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Repowering Existing Facilities

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Agenda

Today's engagement will cover the following:

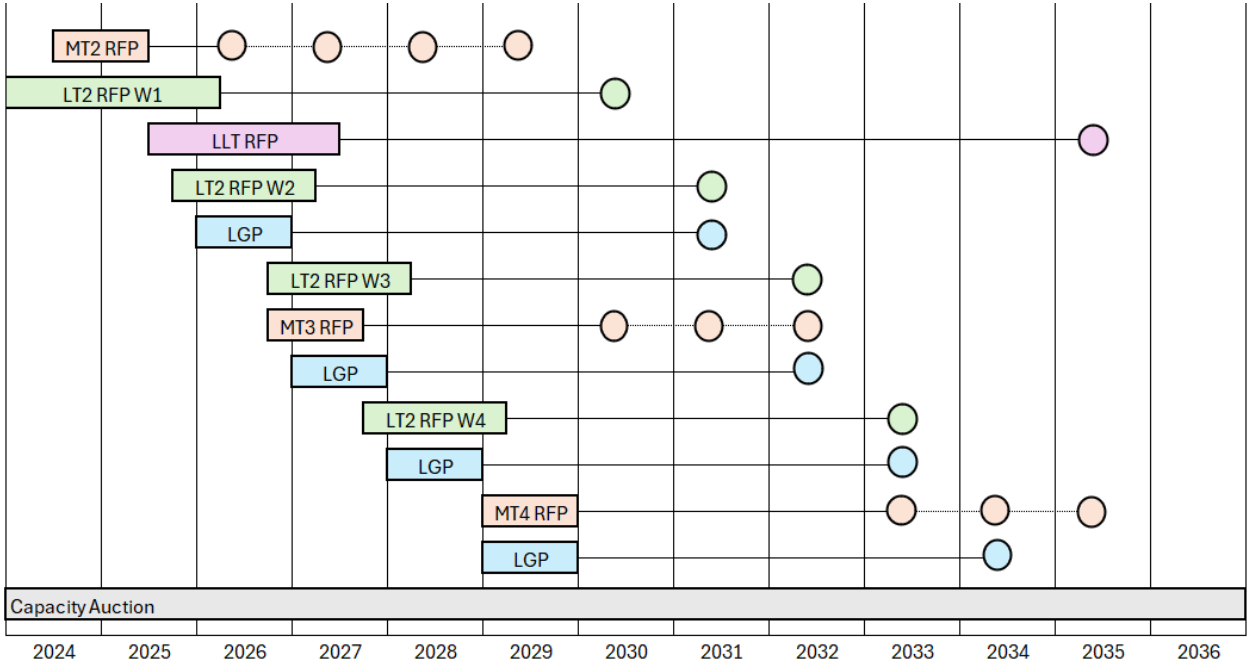
1. Repowering Existing Resources
    1. Context and IESO Objectives
    2. Defining Repowering and Key Considerations
    3. Call for Feedback
2. LT2 Window 2 Schedule Considerations
3. Next Steps

Resource Adequacy Framework Recap

Resource Adequacy Framework

Mechanism	Scope
Capacity Auction	Balances fluctuation in capacity needs from one year to the next Executed on an annual basis
Medium-Term (MT) Commitments	Provides existing resources with greater certainty through flexible forward periods and five-year commitments Every 2-3 years, as needed
Long-Term (LT) Commitments	Incentivizes investment in new resources through longer forward periods and longer-term commitments The LT2 RFP will be administered through a series of windows, whereas the LLT RFP is intended to select proposals through a single window
Programs	Meets electricity and policy objectives in a more targeted manner as directed (e.g., Small Hydro Program, Northern Hydro Program, Local Generation Program)
Bilateral Negotiations	Secures resources where a need exists that cannot be addressed in a practical and timely way through competitive processes Undertaken as needed

Cadenced Procurements



RFP Design to Contract Award

Target Commercial Operation Date

MT RFP Option to Start in Later Years

*Procurement cadence is subject to change.

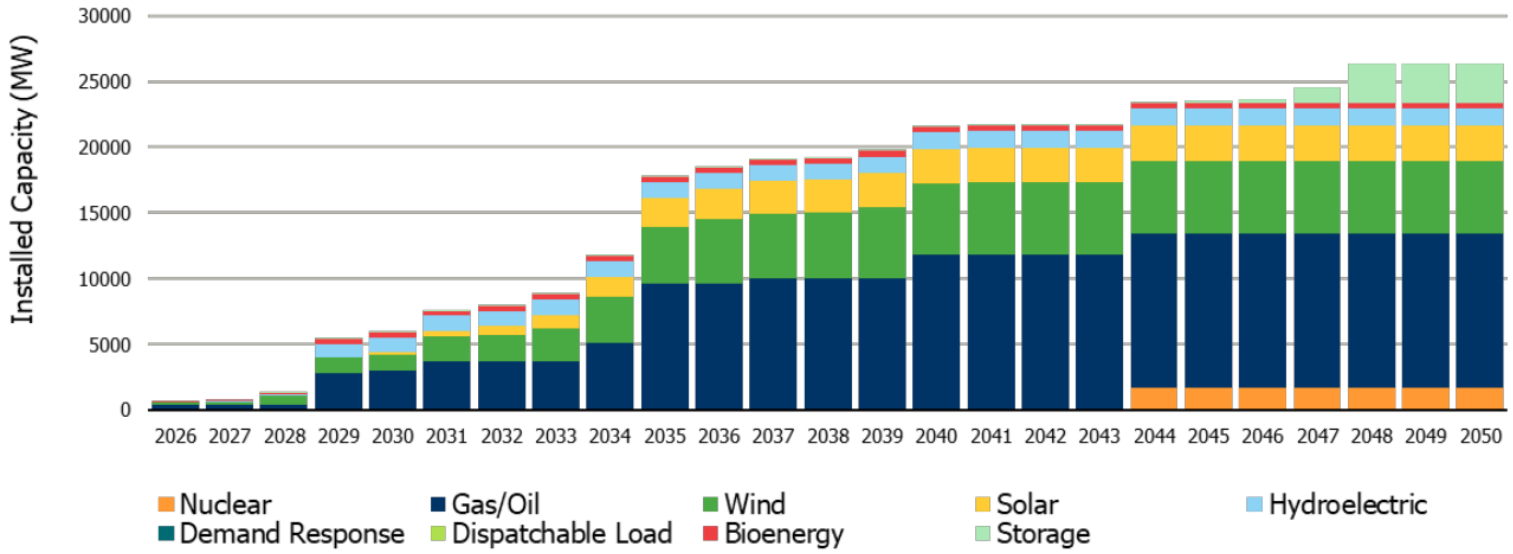
Final procurement timing subject to ministerial direction and resource adequacy needs.

Repowering

Context

- Many existing facilities in Ontario are coming to the end of their contract terms and/or their useful life
- Through the MT1 and MT2 procurements some of these facilities have secured additional 5-year contracts to continue operating
- Some of these facilities, including some that are the subject of current MT contracts, will eventually need more significant investment to continue operating
  - This could include the replacement of most, or all, of the equipment at a facility
- The IESO's Annual Planning Outlooks continue to forecast significant energy and capacity needs out to 2050. Meeting these needs will require many existing facilities to operate longer than their existing contract terms

Existing Resources with Expiring Contracts



Source: 2025 APO

IESO Resourcing Objectives

- The IESO's primary objective (with respect to resource acquisition) is to **secure the most cost-effective resources available** to meet future system needs
- The IESO further seeks to **maximize the value of Ontario's existing generation fleet**, while offering a range of opportunities to existing facilities in recognition of the diverse needs and circumstances facing such facilities
- **Today's Objective:** level set and seek feedback
- **Short Term Objective:** develop preliminary repowering framework

Repowering and the LT2 RFPs

- LT2 Window 1 was open to new build facilities and separately metered expansions but explicitly excluded existing facilities from participating
  - This rule was intended to ensure that sufficient new resources were constructed to meet incremental system needs
- As communicated in several recent public engagements, the IESO intends to begin allowing existing facilities that are "repowering" in LT2 Window 2 (and subsequent windows)
- While today's discussion is in the context of LT2 Window 2, these concepts will be important for other IESO programs and procurements where existing resources are eligible to participate

What does “repowering” mean?

- There are a number of different definitions used in the industry to refer to different types of “repowering”
- Establishing clear nomenclature will be useful for today’s discussions, as well as to inform any eventual drafting of RFPs, Program Rules and Contracts
- Different types of “repowering” will be more (or less) appropriate for eligibility in different procurement streams

High-Level Categories of Repowering

Redevelopment:

Work that results in a "like new" facility; may result in increased output. *Possibly* 2 types:

1. Full replacement of facility
2. Partial replacement of facility

Refurbishment:

Smaller-scale improvements to an existing facility that allow it to continue to operate reliably for a shorter term. Also may result in increased output.

There is likely a range of viable options for existing facilities nearing the end of their current commitments. The IESO is seeking to better understand these options in order to appropriately design repowering rules for its programs and procurements.

Upgrades and Expansions

- Whereas the concepts discussed on the previous slide primarily concern the expected life of the resulting facility, upgrades and expansions primarily concern increasing such a facility's output capability
- **Upgrades:** replacing certain components (e.g. turbines) at an existing facility with more efficient components to increase that facility's output
- Upgrades have previously been successfully incentivized through initiatives such as the Same Technology Upgrades Solicitation

Upgrades and Expansions

- **Expansions:** adding new generating units to an existing facility to increase that facility's output
- Separately metered expansions have been, and continue to be, eligible to participate in the IESO's long term RFPs, including the LT2 RFP
- An upgrade or expansion on its own would not necessarily improve the life expectancy of the underlying facility (and therefore would not necessarily be a sub-category of repowering); similarly, a redevelopment or refurbishment may or may not increase the capacity of an existing facility

Key Considerations for Repowering Existing Facilities

- Need to ensure we are getting the **maximum value out of existing facilities** in the interest of ratepayers
  - Avoid allowing premature replacement of facilities that still have useful life at the expense of ratepayer value by developing criteria for repowering eligibility
- Also need to balance contract **term risk** for ratepayers with certainty for facility owners
- For facilities that repower, need a streamlined way to manage **coordination of extended construction outages**
- There are many further considerations that will factor in to both the IESO's design of a repowering framework, and owners' decisions about the future of their facilities – some of these are explored on the following slides

Technical Considerations

- Technology specific repowering options and corresponding benefits, challenges, costs and development times
- Definition and proof of repowering (equipment replacement criteria)
- Benchmarks for facility specs and performance based on historical data from existing facility (capacity/imputed production factor qualification)

Policy Considerations

- Procurement requirements and permitting/approvals may be different depending on the scale and scope of repowering
- **Municipal Support:** baseline assumption is that every project participating in LT2 RFPs will require municipal support
- **Agricultural Land Requirements:** Similarly, existing policy will continue to apply. IESO recognizes this will be complicated for existing resources; need to work with sector to understand possibilities and government to clarify policy
- **Permitting/approvals:** IESO and Proponents will need to work with government (including municipalities) to understand, and possibly shape, requirements. As with the above, different types of repowering may have different requirements

Deliverability Considerations

- The IESO does not expect to change its approach to deliverability
- Deliverability/interconnection capacity may limit any given facility's options
- In general, reasonable to assume existing facilities that don't make significant changes to capacity will be deliverable
- IESO will need to consider deliverability and proposal evaluation approach for facilities that wish to increase their capacity – existing "PQ Alternate" approach may be a useful guide

Towards a Repowering Framework

- Repowered facilities will soon be allowed to participate in certain IESO programs and procurements, including the LT2 RFPs
- In developing repowering rules and eligibility criteria, IESO must:
  - Maximize ratepayer value
  - Manage contract term risk
  - Plan for outages
- A wide variety of technical and policy considerations will inform the range of repowering possibilities for any given facility.
- The IESO is seeking to understand these possibilities in detail so that it may develop a repowering framework that works for both the IESO and facility owners

Discussion Themes and Questions for Stakeholders

Technology-Specific Considerations

- What types of repowering are technically and economically feasible for each generation technology (e.g., hydro, wind, solar, gas)?
  - For each repowering option, what is the development time (i.e. how long would it take to conduct the work and have the facility back in service?) and the life span of the resulting facility (i.e. once the work has been completed, how long would the facility be able to reliably operate)? What would be the associated increase in capacity/production capability (if any)?
- What length of contract would be required?
- What are the associated costs and complexities/challenges?
- What are the regulatory barriers they might face? What extent of repowering would trigger the need to get new permits/approvals (such as the REA)?

Eligibility and Contract Design

- Should there be a minimum equipment replacement percentage requirement for repowered facilities (or some other similar criteria)?
- Should there be a minimum facility age to be eligible for "full" repowering (new 20-year term)? How can the IESO best incentivize getting maximum value for ratepayers out of existing facilities?
- Are there any unique contractual provisions that may be required for repowered facilities relative to the current LT2 contracts?
- Should performance security or milestones differ for repowered facilities? If so, how?
- Are there technologies that could conduct phased repowering by repowering a portion of their facility while the rest of the facility continued to operate?

Competition and Fairness

- Should repowered facilities seeking 20-year contracts compete directly with new builds under the LT2 RFP? Why or why not?
  - Would only counting incremental capacity/production capability toward filling procurement targets adequately address repowered facilities' inherent competitive advantage?
  - Is there a material risk of bid price inflation if repowered facilities compete against new builds?

Alternatives to Repowering

- How likely is it that suppliers will seek to decommission facilities rather than repower (for each respective technology)?
  - What are some reasons they might choose to do so?
- What does decommissioning look like for the different technologies?

LT2 Window 2 Timing Considerations

LT2 Window 2 Timing Considerations

- Current LT2 RFP cadence calls for Window 2 to be launched in ~Q2 2026, with proposals due in Q4 2026 (timing, as always, subject to change)
- Revised deliverability guidance, based on LT2 Window 1 results, should be available in late Q2 or Q3 2026 (dependent on timing to conclude Window 1)
- Some developers have reached out to raise concerns about obtaining municipal support in the lead up to Ontario's next municipal election cycle (fall 2026)
- Request for Feedback:
  - What is the minimum viable period between revised deliverability guidance and LT2 Window 2 proposal submission?
  - Is there a general concern with the timing of municipal elections with respect to the Window 2 Proposal Submission Deadline?

Next Steps

Stakeholder Feedback

- The IESO invites written feedback on the materials presented today, the general approach to repowering and details regarding challenges specific to your technology.
- All written feedback should be submitted to engagement@ieso.ca by **November 21, 2025** utilizing the IESO Feedback Form posted on the engagement webpage.
- The IESO will host a follow up engagement on repowering early in 2026

Thank You

ieso.ca

1.888.448.7777

customer.relations@ieso.ca

engagement@ieso.ca

@IESO_Tweets

linkedin.com/company/IESO

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