

## Thorold Peaking Project – Question and Answer

### General

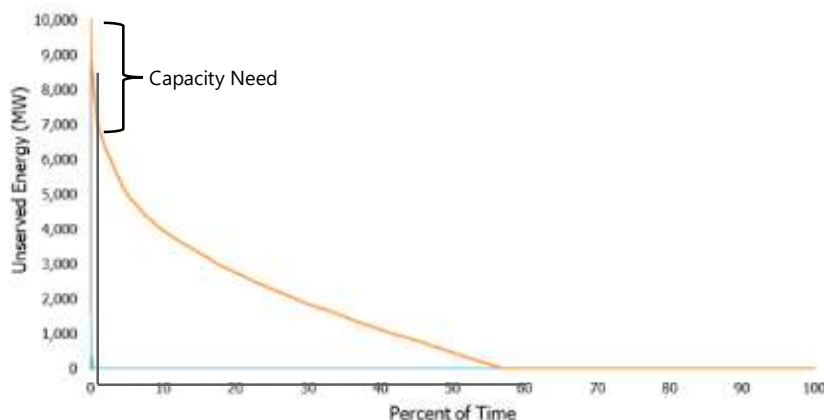
#### **What is the ‘renewable energy transition’ and how will it impact Ontario’s electricity system?**

The renewable energy transition, or global energy transition, is a movement towards sustainable energy in order to combat climate change. In Canada, the federal government is committed to achieving net-zero emissions by 2050, and in order to do so, it will require fuel switching and electrification. Ontario’s Independent Electricity System Operator (IESO) published a demand forecast within its Pathways to Decarbonization Study<sup>1</sup> in respect of this transition, with forecast peak demand set to increase threefold and forecast energy demand set to double, by 2050.

#### **What is the difference between ‘capacity’ and ‘energy’ when it comes to electricity generation?**

Technically, capacity is the ability to generate electricity at any moment, whereas energy is electricity that is being generated by that capacity for sustained amounts of time. The need for “capacity resources” versus “energy resources” is often differentiated by the amount of time the resources are needed.

Below is a sample need duration curve (hours of need within a year ordered from largest to smallest) to help illustrate the difference between the need for capacity and the need for energy. Focusing on the orange curve you can see that approximately 3,000 MW of the 10,000 MW need occurs ~1% of the time or less and would require “capacity resources”.



According to the IESO’s most recent Annual Planning Outlook, there is a need for capacity beginning in 2026.

<sup>1</sup><https://www.ieso.ca/en/Learn/The-Evolving-Grid/Pathways-to-Decarbonization>



### **Why build natural gas generation to meet capacity needs?**

The IESO recommends a diverse resource portfolio to meet near-term capacity requirements, including 1,500 MW of natural gas from its Same Technology Upgrade and Long-Term 1 (LT1) procurements. Northland's efficient natural gas-fired generation assets play a role in decarbonizing Canada's energy grid and will provide system flexibility, reliability and security as we work to diversify the country's energy mix using renewable resources. As experienced developers, we are constantly evaluating and optimizing our asset portfolio to respond to system requirements and take a thoughtful and responsible approach to balancing short-term needs for energy capacity with the longer-term vision of a cleaner, more sustainable future.

### **Why not build wind and solar to meet capacity needs?**

The wind doesn't always blow, and the sun doesn't always shine when we need them to. Efficient natural gas is necessary in the short-term to help balance intermittency in the province's renewable portfolio and is used during times of variability when the wind isn't blowing, and the sun isn't shining. It is for this reason that these resources are unable to participate in the LT1 procurements and are better suited to energy procurements.

### **Why not build more storage to meet capacity needs?**

Storage has its place in the province's resource mix, with 2,500 MW coming online between 2026 and 2028, but gas-fired capacity is still required as renewable technologies mature. Efficient thermal facilities can generate electricity when required to and run for a period longer than 4 hours, thus backstopping battery storage capacity resources.

### **Why can't Ontario simply import more clean power from Quebec?**

As identified by the IESO in its Pathways to Decarbonization Study and according to recent news publications<sup>2</sup>, Quebec is experiencing its own resource shortfalls and would need to build new clean supply to support an import agreement with Ontario. Even if supply was available, it may not be practical or cost-effective to build the transmission infrastructure needed to bring the power to areas with significant load growth, such as the Niagara region. Overall, it would make more sense for Ontario to build its own resources in order to capitalize on the economic benefits.

### **Is Northland Power Inc. ("Northland") building any battery storage to help address Ontario's capacity needs?**

Yes, Northland and its partners were awarded a contract to build the Oneida Energy Storage Project – a 250 MW/1,000 MWh lithium-ion battery storage facility with an expected in-service date in 2025. Northland is

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<sup>2</sup><https://financialpost.com/commodities/energy/renewables/quebec-faces-power-shortfall-hydro-electricity-exports>

the majority owner of the project and is leading its financing, construction and operations. Learn more about Oneida [here](#).

Northland is also preparing bids for additional battery storage projects through the IESO's LT1 procurement process.

### Project Specific

#### **What makes Northland equipped to carry out the development of the Thorold Peaking Project (the "Project")?**

Northland has 35 years of domestic and global experience as developers, owners and operators of large-scale, complex energy projects, including numerous thermal projects in Ontario and Saskatchewan. By leveraging our history of working in this space, along with our demonstrated expertise, we take a balanced approach to supporting the short-term demand for capacity with the long-term vision for a cleaner, more sustainable future.

#### **What impact will the Project have on the Niagara Region?**

The Project will boost the local economy, extending existing employment at site, and will create new opportunities for local skilled contractors. The Project will ensure continued support for 19 full-time positions until 2040, and potentially beyond, and will extend employment for contractors who work for the site. The Project will also add approximately 200 new opportunities for craft labour during construction.

#### **Will construction of the Project take workers away from the construction of homes in the region, further exacerbating housing supply and pricing?**

No, the Project will not have a material impact on the construction of homes in the region. Highly skilled trades, and workers in the commercial and industrial space, will make up most of the construction labour. This includes positions such as millwrights, welders, iron workers, pipe fitters, electricians and engineers.

#### **Why is most of the equipment being purchased from the United States?**

There are no manufacturers of gas turbines or generators of this size in Canada.

#### **How often is the Project expected to run?**

In line with LT1 being a capacity procurement, Northland is forecasting that the Project will run between 1% and 5% of the time, during high demand and for emergencies.

**What impact will the Project have on emissions in the province and how does Northland plan on mitigating these emissions?**

The Project will be emissions-compliant and adhere to all government regulations. If the Project is run at full capacity, the resulting CO<sub>2</sub>e emissions would be between 10,000 and 50,000 tonnes per year. To offset carbon and greenhouse gases, Northland will purchase Renewable Natural Gas (RNG) for all of the Project's consumption requirements. To learn more about Northland's emissions strategy and RNG, please visit our [project website](#).

**It was mentioned that the Project's gas turbine will be capable of burning hydrogen, does this mean that hydrogen will be a fuel used by the Project?**

The gas turbine will be capable of burning a blend of natural gas and hydrogen (up to 18% with no modifications); however, burning a blend of natural gas and hydrogen at these levels has limited environmental benefits and can result in increased NO<sub>x</sub> emissions. Although the project team initially considered a blend of hydrogen, the feasibility and environmental benefits of procuring 100% RNG for consumption requirements are better at this time.

**Can carbon capture technology be used?**

Carbon capture technology is extremely expensive, energy intensive and requires a form of reservoir in close proximity to store the carbon that is captured, such as underground caverns. As noted in the IESO's Pathways to Decarbonization Study, carbon capture, utilization and storage is ill-suited to peaking applications, and therefore does not align with this project.

**Is natural gas going to be purchased from the United States, or will Enbridge Line 5 be used?**

No, Northland will purchase 100% of the Project's consumption requirements from Ontario RNG producers/marketers.

**What will happen to the Project when its IESO contract expires?**

If Northland's RNG strategy is recognized as net-zero, Project operation will be permitted beyond contract expiry. The Project is also capable of burning a blend of natural gas and hydrogen, and with modifications, could run on 100% hydrogen in the future as we look to transition to further clean energy solutions.