

LT2 Backgrounder: December 2023

Electricity demand growth and the need for new supply

Ontario is facing growing electricity supply needs this decade and into the 2030s as demand is forecast to increase steadily, generation contracts expire and nuclear refurbishments continue. Over the next 20 years, electricity demand in the province is projected to grow by roughly two per cent a year, or 40 per cent by the mid-2040s. This is in large part due to rapid growth in electrification in several sectors, most notably mining and steelmaking, electric vehicles and residential heat pumps, as well as economic growth.

While the IESO has taken steps to address near-term needs through an ongoing procurement for flexible generation and storage facilities, it is now moving forward with its next long-term procurement.

This procurement will focus on non-emitting generation, namely wind, hydro, biomass and solar, which have the most potential to be built and to be in service within an accelerated timeframe to help meet overall needs for energy. These generators will work in tandem with Ontario's future battery fleet. Together they will increase reliability while helping to reduce output from natural gas generators and support the process of eliminating emissions from the grid.

The Long-Term 2 Procurement

The IESO is planning to acquire 2,000 MW of new energy-producing resources for 2030 through the LT2. Another 1,500 MW is expected to be needed for 2032 and an additional 1,500 MW for 2034.

This staged approach for acquiring new supply will allow for a regular reassessment of needs as time progresses, and for ongoing technological advances to occur that may reduce associated costs. The LT2 will also represent the first time that small-scale electricity generation and storage devices smaller than 1 MW will be eligible to participate in the IESO procurement process.

Partnering with Ontario's Storage Fleet

Battery storage expansion in Ontario is well underway; earlier this year the IESO announced the largest energy storage procurement ever in Canada. In 2028, it anticipates that Ontario will have roughly 3,000 MW of storage capacity participating in the electricity market, in addition to smaller storage installations that serve local communities, businesses and homes.

This storage fleet will create significant efficiencies for the grid:

- New non-emitting supply will produce energy when demand is low, to be stored by batteries and used when it's needed most. This will allow the province to reduce output from natural gas generators and continue the process of eliminating emissions from the grid.
- It will also make better use of Ontario's transmission system, as generators will send energy to batteries when there is more capacity on transmission lines. It's akin to a tractor trailer avoiding rush hour on the highway to make deliveries, taking advantage of existing infrastructure that isn't being used during periods of peak capacity.

The work to bring non-emitting supply online is a key focus for the IESO over the coming years as part of its broader decarbonization efforts. The IESO is commencing engagement on the structure of the procurement, with final details to be incorporated into the next Annual Planning Outlook that will be released in February.

As with all competitive procurements, the IESO will require municipal and Indigenous support for all projects. It will also create new opportunities to inform, involve and collaborate with communities on Ontario's energy future. More details about these engagements will be announced shortly.

Key Facts

- After 20 years of being a summer peaking province, the IESO expects that by 2030, Ontario will have similar winter and summer peaks, mostly as a result of increased electric home heating.
- As a result of growing demands, Ontario rarely experiences surplus supply conditions. Adding additional non-emitting supply will ensure that the new battery fleet will have access to clean energy to support reliability.
- Ontario's supply mix is approximately 90 per cent non-emitting, a result of Ontario's diverse supply mix that currently includes wind (10 per cent) and hydroelectric (26 per cent) in addition to the province's nuclear fleet. Biofuel and solar power generators are mostly connected to the distribution networks and represent less than one per cent of grid connected supply.