, while demand from within Ontario has averaged about 135 TWh. In 2025, it increased to 145.6 TWh.

Ontario now exports proportionately more electricity than in the early 2000s – on average about 11.5 TWh per year, or slightly more than 8.5% of domestic demand.

Throughout most of the period since 2000, electricity planners have predicted higher levels of demand than actually occurred. The difference between what was predicted and what has happened reflects, in part, the uncertainty and risk underpinning the IESO forecasts. We do not know with certainty how fast the population or the economy will grow, what will be the trends in electrification (especially considering higher anticipated electricity rates), potential supply chain disruptions, geopolitical factors, or fluctuating tariffs that may alter domestic growth and international trade patterns. Those factors need to be considered in judging how much additional generation capacity to build. Yet, the IESO does not provide the public with a quantitative assessment of the magnitude of risks and uncertainties associated with its demand forecasts.



Note the disparities of the baseline and growth margins. [2026 Annual Planning Outlook](#)

Looking to the future, the pace and volatility of economic growth has generally been considered to be the most important factor in determining how much electricity Ontario consumers will demand in 2050. The Ministry of Finance projects provincial real gross domestic product (GDP) to grow by 2.1% on average per year between 2024 and 2046. The Ontario Financial Accountability Office, in contrast, [projects](#) real GDP growth in 2026 to be between 1.0% and 1.4% and to rebound to only 1.75 and 2.0% from 2027 onward. TD Economics, in its mid-2026 [report](#), estimated Ontario growth to be only 1.3% in 2025, 0.4 % in 2026 and 1.8% in 2027. The trade-exposed sectors, and especially manufacturing, are being adversely affected by uncertainty over trade, tariffs on key sectors, and higher energy prices. There are also many uncertainties about Ontario's ability to increase productivity and innovation, field a work force with the needed skills and cope with trade challenges.

A policy [brief](#) written by Professor Brandon Schaufele and published by the Energy Policy and Management Centre of the Ivey Business School in January 2025 called attention to the decoupling of GDP and electricity growth during the 2003 to 2023 period.



POLICY BRIEF
JANUARY 2025

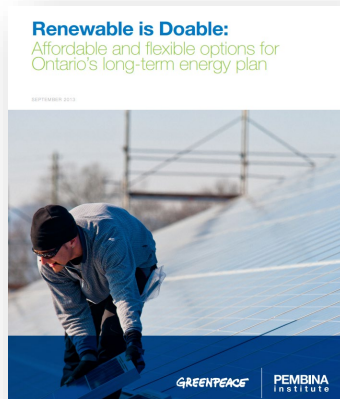
ELECTRICITY DEMAND AND OVERSIGHT IN ONTARIO'S HYBRID MARKET

"The two trends tracked each other from 2003 to 2005. From that point, Ontario peak demand decoupled, or followed a different trend, from Ontario economic growth. Decoupling means that Ontario's economic growth continued its upward trend, while Ontario electricity growth remained flat. A wedge developed between the purple and red lines.

Several explanations account for this decoupling. First, Ontario's economy underwent structural transformation. The province's economic engine shifted from manufacturing towards services such as finance, consulting and technology. The energy intensity per dollar output of services is less than for manufacturing. The second reason is that huge improvements in energy efficiency enabled Ontarians to use fewer energy inputs while sustaining a reasonable growth rate.

Further, in 2011, the province introduced the Industrial Conservation Initiative or ICI. The ICI provided strong incentives for customers with large loads to reduce demand during peak demand periods. The magnitude of the ICI is estimated to represent 1,727 MW during peak hours."

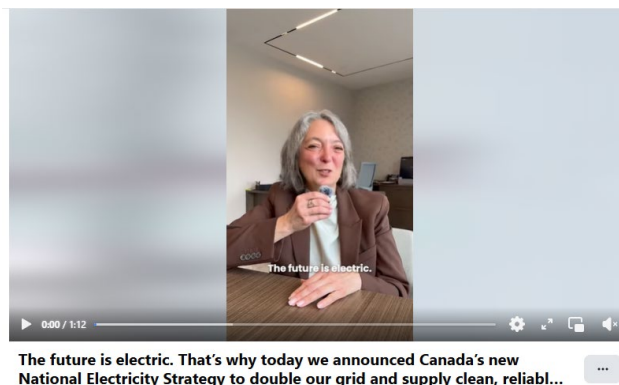
Environmental policy, and especially the pursuit by successive Ontario governments of greenhouse gas emissions reductions, has had an increasingly important influence on electricity policy and planning. The *Green Energy and Green Economy Act 2009* encouraged higher investment at both the transmission and distribution levels.



About the Green Energy Act Alliance: The Alliance's vision is to make Ontario a global leader in green energy development through the use of renewable energy, distributed energy and conservation, creating thousands of jobs, economic prosperity, and energy security, while ensuring climate protection. Member groups include: Ontario Sustainable Energy Association, Community Power Fund, David Suzuki Foundation, Environmental Defence, United Steelworkers, First Nations Energy Alliance, Ivey Foundation, Ontario Federation of Agriculture and the Pembina Institute (www.GreenEnergyAct.ca).

An influential collection of environmental groups, many of them foreign funded, pushed for Ontario's Green Energy Act, often claiming it would provide more affordable power. ¹

The pursuit of net-zero emissions has led to the politicization of electricity planning and regulation under successive governments. Ontario's electricity system is already 94% emissions-free and contributes only 3% to the province's GHG emissions. Ontario's GHG emissions in 2022 were 157 million tonnes, or about 0.4% of the world total. The climate effects of eliminating them would be too small to measure. Yet, the Minister of Energy, the IESO and the Ontario Energy Board are all committed to support the net-zero goal. The checks and balances and regulatory oversight that should stand in the way of a single-minded approach to electricity policy and planning is missing.



Power generation is a provincial jurisdiction, but the federal government is planning to double the national grid by 2050. This creates additional pressures and uncertainties. <https://www.facebook.com/share/r/1BwHYRnkAX/>

¹ <https://www.pembina.org/media-release/ontario-spend-8-billion-renewable-energy>

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IESO's most recent Annual Planning Outlook assumes that there will be a major shift to "cleaner fuels" for vehicles to decarbonize the transportation sector. **Overall, the Outlook projects transportation sector level net annual energy demand to grow from 3 TWh in 2026 to 44 TWh in 2050, an enormous increase of 41 TWh (i.e. 1,324 per cent) in just 24 years, with a compound annual growth rate of 11.9 per cent.** This is based on a projection that the number of light duty electric vehicles will increase from 400,000 in 2025 to 11.5 million in 2050. The data to date do not support these projections. In 2025, only 6.8% of the light duty vehicle sales in Ontario were electric, in spite of generous taxpayer subsidies. Less than 150,000, or 2%, of the registered light duty vehicles in the province are electric. IESO's projections verge on the impossible.



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Electrifying all residences would require people to forego their natural gas furnaces, water heaters and stoves, and replace these systems, while meeting mandated efficiency requirements at a cost of at least \$20,000 per residence and probably more. Electrifying all industry could be so costly that many firms would simply move their operations (and the jobs that go with them) to other countries.

AI Overview

Ontario built its initial fleet of natural gas plants in the **mid-2000s to early 2010s** to replace shut-down coal plants and initially provide peak capacity. More recently, to address looming capacity gaps and stabilize the grid alongside intermittent wind and solar, the province contracted **new natural gas facilities in 2023** that are slated to come online by **2027**. [The Energy Mix +4](#)

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The timeline of Ontario's natural gas additions breaks down into two major eras:

- **The Coal Phase-Out Era (2005–2014):** As Ontario began integrating wind and solar under the Green Energy Act, the province built a fleet of gas plants to replace retiring coal-fired stations and provide baseload/peaking power. Major plants, like the 900 MW Portlands Energy Centre in Toronto, were brought online around 2008–2009 to stabilize the grid. [Reddit - r/ontario +4](#)
- **Recent Capacity Procurements (2023–Present):** Facing supply shortages from aging nuclear refurbishments and a growing demand for electrification, the Independent Electricity System Operator (IESO) announced new contracts in **2023** to build additional natural gas peaker plants. These new and expanded facilities are expected to be operational by **2027** to back up the grid, though the province has also simultaneously invested in grid-scale battery storage to handle renewable intermittency. [Independent Electricity ... +4](#)

Intermittent power sources like wind and solar require dispatchable back-up that can almost instantly ramp up or down power generation to fill the gap when wind or solar suddenly drop off. Electricity supply and demand must be also almost exactly equal or blackouts can occur. Thus, natural gas plants had to be built, since neither hydro nor nuclear can provide the immediacy required for grid stability.

The projection of greatly-increased electricity demand is being used to justify a series of procurements. In the case of nuclear energy, Ontario is refurbishing the Bruce Power plant at a cost of \$13 billion, Darlington at a cost of \$12.8 billion and Pickering at a cost of \$26 billion, for a collective \$51.8 billion!

Unfortunately, neither the IESO Annual Planning Outlook nor any of its other publications provides an analysis or projection of how the unprecedented addition of generation capacity will affect the overall costs of the system or the rates that different classes of customers will pay. Similarly, no other organization of the Ontario government has provided a projection of the economic and financial costs that Ontario electricity ratepayers and taxpayers will incur. Voters will not know the truth about these matters until it is too late to voice their anger at the polls.

GOVERNANCE

Part of the problem in achieving an independent and professional approach to electricity planning and management lies in the structure of Ontario's electricity market.

To again quote Professor Schaufele:

“Ontario’s electricity market is unique. It is a hybrid market that combines competitive and regulated elements. However, under its current structure, long-term energy forecasts face neither a market test nor regulatory scrutiny. The IESO, at the direction of the Minister, manages long-term planning. Ontario, in other words, has an adversarial void when it comes to forecasting the long-term energy sector planning.”

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He offers a snide but probably accurate comment about IESO’s motivation.

“Avoiding regulatory scrutiny has a clear advantage. Without regulatory oversight, long-term energy plans can be formulated quickly without the costly process of submitting evidence for examination. No one enjoys having bold aspirations dissected.”



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ABOUT THE AUTHOR

Robert Lyman is an economist with 27 years of experience as an analyst, policy advisor and manager in the Canadian federal government, primarily in the areas of energy, transportation, and environmental policy. He was also a diplomat for 10 years. Subsequently he has worked as a private consultant conducting policy research and analysis on energy and transportation issues as a principal for Entrans Policy Research Group. He is a frequent contributor of articles and reports for Friends of Science, a Calgary-based independent organization concerned about climate change-related issues. He resides in Ottawa, Canada. [Full bio.](#)

ABOUT FRIENDS OF SCIENCE SOCIETY

Friends of Science Society is an independent group of earth, atmospheric and solar scientists, engineers, and citizens that is celebrating its 23rd year of offering climate science insights. After a thorough review of a broad spectrum of literature on climate change, Friends of Science Society has concluded that the sun is the main driver of climate change, not carbon dioxide (CO₂).

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