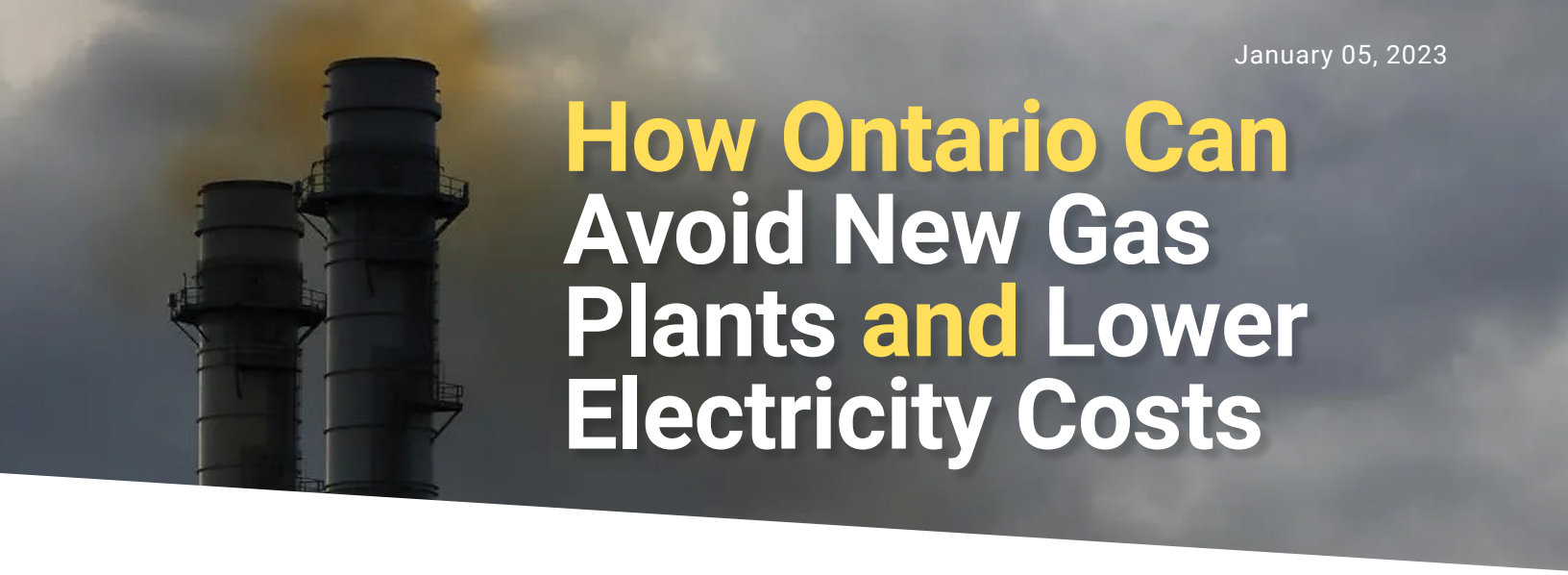


January 05, 2023

How Ontario Can Avoid New Gas Plants and Lower Electricity Costs

In October 2022, Ontario' Minister of Energy, Todd Smith, directed the Independent Electricity System Operator (IESO) to procure up to **1,500 megawatts (MW) of new gas-fired generation** capacity.[1] This is equivalent to approximately **three large gas plants** (e.g., the Portlands Energy Centre on the Toronto waterfront has a capacity of 550 MW).

Minister Smith's directive is a recipe for a climate and economic disaster. We have cleaner and lower cost options to keep our lights on during our hottest summer days and coldest winter nights. As the IESO's Dunsky Report has noted, **we can cost-effectively avoid the need for new peaking gas-fired generation capacity by investing in: a) renewable energy; b) demand response measures that shift electricity demand from peak to off-peak periods; and c) energy storage.**[2]

Minister Smith's directive is a recipe for a climate and economic disaster.

We have cleaner and lower cost options.

Specifically, Minister Smith can take the following three actions to avoid the need for 1,500 MW of new gas-fired generation to meet our electricity needs on the hottest summer days and coldest winter nights.[3]

1. Direct the IESO to **negotiate a multi-year contract with Hydro Quebec** to import at least 1,500 MW of renewable electricity during our peak summer demand hours.

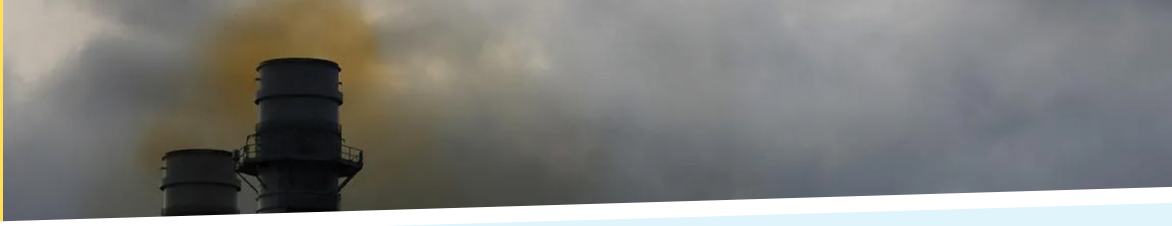
2. Direct the IESO to procure at least an additional 1,500 MW of **demand response resources** to reduce our peak winter and summer demand hours.

3. Permit residential and small commercial customers to **sell electricity to Ontario's electricity grid** during peak demand hours from their electric vehicles' (EVs) batteries, their stationary batteries and their solar roof tops.

See the next page for a detailed understanding of these three energy solutions >

ONTARIO CLEAN AIR ALLIANCE

How Ontario Can Avoid New Gas Plants and Lower Electricity Costs



1 Summer Electricity Imports from Hydro Quebec

While Ontario's demand for electricity peaks on hot summer days when our air-conditioners are running full out, Quebec's demand for electricity peaks during cold winter nights. As a result, **Hydro Quebec has a huge surplus of hydro-electric generation capacity** available for export to Ontario during the summer months.[4]

In 2016, the IESO signed an Electricity Trade Agreement with Hydro Quebec that gives Ontario the option to call on 500 MW of capacity from Hydro Quebec during one summer prior to 2030. The IESO is planning to exercise this option during the summer of 2026 or 2027.[5]

After the completion of Hydro One transmission system upgrades in 2023, Ontario will have the technical capability to import 1,650 MW of electricity from Quebec during every hour of the year.[6]

As result, Minister Smith can direct the IESO to negotiate a new capacity agreement with Hydro Quebec which will provide Ontario with up to 1,650 MW of firm peaking capacity for every summer from 2024 to 2040.

2 Demand Response

Demand response measures shift industrial, commercial and residential electricity demand from peak to off-peak periods (e.g., by using water heater controls, smart thermostats, thermal storage).

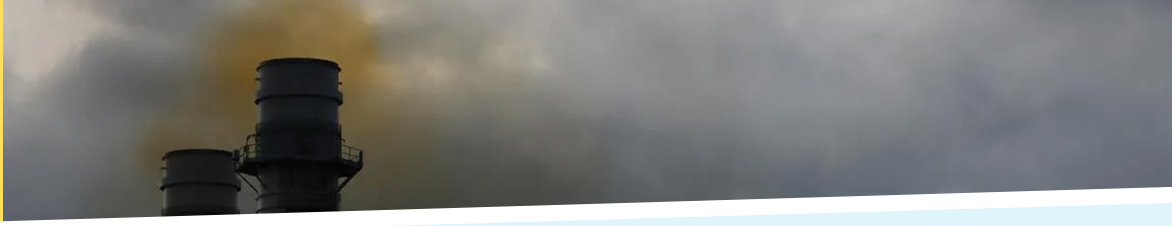
Demand response measures can reduce our peak hour capacity needs at a much lower cost than new gas plants and can increase our peak hour capacity.

For example, in December 2022 the IESO procured 680 MW of demand reductions for the winter of 2023-24 at a cost of only $16,344 per MW.[7] In contrast, the cost of new gas-fired peaking generation capacity is $945,000 to $1,249,000 per MW.[8] That means **the cost of a new gas plant is up to 76 times more expensive than demand response measures!**

While the IESO typically procures new electricity supply via 20-year contracts, it only signs one-year contracts for demand response measures. This policy arbitrarily increases the cost of demand response measures by requiring their capital costs to be amortized over just one year. The IESO can significantly lower its costs of acquiring capacity reductions by signing multi-year demand response contracts.

Continue >

ONTARIO CLEAN AIR ALLIANCE



3 Permitting residential and small commercial customers to help Ontario meet its peak hour electricity needs

In 2030, the total capacity of Ontario's electric vehicle (EV) batteries will be at least 24,200 MW,[9] which is more than 16 times the capacity of the proposed new gas plants.

EVs are parked for 95% of the hours of the day on average.[10]

EV batteries can be charged during off-peak hours (nights and weekends) and they can supply electricity back to the grid during peak demand hours.

EV batteries can be charged up at night at a cost of 7.4 cents per kWh and can then be allowed to sell power back to the grid during peak hours for 15.1 cents per kWh. This would be a good deal for EV owners and all electricity consumers since it would help to eliminate the need for higher-cost new gas-fired power plants, which produce electricity at a cost of 20 to 26 cents per kWh.[11]

Ontario's Time of Use Electricity Rates for Residential and Small Commercial Customers	
Peak	15.1 cents per kWh
Mid-Peak	10.2 cents per kWh
Off-Peak	7.4 cents per kWh

Unfortunately, the Government of Ontario does not allow residential and small commercial customers to sell power back to the grid during peak demand hours from their EV batteries. In addition, the sale of power to the grid from residential and small commercial solar roof tops cannot exceed their annual purchases of electricity from the grid. These arbitrary restrictions, which prevent residential and small commercial customers from selling power to the grid, don't make economic or climate sense.

Residential and small commercial customers should be permitted to sell electricity to the grid, from their EV batteries, their stationary batteries (e.g., Tesla Powerwall) and their solar roof tops during the peak demand hours at the Ontario Energy Board-approved peak hour price(s). This is a win-win option that will help eliminate the need for new gas plants and lower Ontario's electricity costs.

Continue >

References

1 https://ieso.ca/en/Corporate-IESO/Ministerial-Directives

2 Dunsky Energy + Climate Advisors, *Ontario's Distributed Energy Resources (DER) Potential Study, Volume 1: Results & Recommendations*, (September 28, 2022), pages ES-1 to ES-4 and 74 to 78.

3 Independent Electricity System Operator (IESO), *Resource Eligibility Interim Report*, (October 7, 2022) page 10; https://www.ieso.ca/en/Sector-Participants/Resource-Acquisition-and-Contracts/Resource-Eligibility

4 Ontario Clean Air Alliance Research, *Phasing-Out Ontario's Gas-Fired Power Plants: A Road Map*, (January 29, 2021), Figure 4; https://www.cleanairalliance.org/wp-content/uploads/2021/02/GAS_REPORT_2021_WEB.pdf

5 IESO, *Annual Planning Outlook: Supply, Adequacy and Energy Outlook Module*, (December 2022), page 7.

6 Email to Jack Gibbons from Leonard Kula, Chief Operating Officer, IESO, (February 14, 2019); and Ontario Energy Board Docket No. EB-2020-0265, Exhibit B, Tab 1, Schedule 1, pages 3 and 4.

7 https://www.ieso.ca/en/Corporate-IESO/Media/News-Releases/2022/12/2022-Capacity-Auction

8 According to Lazard, the cost of a new gas peaking power plant is $700,000 to $925,000 (US$) per MW. We have converted these figures to Canadian dollars by multiplying them by 1.35. Lazard, *Lazard's Levelized Cost of Energy Analysis – Version 15.0*, (October 2021), page 11; https://www.lazard.com/media/451905/lazards-levelized-cost-of-energy-version-150-vf.pdf

9 Ontario Clean Air Alliance, *Vehicle to Building/Grid Integration*, (November 22, 2021), page 4; https://www.cleanairalliance.org/wp-content/uploads/2022/01/Vehicle-to-Building-and-Grid-for-Peak-Needs-November-22-2021-1.pdf

10 *Vehicle to Building/Grid Integration*, page 8.

11 According to Lazard, the cost of electricity from a new gas-fired peaker plant Is 15.1 to 19.6 cents (US$) per kWh. We have converted these costs into Canadian dollars by multiplying them by 1.35. Lazard, *Lazard's Levelized Cost of Energy Analysis – Version 15.0*, (October 2021), page 2.

Thank you to:

Echo Foundation
Green Sanderson Family Foundation
Ivey Foundation
Noor Cultural Centre
Taylor Irwin Family Fund at the Toronto Foundation

for their generous support.