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Securing Ontario's Energy Future: The Transitional Role of Natural Gas Generation Presentation to the Town of Halton Hills Council

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Disclaimer

This presentation coincides with the period in which the IESO is accepting proposals for the LT1 RFP. As a result, the IESO will not discuss or respond to questions or comments related to the LT1 RFP, or any project that may be submitted to the LT1 RFP. Any such questions or comments should instead be sent to the IESO via email to LT.RFP@ieso.ca, and the IESO will publicly respond in accordance with the Question and Comment Period protocol outlined on the [Long-Term RFP webpage](#).

IESO: Ontario's electricity grid operator and planner

- Manage the reliability of the electricity system in real-time, balancing supply and demand every second of the day
- Prepare the system for the future by ensuring there is enough generation and transmission to meet future needs and enable economic growth
- Support an orderly transition to a net zero electricity system that balances reliability and affordability

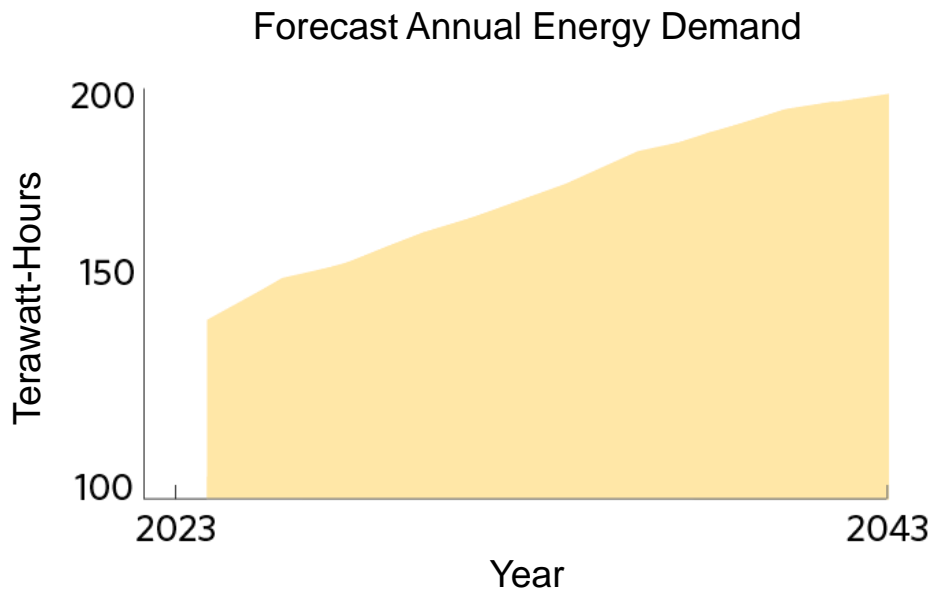


Electricity demand growing 40% over next two decades

After 20 years of stable demand, Ontario's electricity needs are increasing, driven by:

- economic development in energy intensive sectors
- population and housing growth
- electrification in transportation and manufacturing

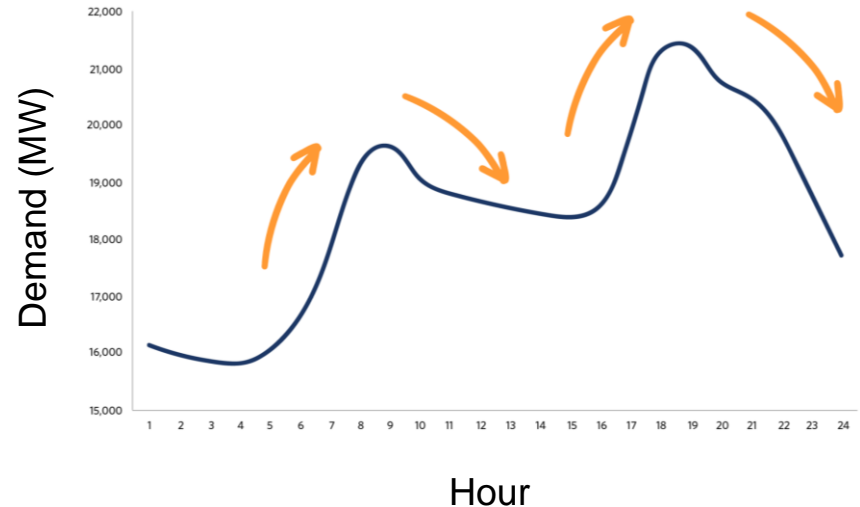
Recent industrial announcements like Stellantis, Volkswagen and Umicore demonstrate how quickly new power needs arise, and the urgency to act



Natural gas must bridge gap until new supply is ready

- Natural gas provides needed flexibility and certainty to quickly respond to changes in demand and system conditions. For example, in response to heat waves and other emergencies.
- There is currently no “like-for-like” replacement available. We will need to tap into a variety of solutions, but none can replace natural gas generation in time
- IESO studies show moving too quickly to retire natural gas generation will increase costs and could cause blackouts*
- Large infrastructure can take 10-15 years to build

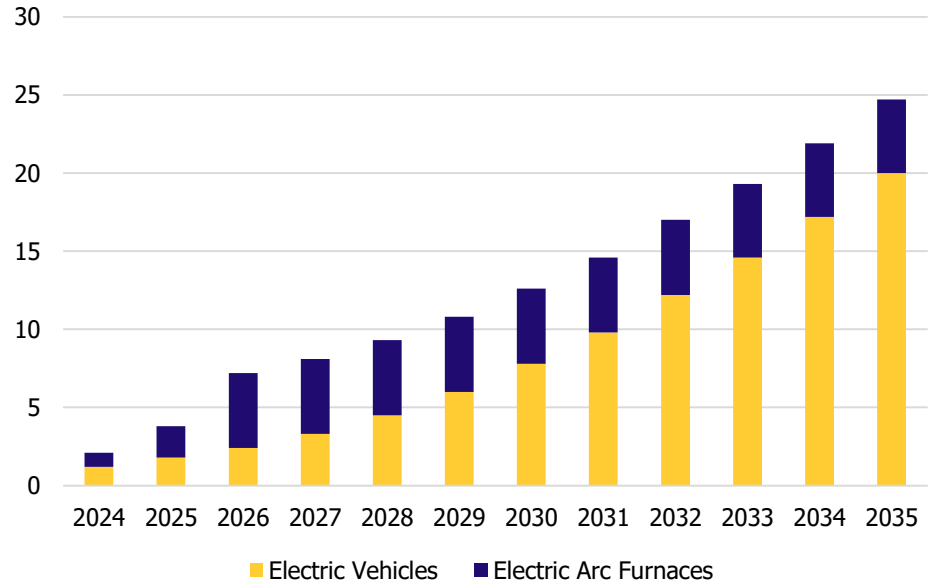
Ontario Demand on a winter day



Emissions reductions can't happen without a reliable, affordable grid

- With a 90% clean energy supply, Ontario has a considerable clean energy advantage to decarbonize its economy, but businesses and consumers need an affordable and reliable electricity system
- For example, a gasoline-fueled car produces at least 30 times more carbon emissions than an EV charged overnight
- The economy and the electricity system cannot reliably and affordably decarbonize without incremental gas

Forecast Emissions Reductions from Electrification (MT CO₂e)



Building an emissions free grid – the path forward

2024–2025



New commitments to small hydro facilities



First large battery facility comes online



Launch expanded energy efficiency programs



New capacity exchange agreement with Hydro Quebec

New market opportunities for local energy projects



New transmission lines bring power to Southern and Northeast Ontario (2025–2030)

2030–2034



Proposed Pickering refurbishment



Non-emitting generation fleet continues to grow

2026–2028



Battery fleet grows, contributing to Ontario's system needs

2029



First small nuclear reactor powers up

2032



Darlington and Bruce nuclear refurbishments largely complete



New non-emitting generation develops

2040



Most Ontario natural gas generation reach end of life

Conclusion

- Ontario is in the midst of a transformational effort to eliminate emissions from the grid while ensuring that it can support economic growth and broader electrification in other sectors
- The IESO's decarbonization plan is underpinned by the need for natural gas output in the near term, to ensure we can continue to power homes, businesses, and communities during upcoming supply shortfalls
- The IESO is working with communities to prepare for future economic growth as well as understand the role they can play to support reliability across the province



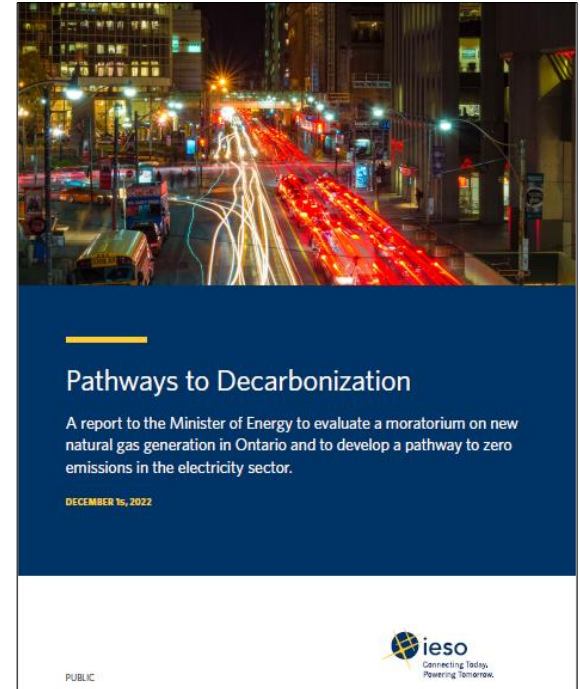
APPENDIX

2021 IESO Natural Gas Phase-Out Study

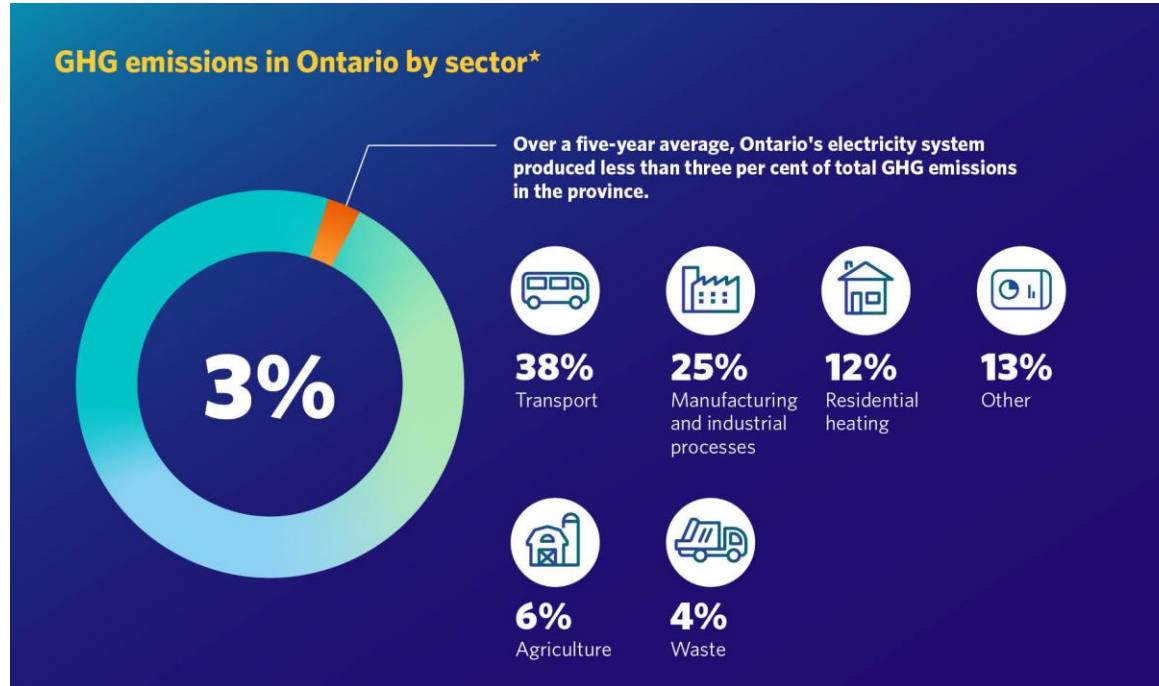
- A complete phase-out of gas generation by 2030 would lead to blackouts, as electricity would not always be available where and when needed
- Replacing gas by 2030 would require more than \$27 billion to install new sources of supply and upgrade transmission infrastructure – which would increase average monthly residential bill by \$100
- There are significant practical reasons why it would not be possible to build substantial amounts of new supply and reorient the system by 2030 – including time it takes to plan, approve and build new infrastructure
- While the study highlights the complexity of change within the electricity system, it also reveals the broader possibilities to decarbonize
- Full report: <https://www.ieso.ca/en/Learn/The-Evolving-Grid/Natural-Gas-Phase-Out-Study>

2022 Pathways to Decarbonization Report

- A moratorium on **new** gas generation is possible by 2027 **if** Ontario builds this last tranche of gas and completes a significant build out of the system
- Ontario's electricity sector can support broad, economy-wide decarbonization by 2050 but would require a system twice its current size
- Will require significant investments in capital, resources and labour
- Estimated costs are ~\$400B over 23 years
- Full report: <https://www.ieso.ca/en/Learn/The-Evolving-Grid/Pathways-to-Decarbonization>



A Grid Well-Positioned to Support Electrification



* Percentages have been rounded and as a result will not add to 100.

Thank You

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