

Atura Power

Napanee Generating Station Expansion and Battery Energy Storage System

Public Community Meeting

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

Wednesday, October 18, 2023



Agenda

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



Land Acknowledgement

As a visitor to your community and lands, we have an important responsibility to acknowledge the grounds which we are privileged to gather on today.

Our project is located in the traditional and treaty territory of the Mississauga Anishinaabeg. We believe that it is not only important to recognise the Mississauga Anishinaabeg for their care and teachings about the earth and our relations but to honour those teachings through our interactions today and every day.

We also acknowledge the Mohawks of the Bay of Quinte whose treaty territory is in the neighbouring location of Tyendinaga. We further recognise these lands have been the home of many Indigenous peoples over the centuries, including the Huron-Wendat, the Métis, and the Haudenosaunee.

Nearly 100 years ago, Canada and seven Mississauga and Chippewa First Nations signed agreements that became known as the Williams Treaties. These agreements were intended to be the foundation upon which sovereign peoples would build a common relationship. However, they led to long-standing disputes about compensation, settlement, and harvesting.

In light of this history, may we dedicate ourselves to moving forward in the spirit of partnership, collaboration, and reconciliation as we learn together and contemplate the possibilities that lay ahead.



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.



1. Brighton Beach Generating Station
Capacity 570 MW



2. Halton Hills Generating Station
Capacity 683 MW



3. Portlands Energy Centre
Capacity 550 MW



4. Napanee Generating Station
Capacity 900 MW



5. Napanee BESS Phase 1
Capacity 250 MW



6. Oakville Head Office



Comments or questions can be sent to: napaneeexpansion@aturapower.com and napaneebess2@aturapower.com

Community Outreach and Support

Atura Power is an engaged community partner and supporter in Greater Napanee. The company donated more than \$250,000 to organizations in 2022 and 2023 through the Atura Power Community Development Fund including:

- Lennox and Addington County General Hospital Foundation
- Royal Canadian Legion Branch 137
- United Empire Loyalist Heritage Centre & Park
- Softball Napanee
- Harmony Lounge & Music Club
- Napanee District Secondary School
- Napanee Crunch Female Hockey Association



Project Need

- The Independent Electricity System Operator (IESO) is the Crown corporation responsible for operating the province's electricity system
- Ontario is entering a period of emerging electricity system needs; IESO forecasts that an additional 4,000 MW are needed by the end of the decade
- IESO is implementing procurement processes to secure new electricity resources that could be in service by 2027-2028; Atura Power has qualified in IESO's Long-Term 1 (LT1) procurement process
- The Napanee Generating Station Expansion and Napanee BESS Phase 2 projects are part of Atura Power's efforts to increase Ontario's electricity supply, support grid reliability, and help us get to net-zero



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 is most needed
- Supply grid peak demand for up to four hours

Natural Gas Generation:

- Back-up electricity for longer periods of time to ensure reliability in all conditions (during extreme weather and extended periods of low wind / solar power generation)
- The Napanee Generating Station Expansion is expected to operate less frequently than electricity storage and would be called on when peak needs exceed four hours (i.e., after electricity storage resources have been fully utilised)



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 required to maintain system reliability.

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

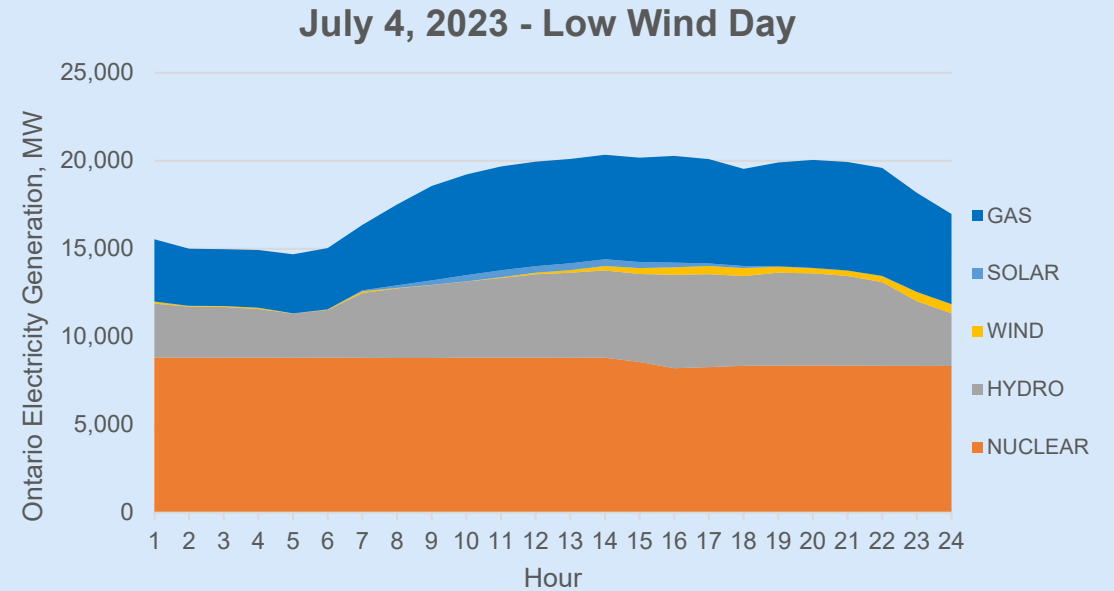
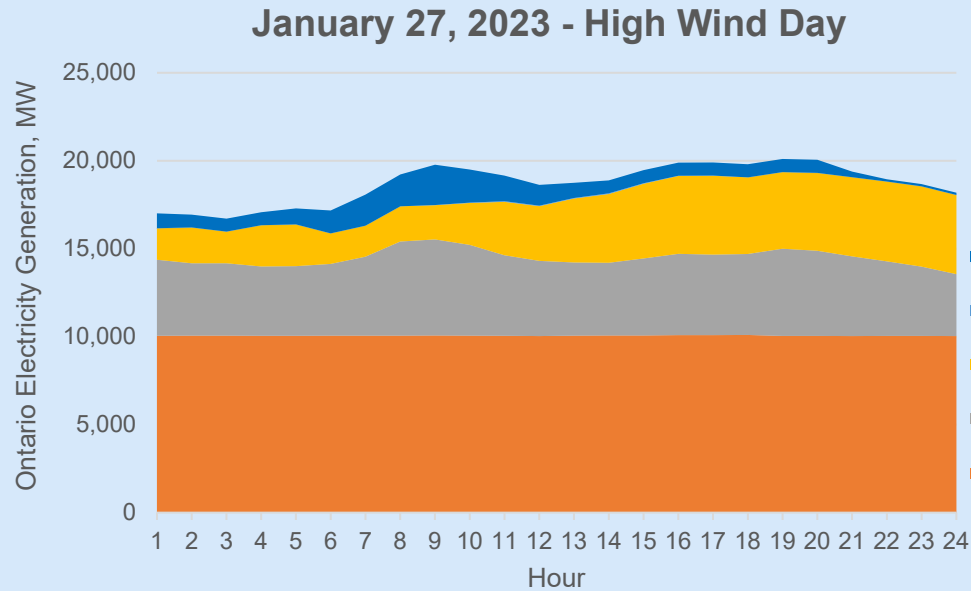
July 1 to 10, 2023, was a period of consistently low wind and Ontario's ~4,900 MW of wind generation operated at an average of 426 MW - roughly nine per cent of nameplate capacity – during this period when three of the top six highest electricity demand hours of 2023 occurred.

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



Natural Gas Operation

Natural Gas Backs Up Wind and Solar Generation



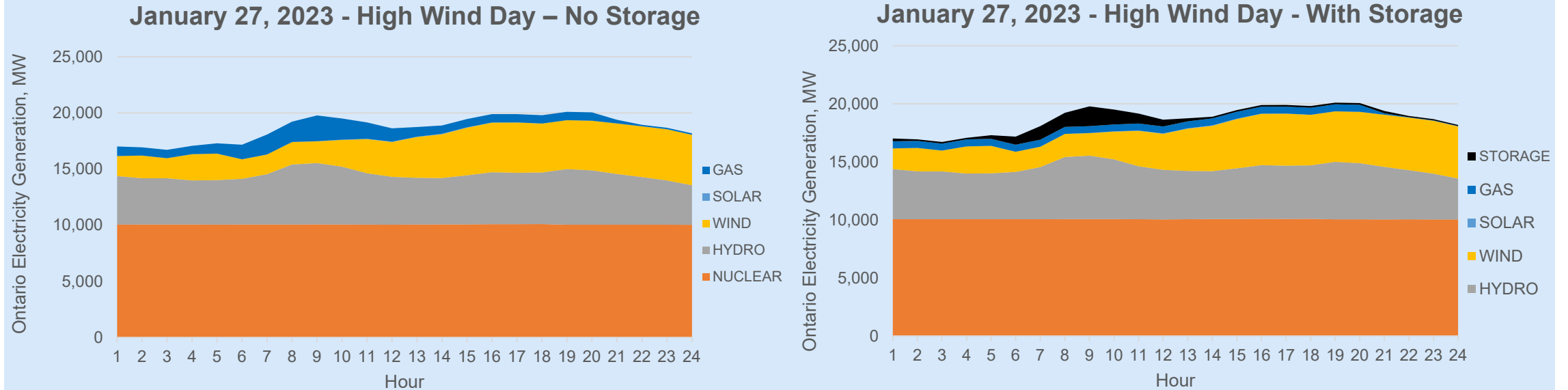
Consider two high electricity demand days with different weather conditions:

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



Electricity Storage Operation

Electricity Storage Optimizes Other Generation



Consider the previous day from January 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 27 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

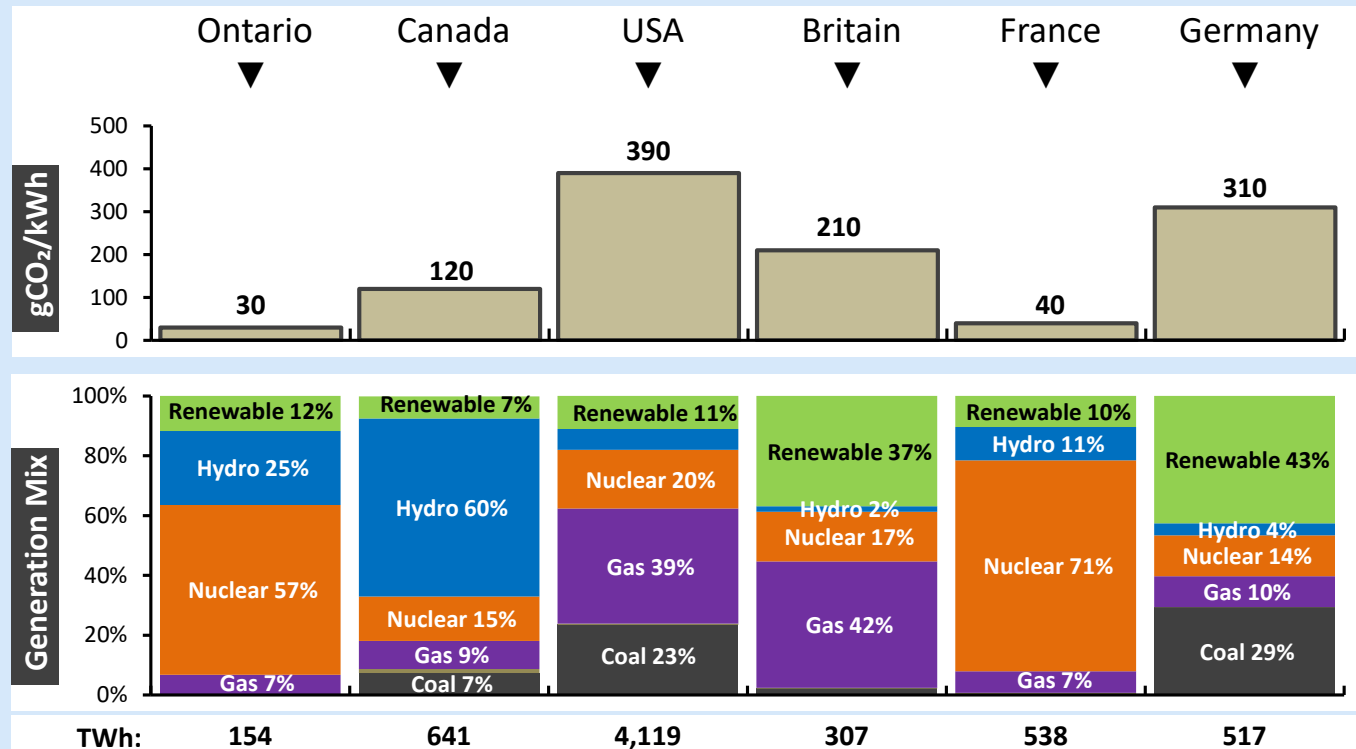


Ontario Electricity in a Global Context

World Leader in Clean Electricity Supply

After becoming the first jurisdiction in North America to eliminate coal-fired generation in 2014, Ontario has one of the cleanest electricity systems on the continent.

Ontario's electricity system was 94 per cent emissions-free in 2020.



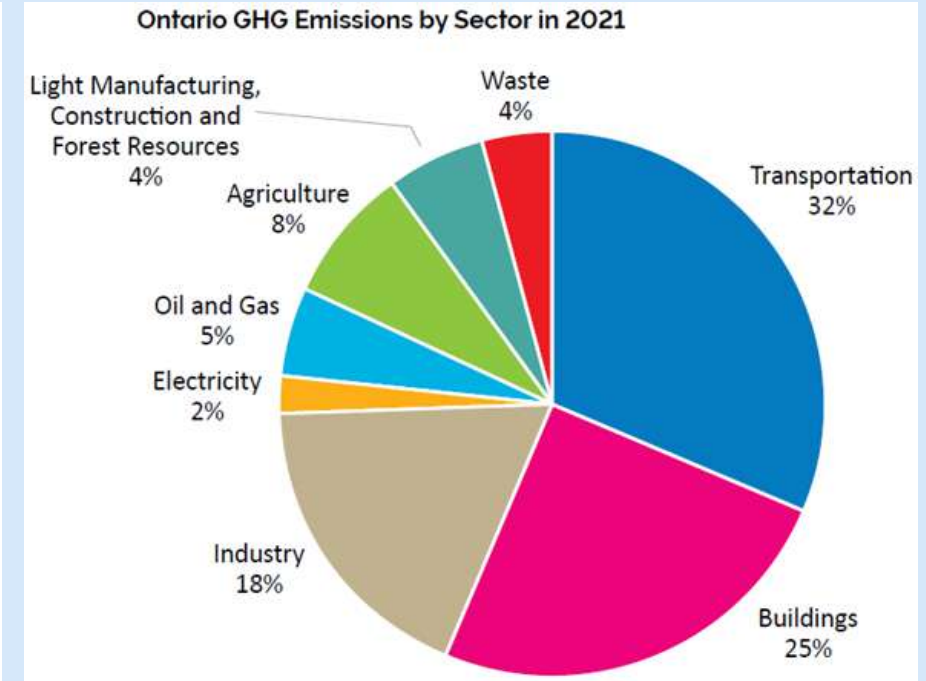
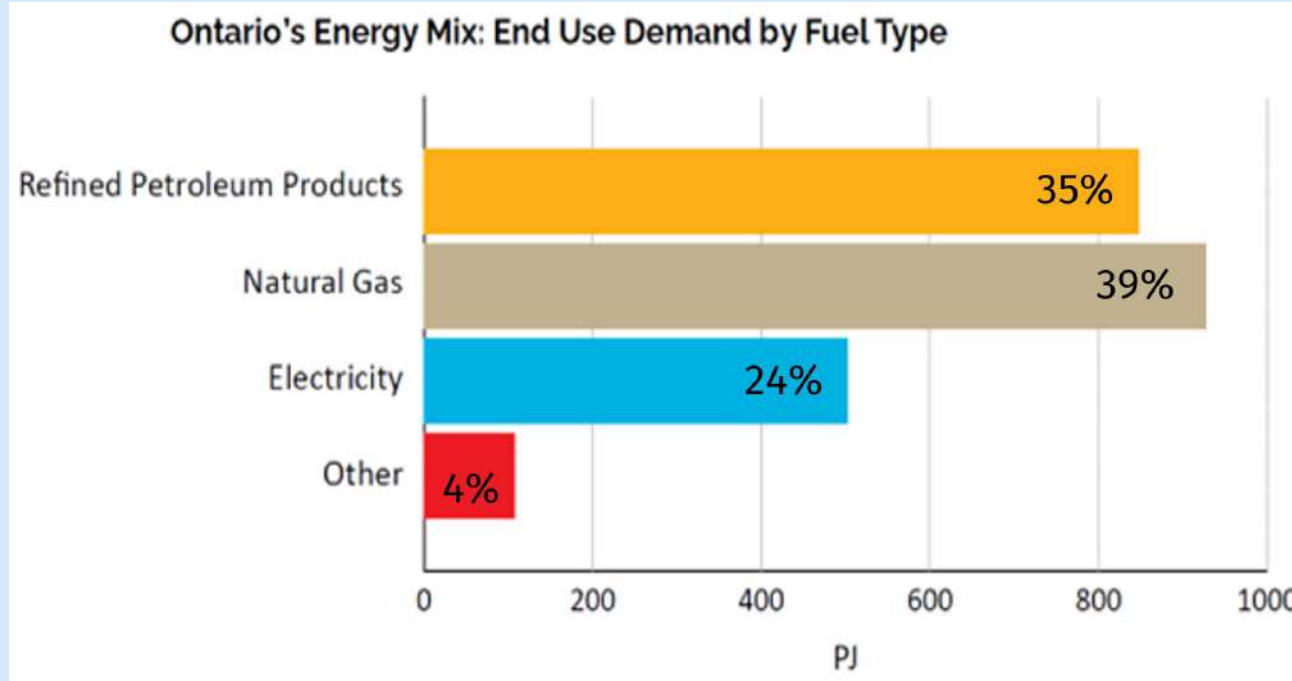
Notes:

- Based on actual 2019 generation for Ontario, USA, UK, France & Germany, and 2018 generation for Canada
- CO₂ emission intensity estimates are for in-region generation only; CO₂ from imports and life-cycle emissions are not included
- Renewable excludes hydro and included wind, solar, biofuels and geothermal; small brown portion is oil
- CO₂ emissions intensity estimates calculated assuming emissions of 450 gCO₂e/kWh for gas, 800 gCO₂/kWh for oil and 900 g/kWh for coal



Electricity is Lowest Carbon Energy Source

Only 2% of Ontario GHG Emissions, But Provides 21% of All Energy



Electricity supplies 21 per cent of end-use energy in Ontario, but only contributes two per cent of overall greenhouse gas (GHG) emissions.

Converting other industries to electricity, i.e., 'Electrification' is a key pathway for reducing 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 CO₂ than Gasoline Cars

Electric vehicles provide a substantial reduction in CO₂ emissions.

An electric vehicle charged with the Ontario average generation mix would release 97 per cent less CO₂ emissions than a comparable gasoline model.

The same electric vehicle, charged only with natural gas generation would still release 60 per cent less CO₂ than gasoline.

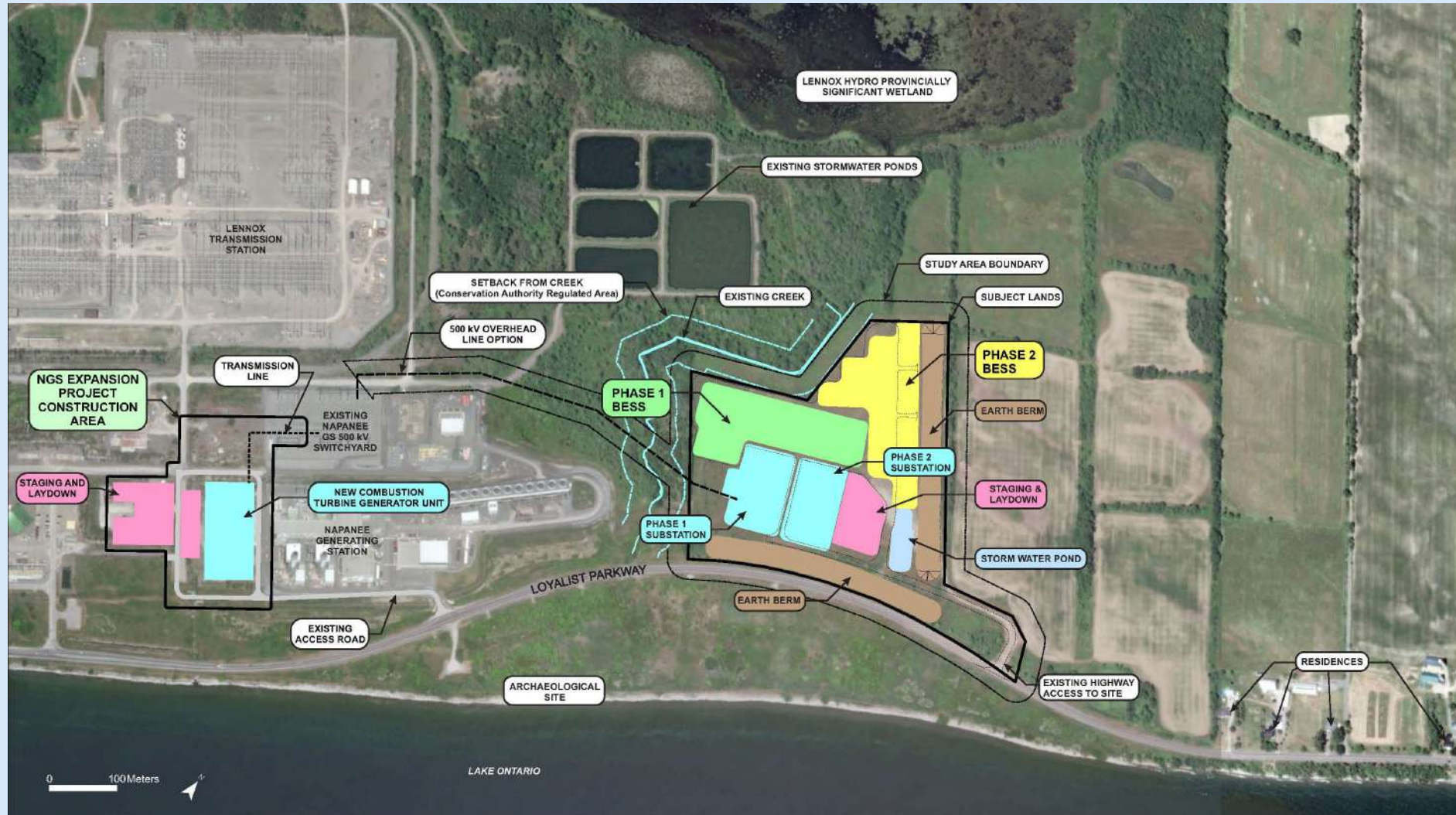
Fuel Source	CO ₂ Emissions (kg CO ₂ e/100 km)	% Reduction in CO ₂ Emissions
Gasoline	17.16	0%
Electric – Powered by Natural Gas Generator (Combined Cycle)	6.94	60%
Electric – Powered by Ontario Average Generation Mix	0.45	97%

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 CO₂e/kWh and Ontario average electricity emission intensity of 0.03 kg CO₂e/kWh.



Site Layout & Existing Features

Napaneer Generating Station Expansion and BESS Phases 1 & 2



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Napanee Generating Station Expansion

Project Description and Site Plan

Project Description

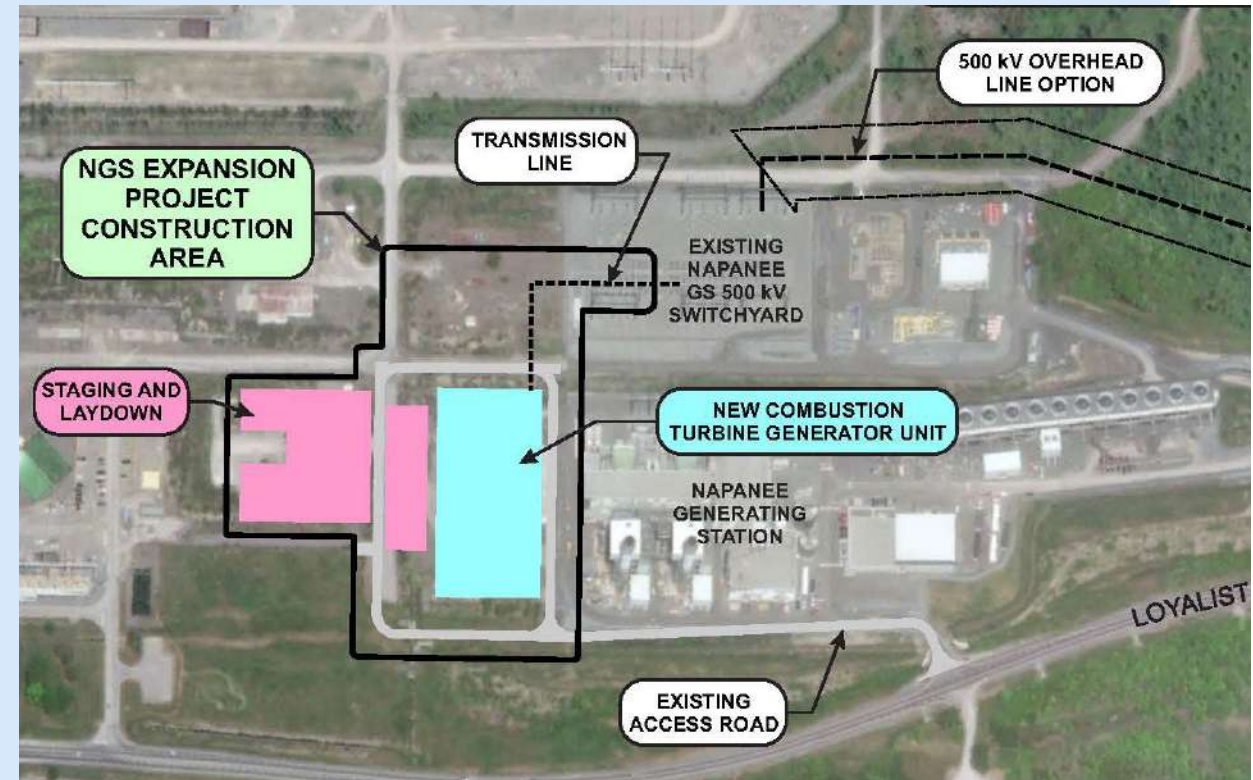
- The project will add a hydrogen-ready simple cycle combustion turbine generator unit
- Existing onsite infrastructure and facilities will be used

Project Capacity

- Up to **450 MW** of electricity output

Project Location

- The project will be located within the existing Lennox Generating Station boundary
- **No expansion will be required outside of previously zoned areas**



Napanee BESS Phase 2*

Project Description and Site Plan

Project Description

The project will include:

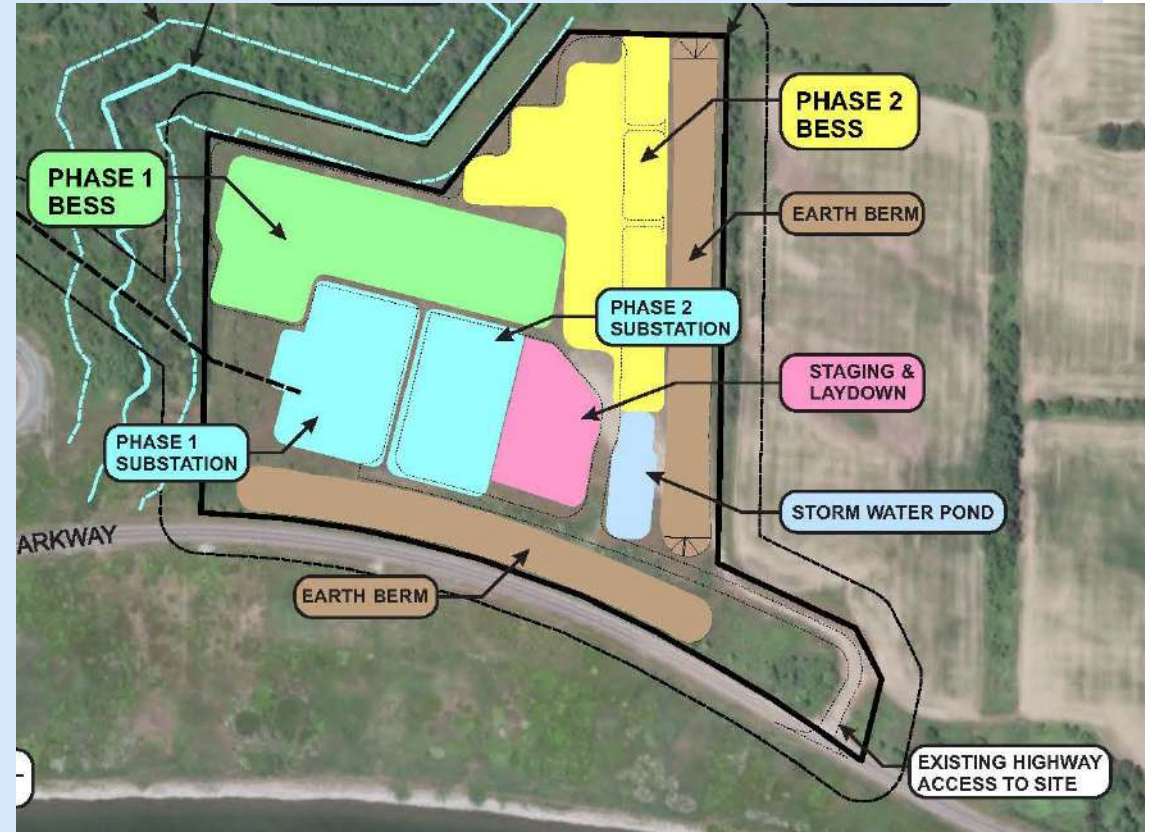
- Lithium-ion battery units
- A system that converts electrical alternating current (AC) to direct current (DC) for electricity storage
- Transmission connection facilities
- Transformers
- Emergency power and support buildings
- On-site operation and monitoring

Project Capacity

- **250 MW** of electricity storage and output for up to four hours

Project Location

- The project will be located on the same property and beside the Napanee BESS Phase 1 project, east of the current Napanee Generating Station

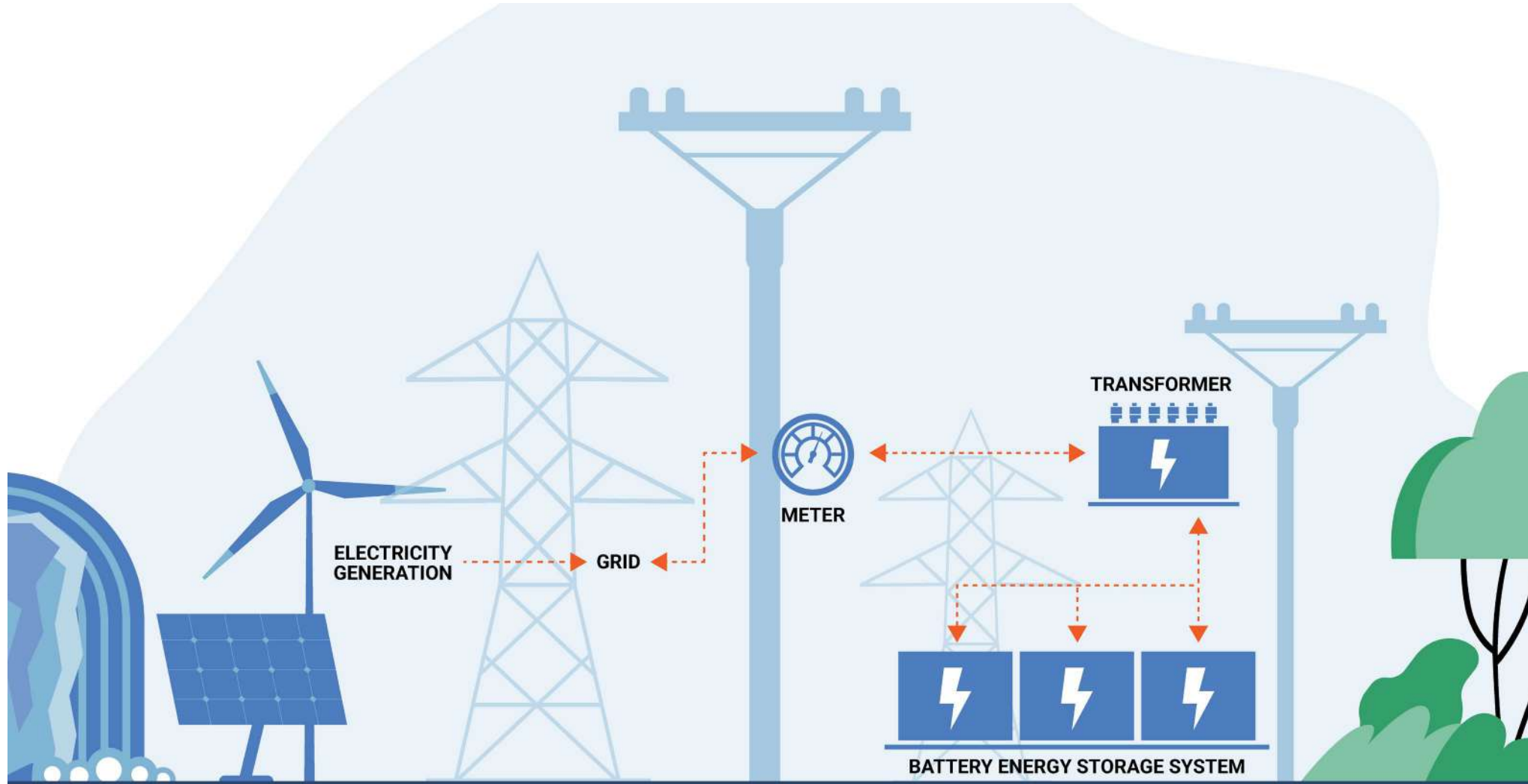


*BESS Phase 1 - 250 MW BESS facility contracted by the IESO through the Expedited Long-term Request for Proposals process (E-LT1 RFP)

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How Energy Storage Works

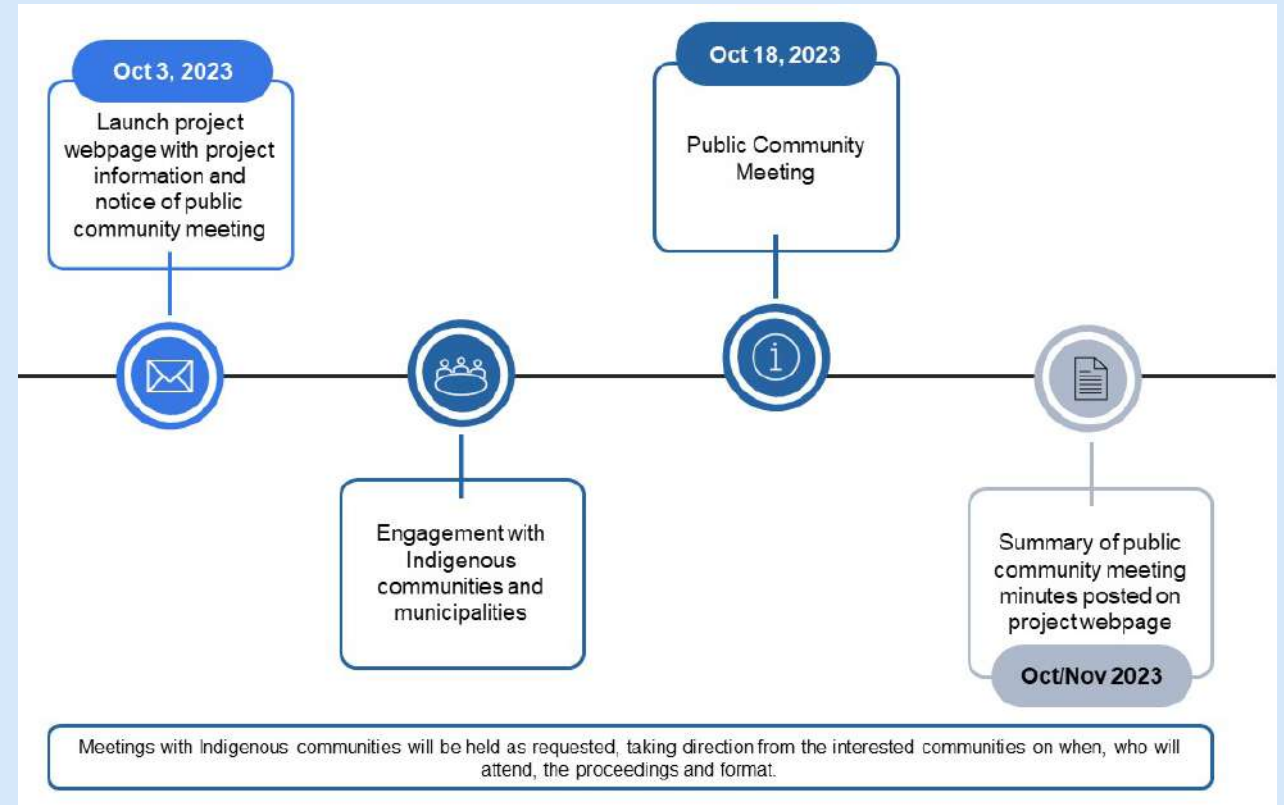


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LT1 Engagement Timelines

Napanee Generating Station Expansion and BESS Phase 2

- Meeting materials including a summary of questions and responses will be posted to the project webpages
- Atura Power will be presenting to the Town of Greater Napanee Council on Oct. 24
- The Napanee Generating Station and BESS Phase 2 LT1 proposals will be submitted to the IESO in December



Project Timelines

Activity	Generating Station Expansion	BESS Phase 2
LT1 Proposal Submission	Dec 2023	Dec 2023
IESO Contract Offer Announcement	May 2024	May 2024
Target Construction Start	2025	2025
Operations	2028	2027

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

Indigenous and public engagement remain a priority and will continue throughout the project planning phase.




**We'd now like to invite any
questions or comments**




Thank You


Please email the project contacts or visit the project webpages for more information:

Napaneer Generating Station Expansion

 napaneerexpansion@aturapower.com

 aturapower.com/napaneerexpansion

Napaneer BESS Phase 2

 napaneerbess2@aturapower.com

 aturapower.com/napaneerbess2