

# Atura Power

## Halton Hills Generating Station Expansion

### Public Community Meeting

An opportunity to learn about the  
proposed project and share feedback.

**Tuesday, October 24, 2023**



# Order of Events

## Agenda

1. Introduction and Land Acknowledgement
2. Project and Proponent Information
3. Next Steps and Project Timeline
4. Question and Answer Period
5. Closing Comments



Presentation is being recorded



Materials will be available online



Chat function is available for questions



# Land Acknowledgement

Atura Power respectfully acknowledges that the land that Halton Hills sits on is the ancestral land of many generations of Indigenous nations.

Today, this land continues to be home to many Indigenous peoples, including the Mississaugas of the Credit First Nation, part of the Anishinaabe Nation that extends from the Niagara peninsula across Hamilton, Halton and Toronto to the Rouge River Valley, the Six Nations of the Grand River, the Haudenosaunee and the Métis, as well as non-Indigenous settlers from a variety of backgrounds. As a community, we have a shared responsibility for stewardship of the land that we live and work on.

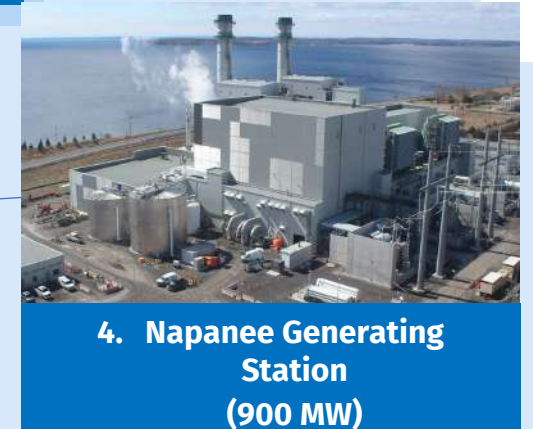
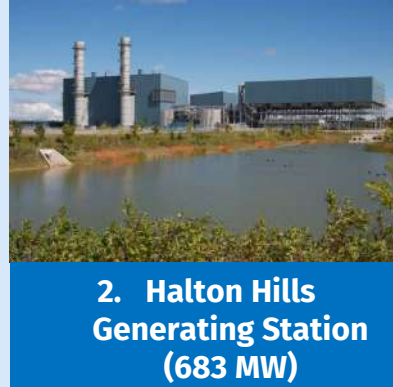
Atura Power is committed to fostering positive and mutually beneficial relationships with Indigenous peoples and communities across Ontario, and working toward respective community goals and objectives in peace, respect and friendship.



# About Atura Power

## Atura Power's Fleet of Generation Assets

A subsidiary of Ontario Power Generation, Atura Power owns and operates Ontario's largest fleet of combined-cycle gas turbine power plants.



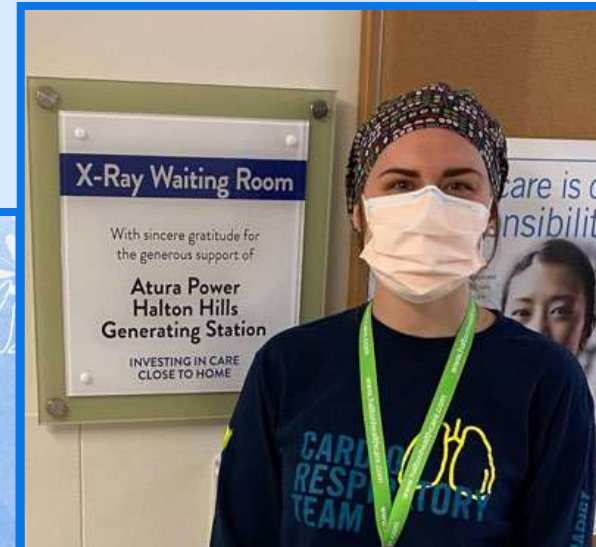
Comments or questions can be sent to: [haltonexpansion@aturapower.com](mailto:haltonexpansion@aturapower.com)

# Community Outreach and Support

## Committed to Supporting the Halton Hills Community

Atura Power annually donates thousands of dollars to local charities and organizations including:

- Georgetown Hospital Foundation
- Halton Learning Foundation – trades /engineering scholarships
- More than 800 healthy food packages to schools via Food4Kids
- Youth Leadership Program
- Lions Club Santa Clause Parade
- Free public skating at local arenas



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# Project Need

The Independent Electricity System Operator (IESO) is the Crown corporation that operates the province's electricity system.



Ontario is entering a period of emerging electricity system needs and IESO forecasts that an additional 4,000 megawatts (MW) are needed by the end of the decade.

The IESO is implementing procurement processes to secure new electricity resources that could be in service by 2027-2028.

Atura Power qualified for IESO's Long-Term 1 (LT1) procurement process.

Halton Hills Generating Station Expansion project is part of Atura Power's efforts to increase Ontario's electricity supply, support grid reliability, and help get to net-zero.



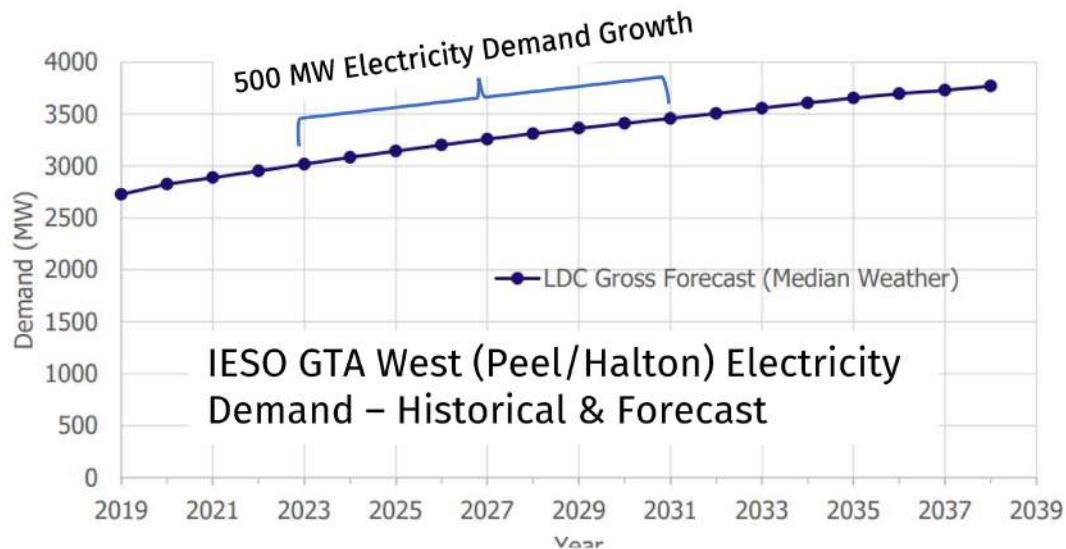
# GTA West (Peel/Halton) Electricity Needs

## Halton Hills Generation Station Provides Local Electricity Supply

Electricity demand growth within the GTA West region has been steady over the last five years, largely driven by expanding urban boundaries and intensifying urban areas<sup>1</sup>.

GTA West electricity demand is forecasted to grow to 3,500 MW by 2031 from 3,000 MW today, an increase of 500 MW, or 16%<sup>1</sup>.

The Halton Hills Generating Station Expansion location will supply electricity where it is needed without driving future transmission system reinforcement.



1. IESO Greater Toronto Area West (Peel/Halton) Integrated Regional Resource Plan, July 2021



## Combination of Electricity Storage and Natural Gas

The IESO wants to meet the 4,000 MW electricity system need through 2,500 MW of electricity storage and 1,500 MW of natural gas generation.

Electricity storage and natural gas generation provide complementary functions.

### **Electricity Storage:**

- Improves electricity system efficiency by shifting overnight renewable electricity production to daytime periods when it's most needed
- Supplies grid peak demand for up to four hours

### **Natural Gas Generation:**

- Backs-up electricity for longer periods of time to ensure reliability in all conditions including during extreme weather and periods of low wind and solar generation
- Halton Hills Generating Station Expansion is expected to operate less frequently than electricity storage and will only operate when peak needs exceed four hours (after electricity storage depletes)





# Natural Gas Synergy with Wind and Solar

## Natural Gas Backs Up Wind and Solar Generation

Wind and solar generation are important resources and will continue to play an increasing role in supplying clean electricity. However, other resources are needed to maintain system reliability.

It's common to have a week or more of low wind or overcast conditions so it's critical to have resources available that can generate electricity during those periods.

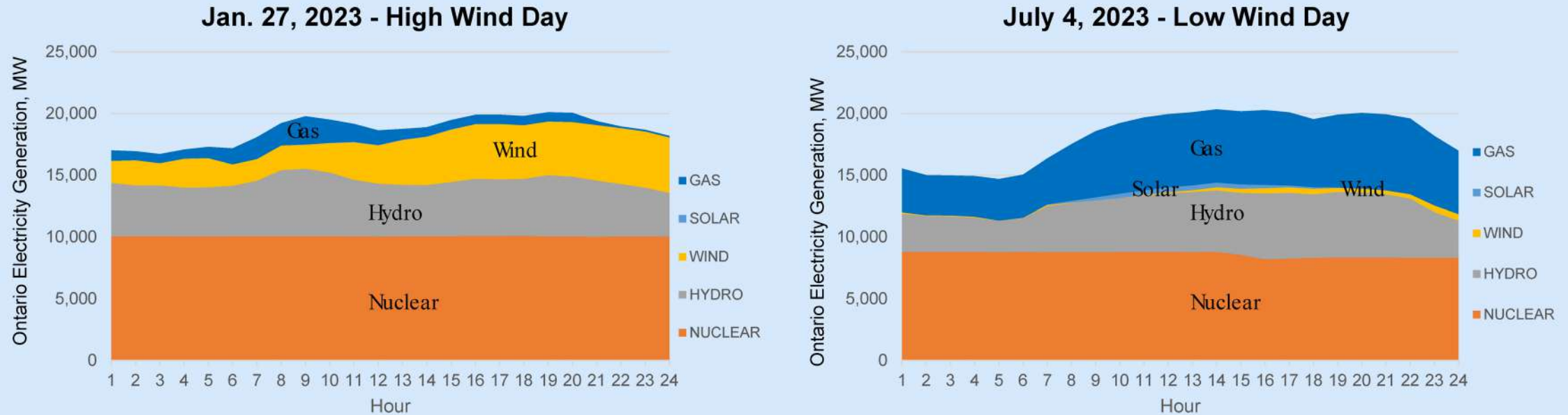
July 1 to 10, 2023, was a period of consistently low wind and Ontario's ~4,900 MW of wind generation operated at an average of 426 MW - roughly nine per cent of nameplate capacity - during three of the top six electricity demand hours of 2023.

Natural gas generation operates regardless of weather conditions to ensure system reliability and supports wind and solar generation in the electricity system.



# Natural Gas Operation

## Natural Gas Backs Up Wind and Solar Generation



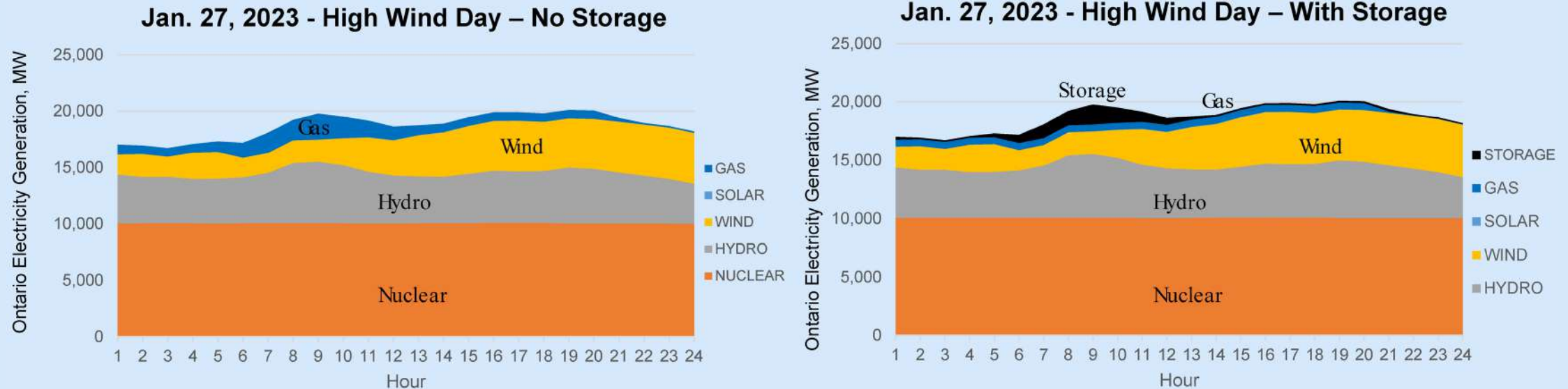
Consider two high electricity demand days with different weather conditions:

- January 27th had high wind generation and gas generation was limited
- July 4th had low wind generation and gas generation was needed
- July 4th had the sixth-highest peak hourly load of 2023 and gas generation prevented blackouts



# Electricity Storage Operation

## Electricity Storage Optimizes Other Generation



Consider the same January 27th with high wind generation:

- IESO's planned 2,500 MW/10,000 MWh of electricity storage would reduce the amount of natural gas generation required to serve the load by more than 50 per cent
- The January 27th generation mix without storage is 95 per cent emissions free, and adding storage further reduced emissions, resulting in a 97 per cent emission-free generation mix

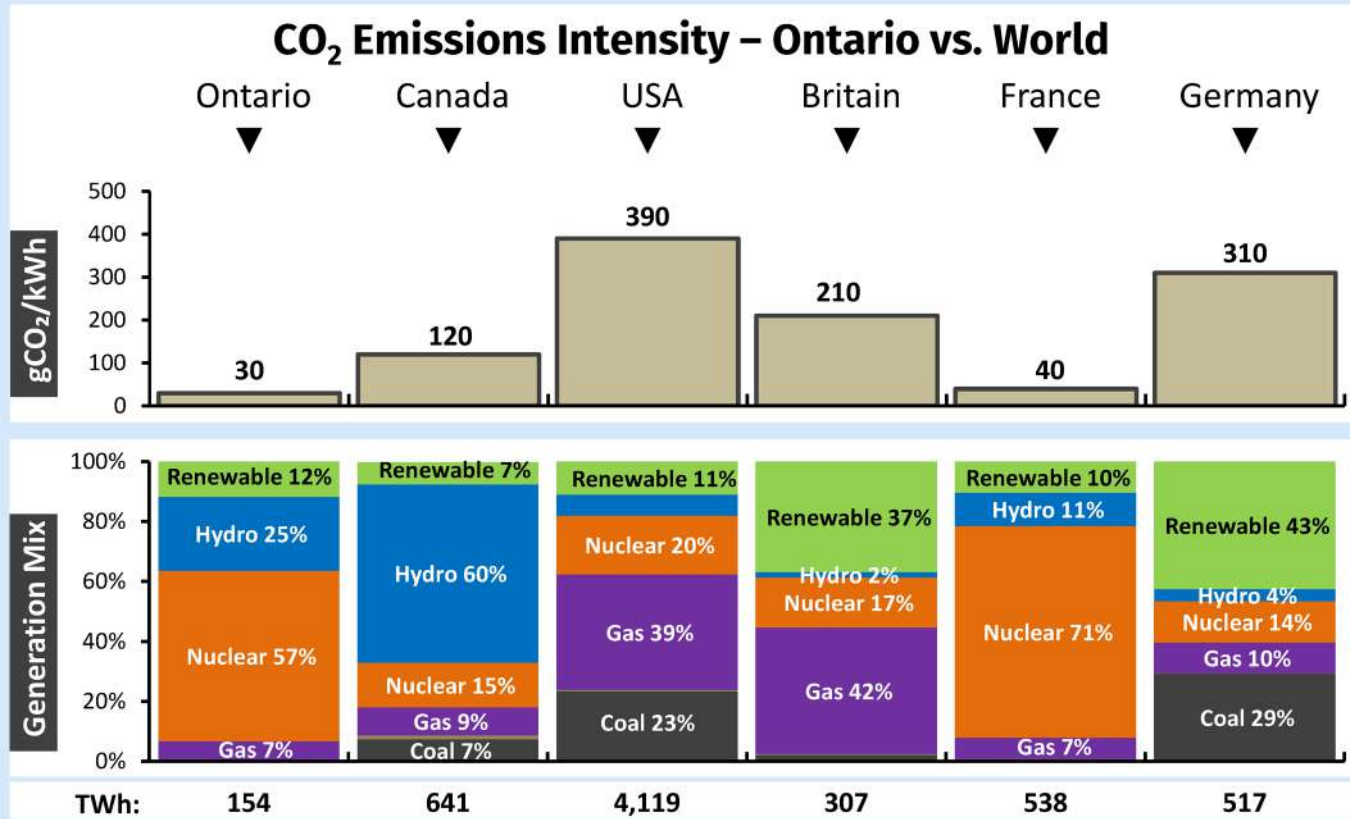


# Ontario Electricity in a Global Context

## World Leader in Clean Electricity Supply

Ontario has one of the cleanest electricity systems in the world after eliminating coal-fired generation in 2014.

Ontario's electricity system is about 90 per cent emissions-free (2022).



Notes:

Based on actual 2019 generation for Ontario, USA, UK, France & Germany, and 2018 generation for Canada.

CO<sub>2</sub> emission intensity estimates for in-region generation only; CO<sub>2</sub> from imports and life-cycle emissions not included.

Renewable excludes hydro and included wind, solar, biofuels and geothermal; small brown portion is oil.

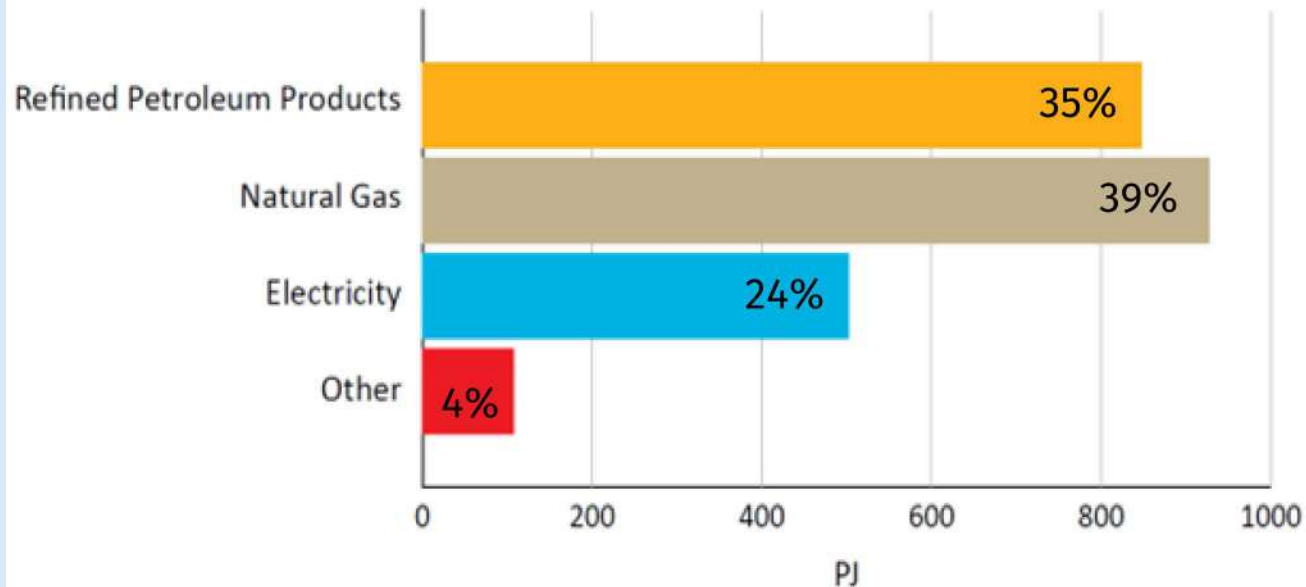
CO<sub>2</sub> emissions intensity estimates calculated assuming emissions of 450 gCO<sub>2</sub>e/kWh for gas, 800 gCO<sub>2</sub>/kWh for oil and 900 g/kWh for coal.



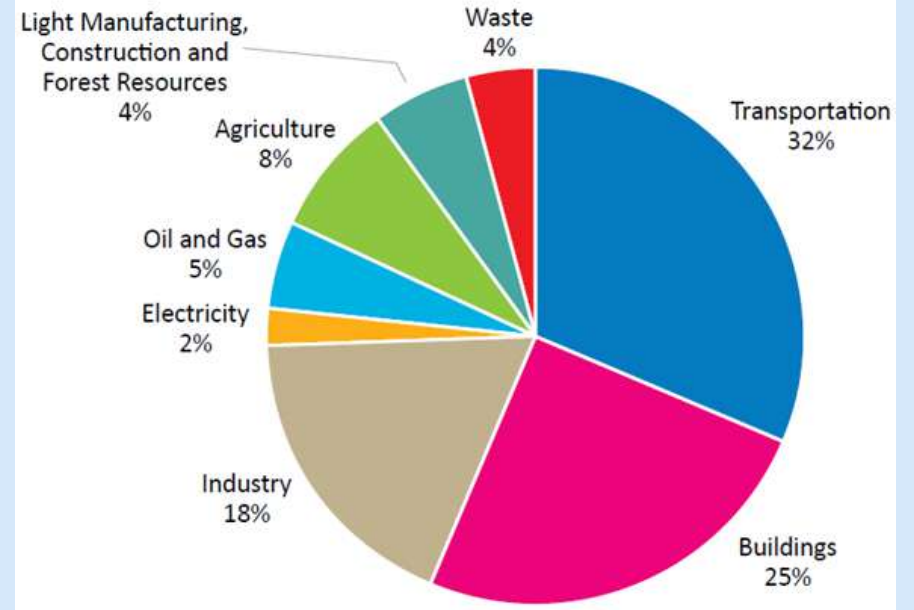
# Electricity is the Lowest Carbon Energy Source

Provides 24 Per Cent of Ontario's Energy but Only Two Per Cent of GHGs

Ontario's Energy Mix: End Use Demand by Fuel Type



Ontario GHG Emissions by Sector in 2021



Electricity supplies 24 per cent of end-use energy in Ontario but only contributes two per cent of overall greenhouse gas (GHG) emissions.

Converting other sectors to electricity ('electrification') is a key way to reduce overall emissions.

Source: Powering Ontario's Growth, Ontario's Plan for a Clean Energy Future



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# Example Benefit of Electrification

## Electric Vehicles Emit 60-97% Less CO<sub>2</sub> than Gasoline Cars

Electric vehicles (EVs) substantially reduce CO<sub>2</sub> emissions.

An EV charged with the Ontario average generation mix would release 97 per cent less CO<sub>2</sub> compared to a gasoline-powered vehicle.

The same EV, charged only with natural gas-generated electricity, would still release 60 per cent less CO<sub>2</sub> than a gasoline car.

Fuel Source	CO <sub>2</sub> Emissions (kg CO <sub>2</sub> e/100 km)	% Reduction in CO <sub>2</sub> Emissions
Gasoline	17.16	0%
Electric – Powered by Ontario Average Generation Mix	0.45	97%
Electric – Powered by Combined Cycle Natural Gas Generator	6.94	60%

Source: IESO Natural Gas Phase Out Study Data Tables, based on 2022 Hyundai Kona with a gasoline model efficiency of 7.4 litres/100 km, electric model efficiency of 17.4 kWh/100 km, combined cycle natural gas generation emission intensity of 0.4 kg CO<sub>2</sub>e/kWh and Ontario average electricity emission intensity of 0.03 kg CO<sub>2</sub>e/kWh.



# Project Description & Location

## Project Benefits

Provides local supply to growing area to reduce need for transmission upgrades. Hydrogen ready turbine facilitates future energy transformation.

## Project Capacity

Up to **265 MW** of electricity output.

## Project Location

Located within the existing Halton Hills Generating Station boundary.

**No expansion outside of zoned area.**



# Project Timeline

Activity	Timeline
LT1 Proposal Submission	December 2023
IESO Contract Offer Announcement	May 2024
Target Construction Start	2025
Operations	2028

Atura Power will complete a project-specific Environmental Assessment process and obtain necessary permits and approvals prior to construction.

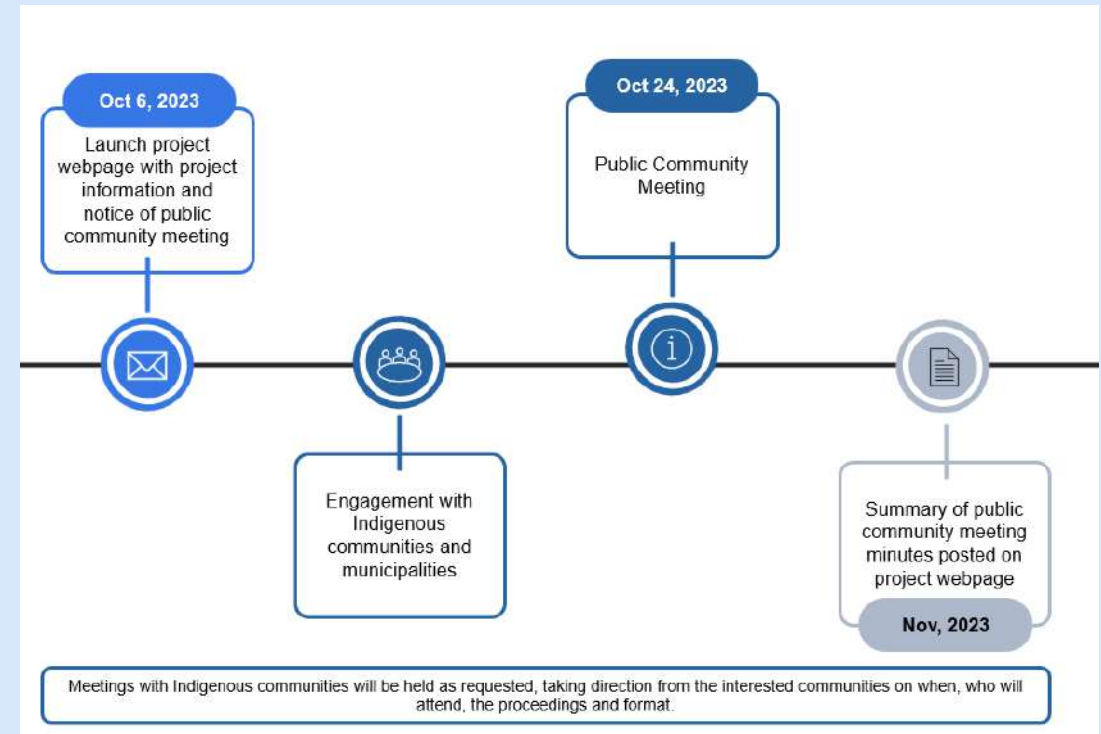
Indigenous and public engagement will remain a priority and continue during the next phase of the project.





# Next Steps

- Meeting materials, including a summary of questions and responses, will be posted to the project webpage
- Presenting to Halton Hills Council on Oct. 30<sup>th</sup>
- Halton Hills Generating Station Expansion LT1 proposal will be submitted to the IESO in December



# Project Importance

The Halton Hills Generating Station has an important role to play in powering Halton Hills today and helping us transition to tomorrow's carbon-free economy.

- Ontario has significant energy needs today and they're growing as we move towards electrification
- Electricity generated at Halton Hills Generating Station is critical to ensure grid reliability and stability during peak demand periods and backing up wind and solar



**We now welcome  
your questions or  
comments**



## Thank You

Email the project contact or visit the project webpage for more information.



**Email:** [haltonexpansion@aturapower.com](mailto:haltonexpansion@aturapower.com)



**Webpage:** [aturapower.com/haltonexpansion](http://aturapower.com/haltonexpansion)