

Atura Power

Napanee Generating Station Expansion and Battery Energy Storage System Phase 2

Public Community Meeting

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

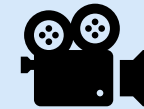
Thursday, November 23, 2023



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

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

We also acknowledge the Mohawks of the Bay of Quinte whose treaty territory is in the neighbouring location of Tyendinaga. We further recognize 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, let's dedicate ourselves to moving forward in the spirit of partnership, collaboration, and reconciliation as we learn 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 (570 MW)



2. Halton Hills Generating Station (683 MW)



3. Portlands Energy Centre (550 MW)



4. Napanee Generating Station (900 MW)



5. Napanee BESS Phase 1 (250 MW)



6. Oakville Head Office

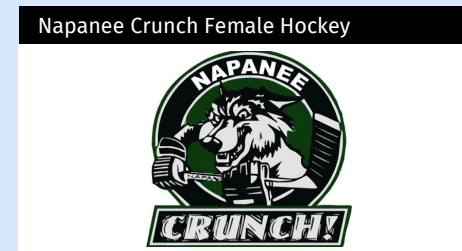
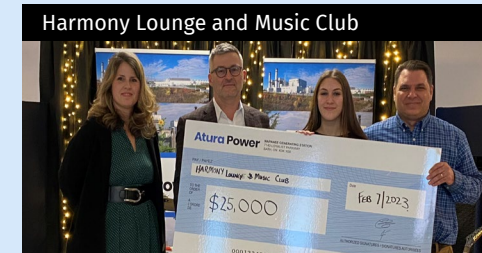
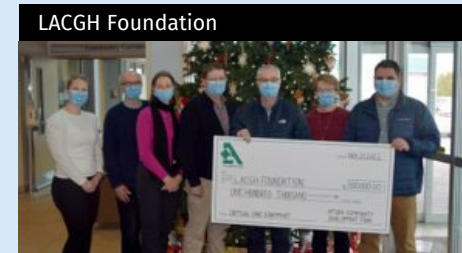


Comments or questions can be sent to: napaneeexpansion@aturapower.com and napaneebess2@aturapower.com

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 & 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



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Ontario Electricity System Transition

Ontario is taking the first steps in the transition to a net-zero economy by 2050.

Increased electricity consumption is driving a need for new resources within the next few years to maintain electricity system reliability.

Longer term electricity plans involve major investments in nuclear, hydroelectric, wind and solar generation to increase the amount of non-emitting electricity supply.

2024-2025



New commitments to small hydro facilities



New capacity exchange agreement with Hydro Quebec



First large battery facility comes online



New market opportunities for local energy projects



Launch expanded energy efficiency programs



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

2032



Darlington and Bruce nuclear refurbishments largely complete

2026-2028



Battery fleet grows, contributing to Ontario's system needs

2029



First small modular reactor powers up

2030-2034



Proposed Pickering refurbishment



Non-emitting generation fleet continues to grow

2040



Most Ontario natural gas generation reach end of life



IESO Procurement for Reliability Services

Combination of Electricity Storage and Natural Gas

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 to maintain reliability.

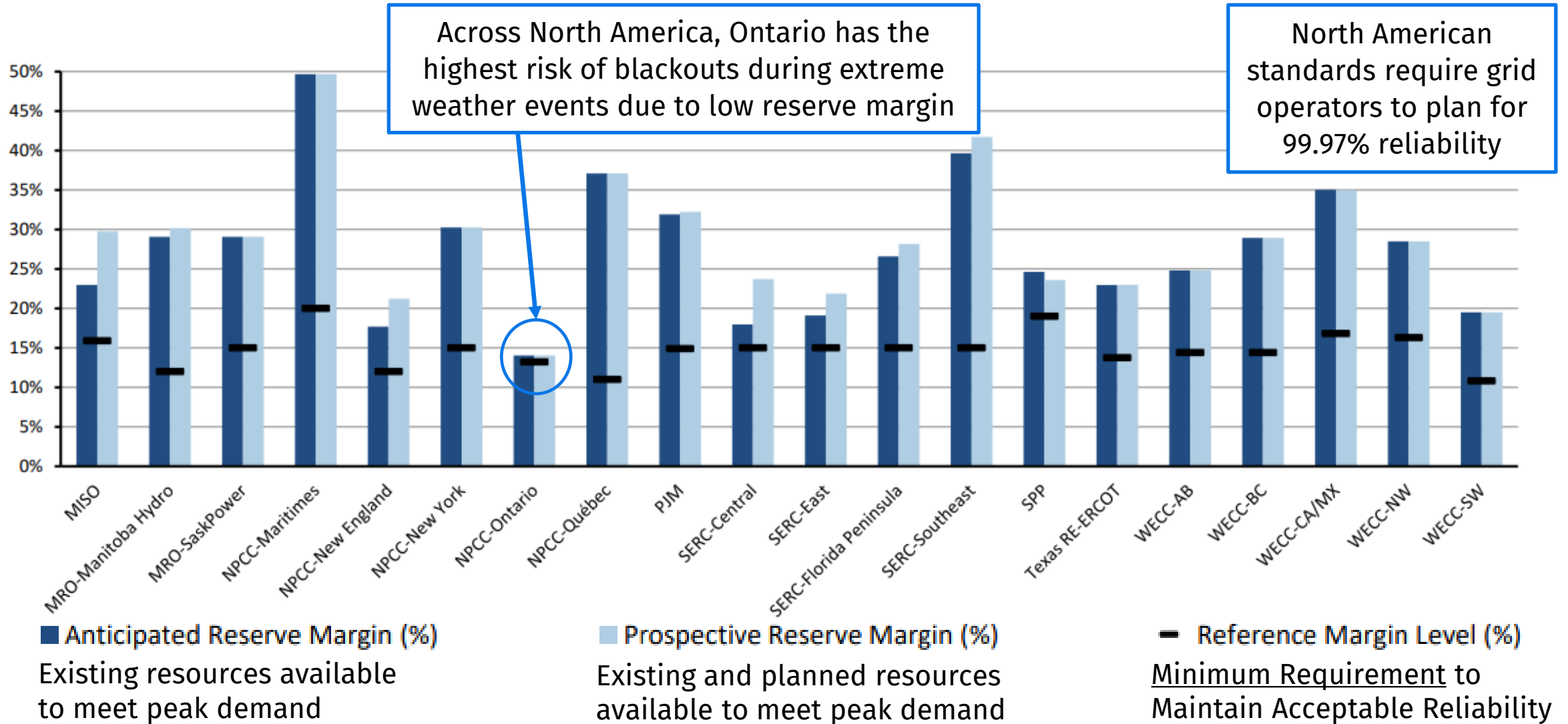
The IESO is implementing procurement processes to secure of 2,500 MW of electricity storage and 1,500 MW of natural gas generation that can be online from 2026-28.

Atura Power is proposing the Napanee Generating Station Expansion and Napanee BESS Phase 2 projects in response to the IESO's Long-Term 1 (LT1) procurement process.



Ontario Electricity Reliability is at Risk

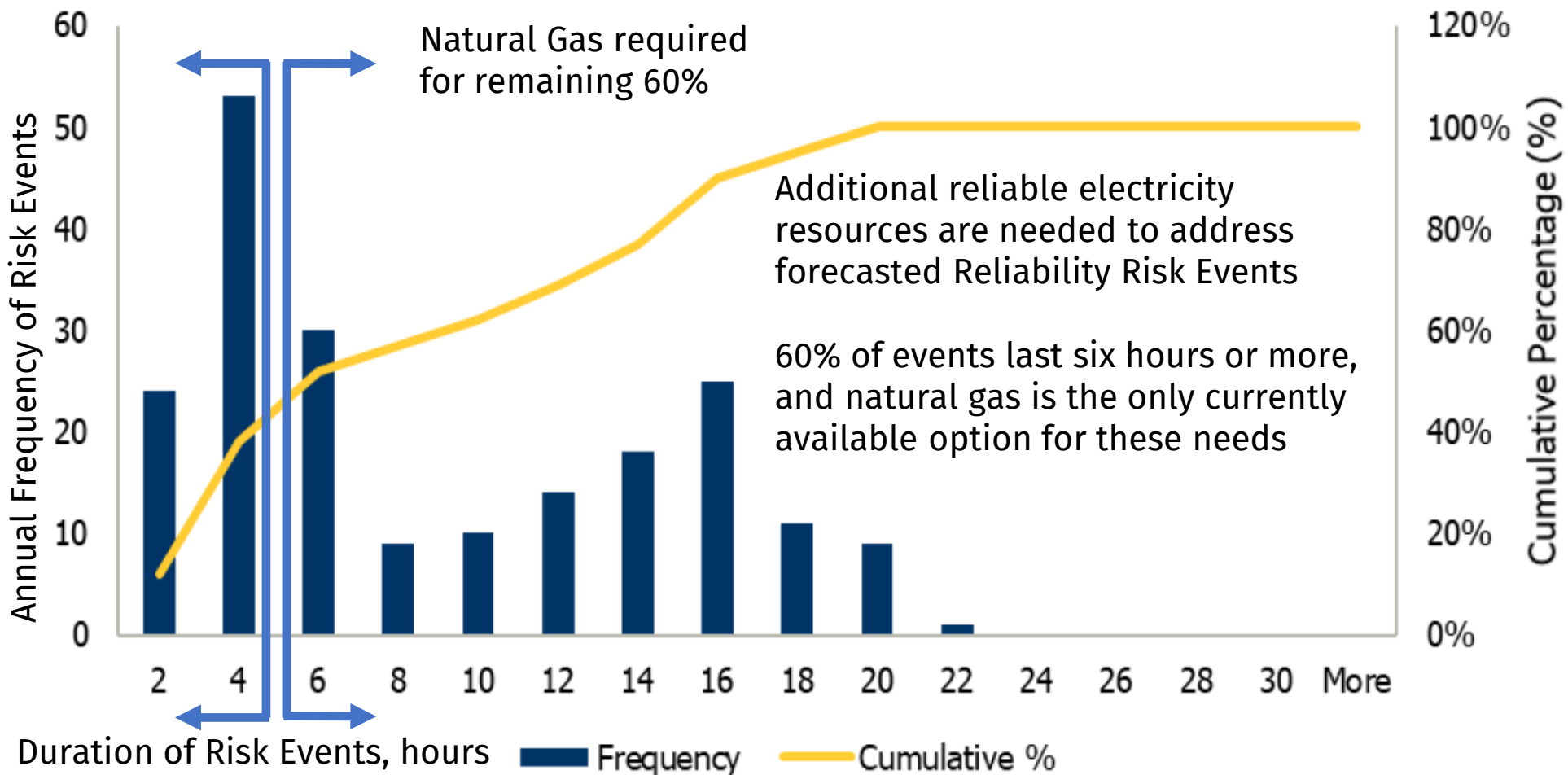
Ontario Barely Meets the Minimum Requirement for Reliability



Why More Natural Gas Generation is Required

Forecast 2029 Reliability Risk Events Driving Need for New Resources

Batteries can solve
40% of risk events

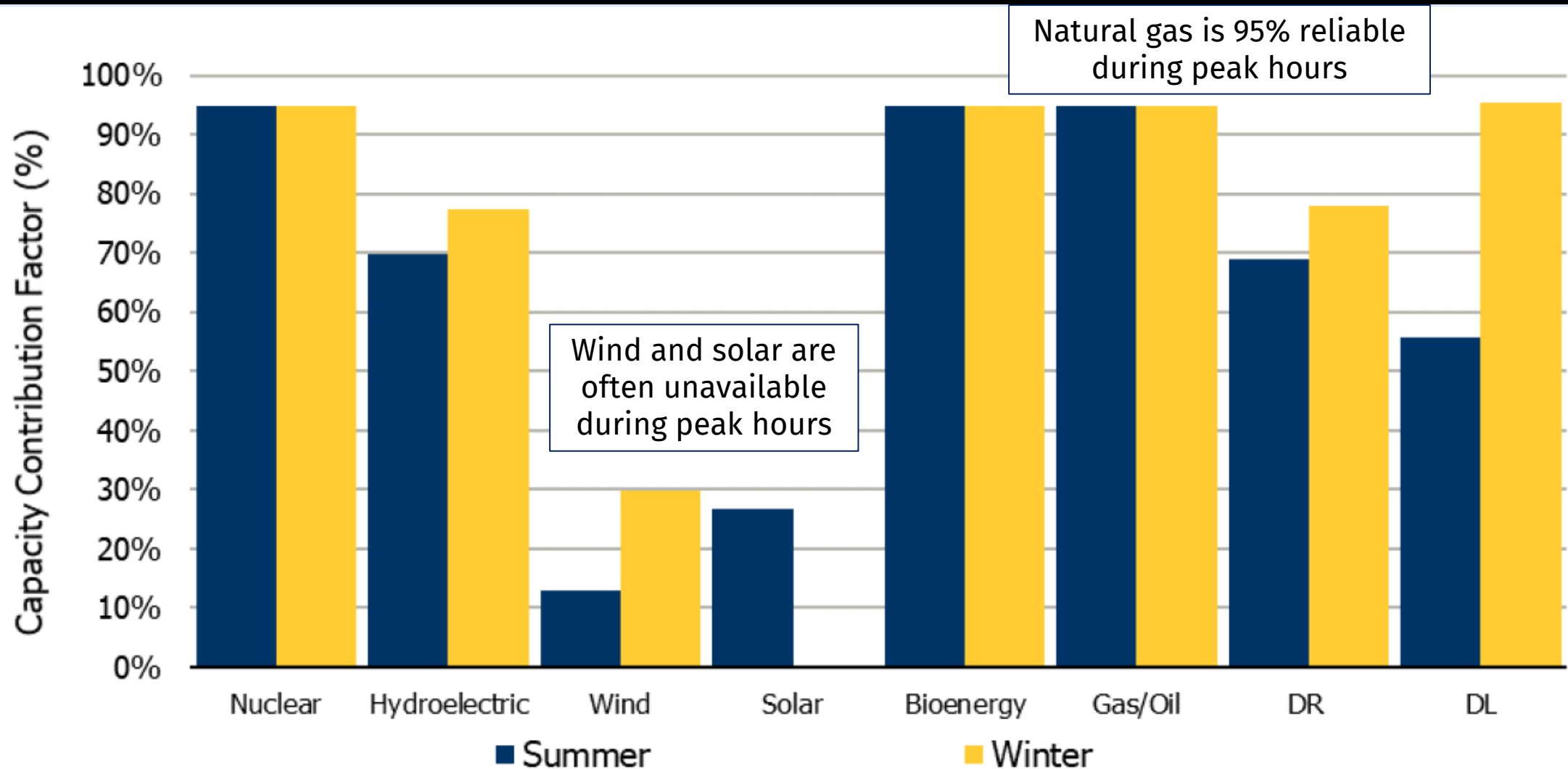


What are Reliability Risk Events?

- Times when the electricity system is stretched to its limit and at risk of blackout
- Often caused by extreme weather conditions that increase electricity demand and prevent wind and solar resources from operating

Why Can't Wind & Solar Be Used Instead of Gas

Summer & Winter Capacity Peak Contribution



Source: IESO 2022 Supply, Adequacy and Energy Outlook Module, <https://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/apo/Dec2022/Supply-Adequacy-and-Energy-Outlook-Module.ashx>

Natural Gas is Needed Post 2035

Natural Gas has Continuing Role in Maintaining Electricity Reliability

Immediate phase-out of natural gas electricity generation is not possible without a risk of blackouts.

The proposed 2035 Federal Clean Electricity Regulations envision natural gas operating post 2035 in a limited role to support reliability, i.e., up to 450 hours per year.

Currently there's no like-for-like replacement supply that offers similar operating characteristics of gas generation.

Electrification of other sectors offers a far more cost-effective pathway to decarbonization than rushing to remove natural gas generation entirely.

Supply from Quebec is not a realistic immediate alternative to natural gas since Quebec relies on electricity imported from Ontario and other jurisdictions during the winter.



Decarbonization and Ontario's Electricity System

Assessing the impacts of phasing out natural gas generation by 2030

OCTOBER 7, 2021

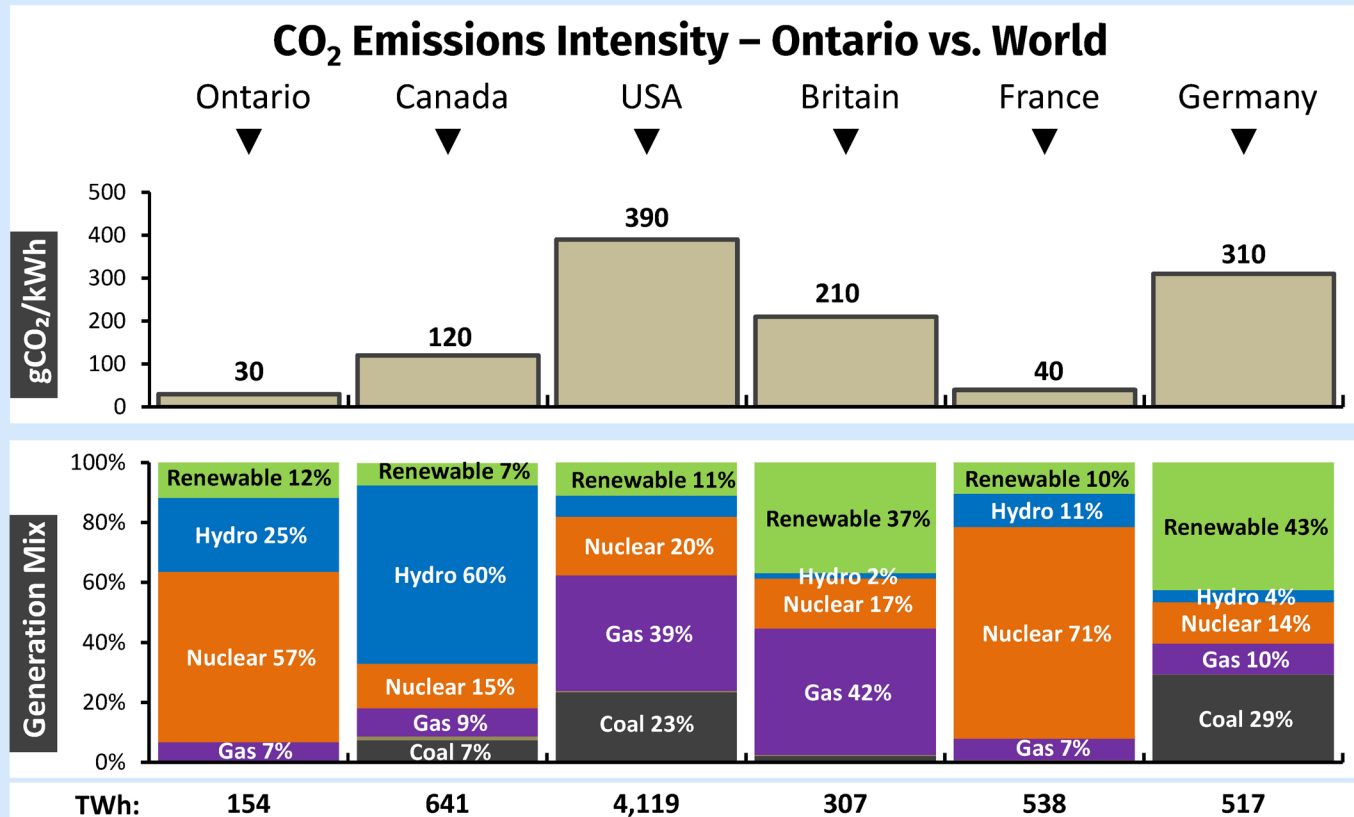


Ontario Electricity in a Global Context

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.

CO₂ emission intensity estimates for in-region generation only; CO₂ from imports and life-cycle emissions not included.

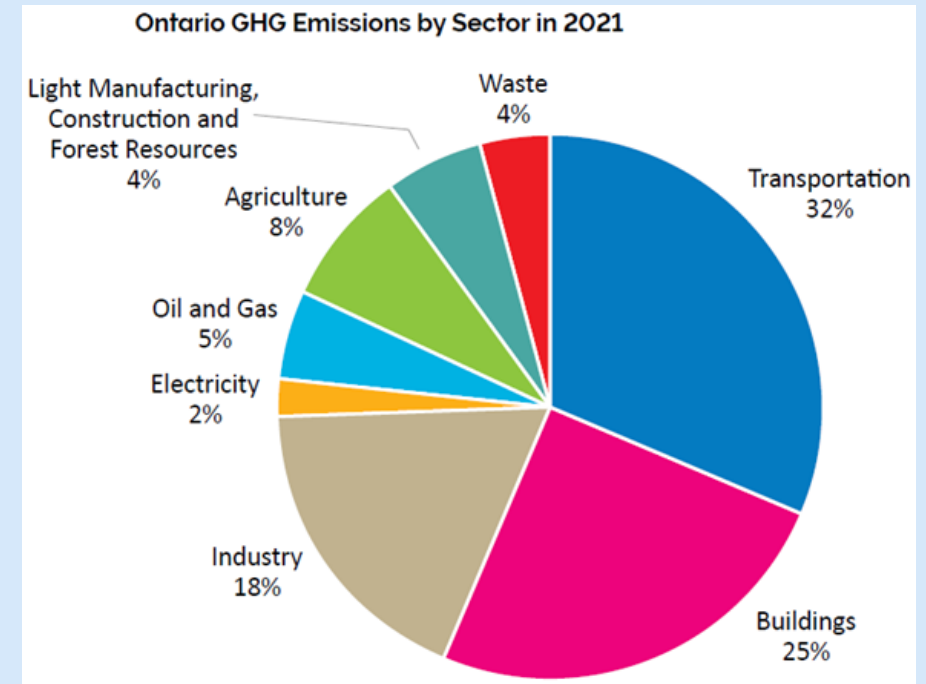
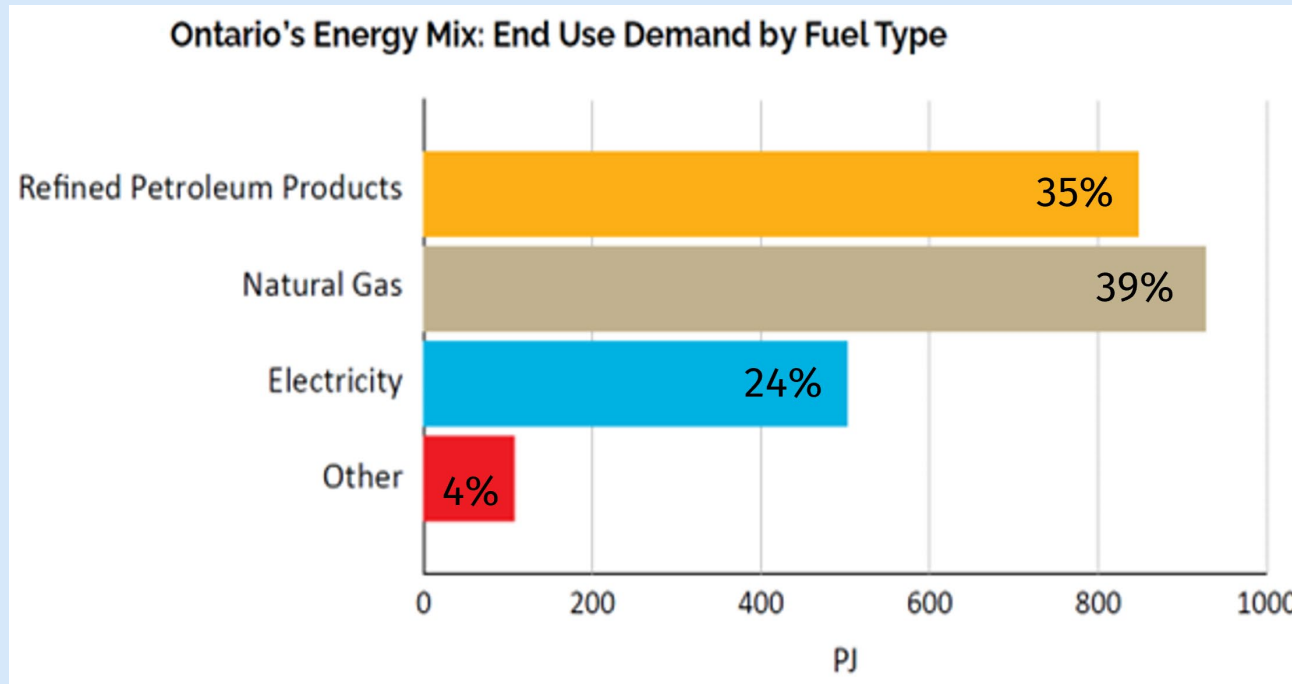
Renewable excludes hydro and included wind, solar, biofuels and geothermal; small brown portion is oil.

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

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



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

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

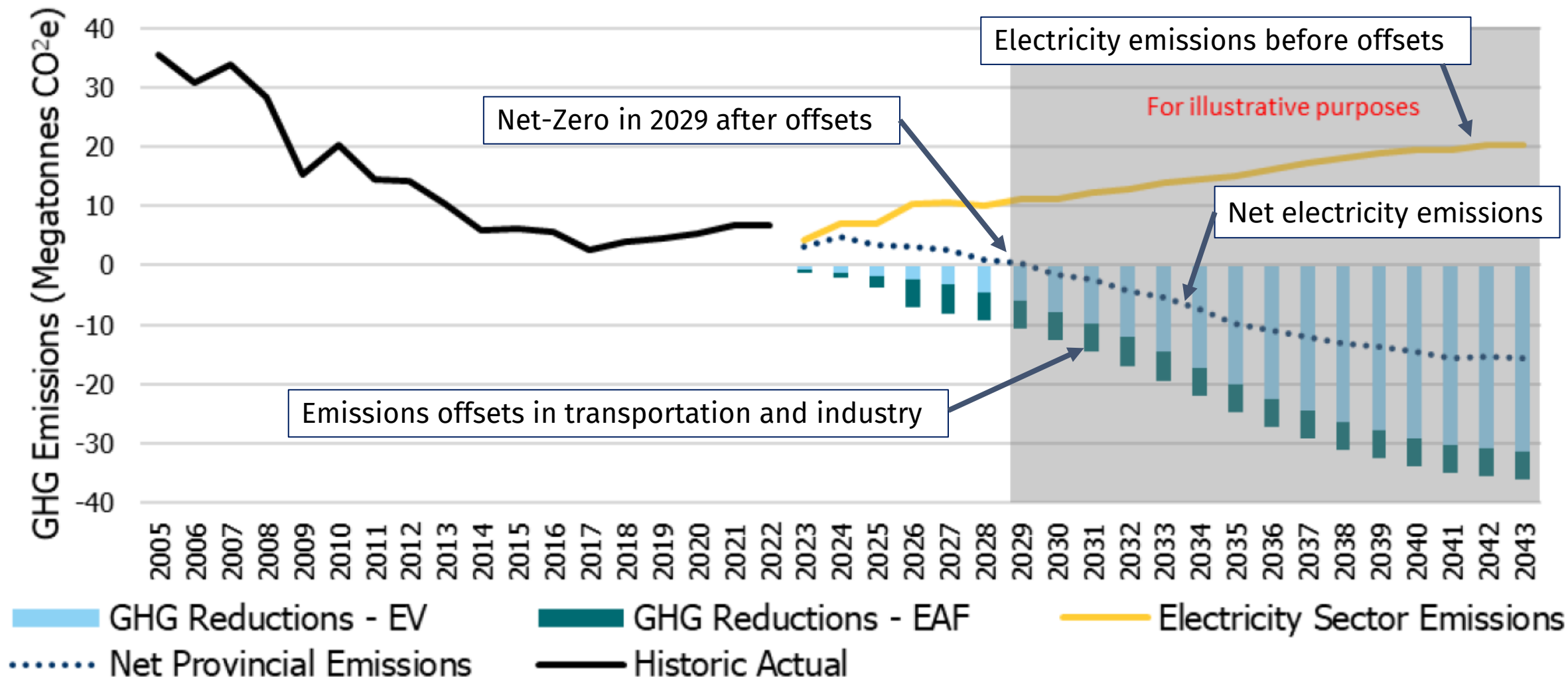
Source: Powering Ontario's Growth, Ontario's Plan for a Clean Energy Future



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Electricity is Key Enabler for Broader Decarbonization

Electricity Emissions Offset by Average 1.5x Reduction in Other Sectors

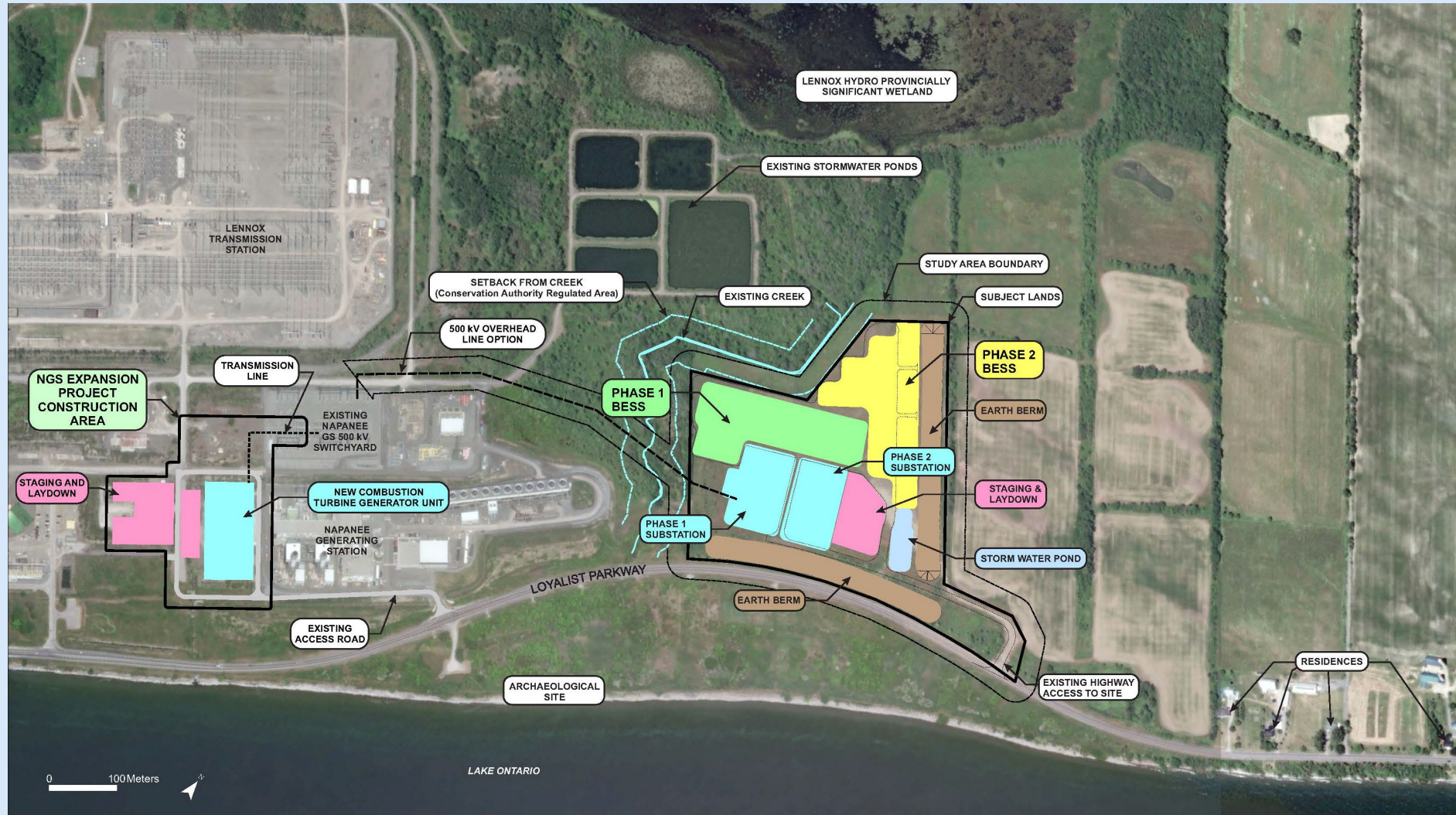


Acronyms: EV = Electric Vehicles; EAF = Electric Arc Furnaces

Source: 2022 IESO Annual Planning Outlook: <https://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/apo/Dec2022/2022-Annual-Planning-Outlook.ashx>

Site Layout & Existing Features

Napanee Generating Station Expansion and BESS Phases 1 & 2



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Napanee Generating Station Expansion

Project Description and Site Plan

Project Description

Natural gas turbine to support the ongoing reliability of Ontario's electricity system.

Ability to burn hydrogen in the future.

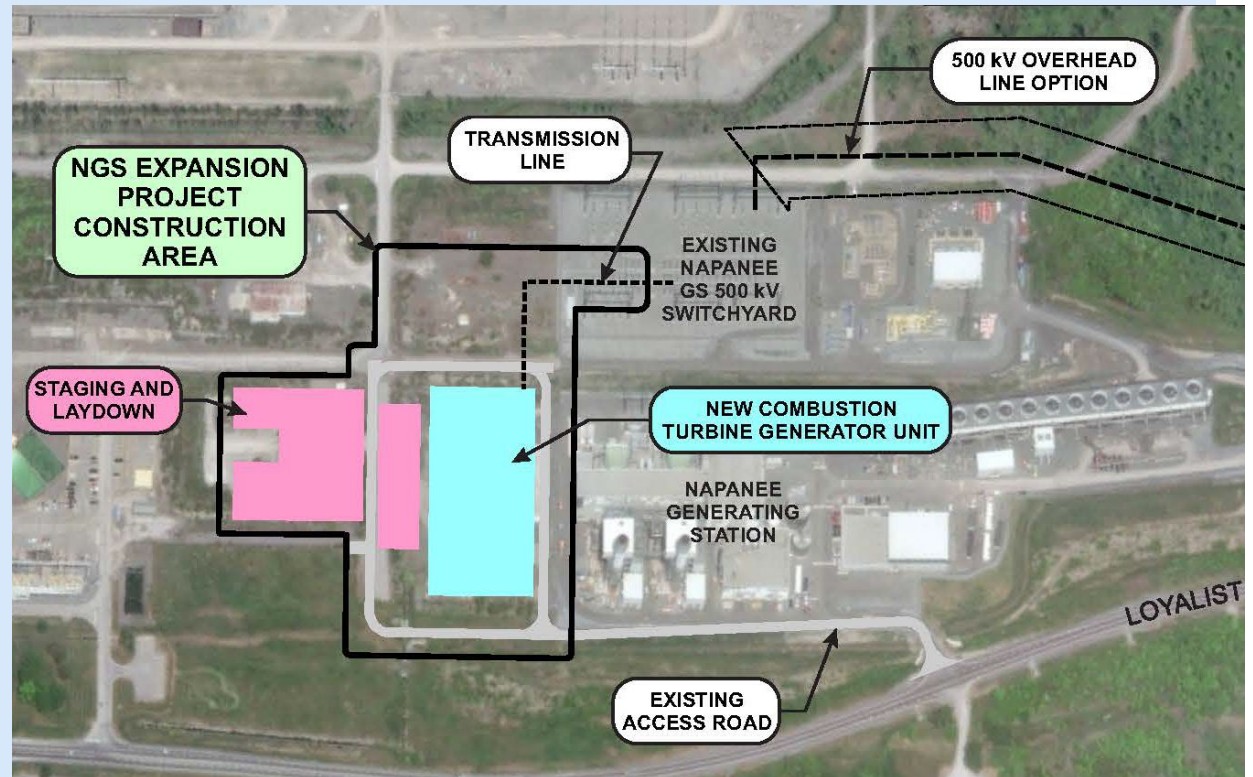
Project Capacity

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

Project Location

Located within the existing Lennox Generating Station boundary.

No expansion outside of zoned area.



Napanee BESS Phase 2*

Project Description and Site Plan

Project Description

The project will include:

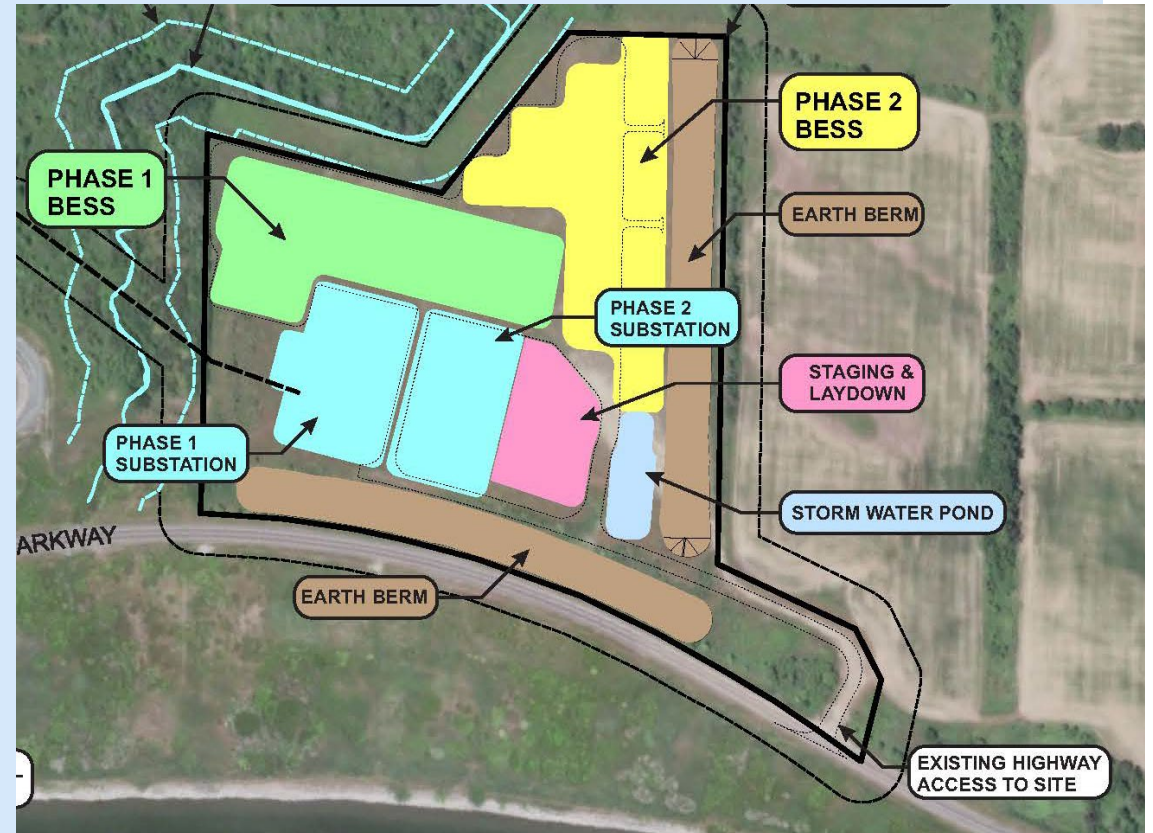
- Lithium-ion battery units
- A system that converts electrical alternating current to direct current for electricity storage
- Transmission connection facilities
- Transformers
- Emergency power and support buildings
- On-site operation and monitoring

Project Capacity

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

Project Location

Located on the same property and beside the Napanee BESS Phase 1 project, east of the current Napanee Generating Station.

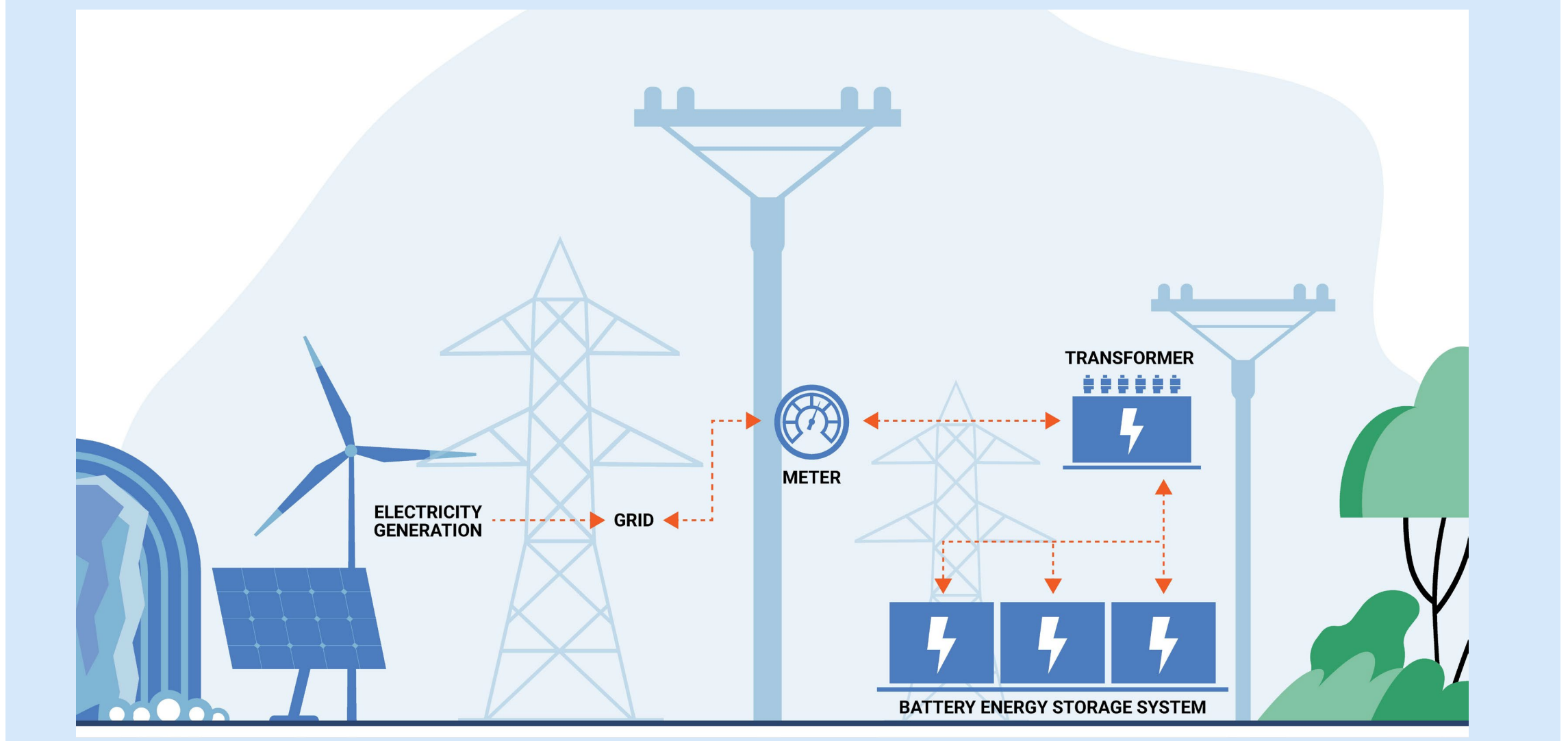


*BESS Phase 1 - 250 MW BESS facility contracted by the IESO through the Expedited Long-term Request for Proposals process (E-LT1 RFP)

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How Battery Electricity Storage Works



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Tested and Qualified for Safety

Battery System Safety



Atura Power is committed to designing and operating its facilities in the safest and most environmentally-responsible manner.

- BESS facilities are designed to meet National Fire Code of Canada & National Fire Protection Association (NFPA) 855 standards
- Batteries meet NFPA 855, Underwriters Laboratories (UL) 9540 standards and were chosen for safety record considering the number of years of experience, units deployed around the globe, and product improvements demonstrating continuous safety improvements
- Batteries tested under UL9540a unit level destructive tests to demonstrate safety systems
- The facility is designed to minimize impacts on surrounding environment by preventing soil contamination, minimizing noise, preventing battery fires, and safeguarding against fire spread





Atura Power is prepared for all possibilities to ensure the safety and resilience of its facilities.

Fire Prevention

- Hardware and software designed to detect and respond to any problems that might lead to fire risk
- Built-in safety features ensuring operations within specified parameters and performance ranges
- Thermal management system for maintaining safe operating temperatures to prevent fires

Fire Protection

- BESS units designed to prevent and contain fires
- Batteries self-contained in individual modules and spaced appropriately to minimize spread of any potential fire
- Batteries designed to burn out without impacting neighbouring battery units due to size and unit spacing





Atura Power is committed to ensuring the least possible environmental impacts in the unlikely event of a fire.

Water Suppression

- Water is not recommended for batteries, but available for fire suppression should an incident occur elsewhere
- Modules designed to prevent contact between water and batteries, producing no harmful levels of contaminants in water runoff during a fire

Minimal Emissions

- Minimal emissions from fires due to size and containment of batteries
- Release of gases similar to those of burning plastics
- Fumes quickly disperse in the atmosphere with no negative impact to air quality



Monitored during Operations

Battery System Safety



Atura Power staff remain on-site 24/7 to ensure facilities are operating smoothly and safely.

Operations

- 24/7 operations and maintenance by trained Atura Power staff
- 24/7 monitoring by BESS supplier allowing early detection, diagnosis and troubleshooting of system errors
- Procedures for controlling battery charging and discharge rates
- Procedures for taking the battery module offline if a problem is identified
- Continuous safety procedure improvements and software updates



Prepared with Safety Response Protocols

Battery System Safety



Atura Power prioritizes relationship and open communication with the local fire departments, maintaining protocols to ensure firefighter and community safety.

Engagement with Local Fire Department

- Collaborating with the Fire Department on the development of a comprehensive site-specific emergency response plan
- Training and provision of educational resources to safety, personal for up-to-date industry learnings, and proper safety procedures

Emergency Response Measures

- On-site Atura Power staff to monitor the facility and respond quickly to incidents
- Immediate notification of Fire Department, who will respond and assess the situation as per fire plan
- Fire Department set up at safe distances to allow the battery unit to burn itself out in a controlled manner
- Air quality monitoring set up as per response plan
- Use of water suppression only for fire incidents affecting other parts of the facility (non-battery fires)
- Live technical support from BESS supplier for first responders



Project Timelines

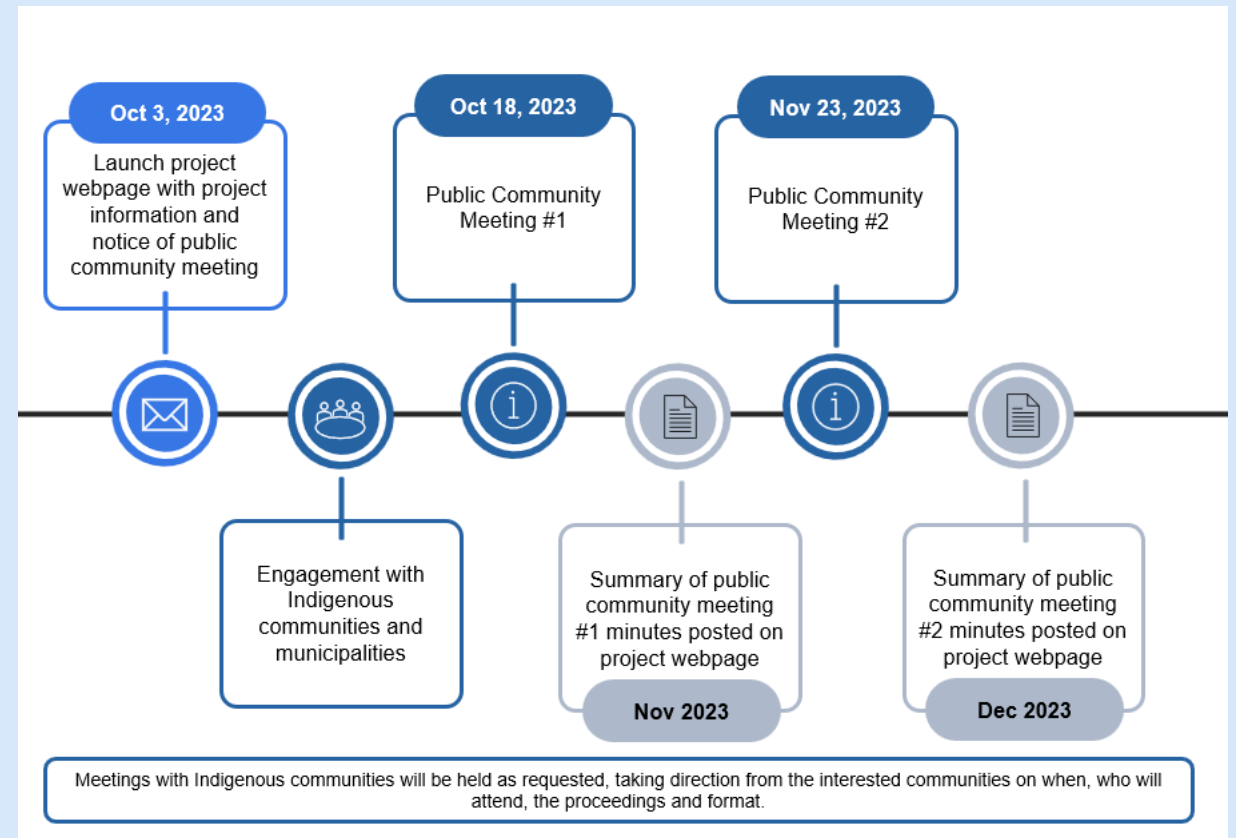
Activity	Generating Station Expansion	BESS Phase 2
LT1 Proposal Submission	December 12, 2023	December 12, 2023
IESO Contract Offer Announcement	May 2024	May 2024
Target Construction Start	2025	2025
Operations	2028	2027

Atura Power will complete project-specific Environmental Assessment processes and obtain 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 webpages
- Napanee Generating Station Expansion and BESS Phase 2 LT1 proposals submitted to the IESO in December



**We now welcome
your questions or
comments**



Thank You

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

Napanee Generating Station Expansion

 napaneeexpansion@aturapower.com

 aturapower.com/napaneeexpansion

Napanee BESS Phase 2

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