

Feedback Form

Repowering Existing Facilities – October 20, 2025

Feedback Provided by:

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Date: 20 November 2025

To promote transparency, feedback submitted will be posted on the Long Lead-Time engagement page unless otherwise requested by the sender.

- ☐ **Yes – there is confidential information, do not post**
☒ **No – comfortable to publish to the IESO web page**

Following the Repowering Existing Facilities engagement webinar, the Independent Electricity System Operator (IESO) is seeking feedback from stakeholders on the items discussed. The presentation and recording can be accessed from the [LLT RFP Stakeholder Engagement Webpage](#).

Note: The IESO will accept additional materials where it may be required to support your rationale provided below. When sending additional materials please indicate if they are confidential.

Please submit feedback to engagement@ieso.ca by November 21, 2025 .

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?
- For each technology, 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)?

ORA:

Hydroelectric repowering is neither technically nor economically prudent for most of Ontario's aging <10 MW facilities.

The IESO presentation notes that many facilities are “coming to the end of their contract terms and/or useful life” and would require “replacement of most or all of the equipment” to continue operating.

For hydro, this is not a routine swap-out—it typically involves reconstruction of civil works, spillways, penstocks, and headpond structures that are now 60–120 years old. These civil components cannot be economically refurbished to achieve “like-new” status because the dams themselves are the limiting factor, not the turbines.

Technical Feasibility (Hydro):

Repowering small hydro under modern engineering, safety, and environmental standards requires:

- Reconstruction of aging dams that pre-date modern dam-safety codes.
- Excavation and management of deep, GHG-rich sediments that have accumulated for decades.
- Fish passage installation for species now protected by federal and provincial legislation.
- New approvals under the LRIA, Fisheries Act, Endangered Species Act, REA/MEA, and often Class EA or IAAC review.

These requirements fundamentally alter project economics. For most facilities under ~10 MW, capital costs exceed lifetime revenue potential even with a 20-year LT2 contract.

Development Time:

True repowering of hydro is a **5–10-year undertaking** when approvals, design, consultation, construction, and commissioning are factored in. That far exceeds the timelines implied in the IESO’s projected resource adequacy shortfall curves (p. 12).

Resulting Life Span & Reliability:

Aging, shallow reservoirs are increasingly unreliable under climate-driven hydrological volatility. Ontario’s Provincial Climate Change Impact Assessment confirms that low-flow periods, flash droughts, and extreme precipitation will continue to intensify. These systems are inherently **incapable of providing consistent, dispatchable energy**, regardless of turbine upgrades.

GHG / Methane Reality:

Repowering does nothing to address chronic methane emissions from the headpond sediments. Multiple global and Canadian studies show that shallow, warm reservoirs emit methane continuously and in large pulses during turnover and drawdown. The IESO’s framework does not recognize this as a system-wide reliability, climate, or reputational risk.

Contract Length:

A 20-year contract for facilities past their structural life invites major stranded-asset risk. ORA recommends that **no repowered hydro facility be eligible for terms beyond 5 years**, and only after meeting modern dam-safety, fish-passage, sediment-management, and full environmental assessment requirements.

Regulatory Challenges:

Repowering triggers:

- LRIA Dam Safety Review (mandatory for major modifications).
- Fisheries Act serious harm assessment (fish passage).
- ESA permits (for multiple species at risk).
- MECP approvals.
- Municipal approvals and public consultation – **Is this or is it not beyond municipal control??? Where are the policies and legislation regarding this claim??? Where is the public consultation on this aspect???**

These challenge the notion—suggested implicitly in the IESO framework—that hydro repowering can be streamlined.

Eligibility & 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?

ORA:

Minimum Replacement Threshold:

Yes. A minimum threshold must be required, but **hydro repowering should not be eligible at all** unless:

- The dam undergoes a full LRIA-compliant Dam Safety Review,
- Fish passage is incorporated,
- A sediment GHG assessment is completed, and
- A decommissioning and sediment-removal plan is in place.

Without these conditions, the IESO risks extending the life of unsafe, high-GHG legacy infrastructure while claiming climate clean energy benefits.

Minimum Age for Eligibility:

Facilities approaching end-of-life (typically >60 years) should **not** receive 20-year terms. Extending the life of dams that were never designed for the extremes of climate change and modern hydrology is fiscally and environmentally irresponsible. Ratepayers should not fund major works on dams that should be decommissioned.

Contract Provisions:

Repowered hydro must include:

- Mandatory fish passage installation (there are only 2 operating fishways at hydropower facilities out of 224 in all of Ontario);
- Mandatory sediment management plan;
- Mandatory climate-risk modelling;
- Annual GHG reporting; and

- Strict forced-outage penalties (given the high failure risk of aging infrastructure).

Phased Repowering:

Phased repowering is **not viable for hydro** because civil works reconstruction requires full or partial dewatering, full outage, and sediment removal.

Repowered hydro should *not* compete directly with new builds under LT2. Allowing legacy hydro to compete with solar, wind, and storage—now cheaper, faster to build, and low-risk—distorts competition. Repowered hydro carries massive hidden costs: aging dams, climate-driven flow variability, sediment management, methane emissions, and fish-passage obligations.

Incremental output from repowering is often negligible, while costs and risks are substantial. Ratepayers should not underwrite 20 years of liability for facilities that are fundamentally outdated.

Competition & Fairness

- Should repowered facilities seeking 20-year contracts compete directly with new builds under the LT2 RFP? Why or why not?

ORA:

Repowered hydro should *not* compete directly with new builds under LT2.

Allowing legacy hydro to compete with solar, wind, and storage—now cheaper, faster to deploy, and low-risk—distorts competition. Repowered hydro carries massive hidden costs: aging dams, climate-driven flow variability, sediment management, methane emissions, and fish-passage obligations.

Incremental output from repowering is often negligible, while costs and risks are substantial. Ratepayers should not underwrite 20 years of liability for facilities that are fundamentally outdated.

Alternatives to Repowering

- How likely is it that suppliers will seek to decommission facilities rather than repower for each respective technology?
- What does decommissioning look like for your technology?

ORA:

Likelihood of Decommissioning or Abandonment:

It should be high, but the likelihood of abandonment is highest. Many owners will avoid repowering because it is not economically feasible once full safety and environmental requirements are factored in.

What Decommissioning Should Look Like:

For hydro:

- Removal or breaching of the dam;
- Sediment stabilization or removal;
- Restoration of a free-flowing river channel;
- Elimination of methane emissions;
- Full removal of long-term public safety and liability risks.

Dam removal is now recognized internationally as a cost-effective, climate-positive solution that restores ecosystem services and eliminates ongoing operating costs. However, the cost of decommissioning can be high, and proponents are more apt to abandon these facilities. There are already many old hydro facilities that have been sitting idle for decades, deteriorating and failing due to extreme rain events that place life and property at risk.

The province should incorporate **decommissioning provisions/incentives** rather than bind Ontario to another century of outdated, unsafe and failing dams.

LT2 Window 2 Timing Considerations

- 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?

ORA:

Given the long development and approval timelines, proponents need **at least 12 months** between revised deliverability guidance and the Window 2 submission deadline.

Municipal elections in fall 2026 will freeze municipal decision-making and public engagement. Any requirement for municipal support during this period creates a procedural bottleneck and risks favouring politically connected projects over evidence-based ones.

ORA General Comments/Feedback

The IESO's proposal to allow repowering of existing hydro facilities in LT2 fundamentally underestimates the:

- Structural age and safety risks of Ontario’s legacy dams.
- Escalating hydrological volatility and risk driven by climate change.
- Methane emissions and ongoing GHG liability of shallow reservoirs.
- Absence of any provincial decommissioning framework.
- Ecological cost of continuing to block fish passage for an additional 20 years.
- Opportunity cost of investing public money into outdated, intermittent, unreliable, and high-GHG generation.

Ontario’s electricity planning must align with modern climate, ecological, and economic realities.

Repowering small hydro is not reliable, cost-effective, or a climate-positive pathway, and IESO’s own reports support this position. **Small hydro is an intermittent and unreliable resource.**

Solar, wind, battery storage, and distributed energy resources deliver far more reliability per dollar; it’s scalable, quicker and cheaper to deploy, with none of the long-term safety and environmental liabilities.

The Province should explicitly prioritize decommissioning, river restoration, and non-emitting, modern technologies, rather than extending the lifespan of aging dams whose time has passed and that substantially increase the effects of climate change.

Closing Argument:

While there are limited theoretical benefits associated with repowering older hydroelectric facilities, these benefits do not withstand serious scrutiny when assessed through the lens of climate resilience, ecological integrity and sustainability, dam-safety obligations, and long-term system reliability. Ontario’s legacy hydro fleet—particularly facilities under 10 MW share common structural, hydrological, and environmental constraints that make repowering neither cost-effective nor aligned with modern electricity system needs.

These facilities rely on shallow, warming headponds highly vulnerable to drought, erratic inflows, and extreme precipitation events, producing increasingly unreliable and unpredictable generation. Their reservoirs continue to emit methane from decades of sediment accumulation, degrade water quality, and lack fish passage, perpetuating habitat fragmentation and cumulative watershed harm.

For these reasons, excluding facilities under 10 MW from repowering eligibility is both reasonable and evidence-based. Hydrologically and structurally, these aging dams experience worsening inflow volatility, growing climate-risk exposure, and escalating regulatory obligations, making repowering economically irrational once full sediment, safety, and environmental requirements are applied.

The IESO’s LT2 framework establishes an expectation of “municipal support,” but it is important to clarify that this does not grant municipalities actual decision-making authority over hydroelectric projects. Waterpower remains exempt from the Renewable Energy Approval

regime and key provisions of the Environmental Assessment Act, meaning municipalities cannot approve, require, or refuse a hydro project, nor can they impose environmental conditions. As a result, the IESO's reliance on municipal endorsement places municipalities in an untenable position: asked to support or accommodate projects they have no legal authority to regulate, while bearing the local risks and long-term impacts. This is neither transparent nor accountable.

In reality, proper oversight—including Dam Safety Reviews, fish passage requirements, sediment management, GHG assessment, and climate-risk modelling—must be applied; when this is taken into account, repowering becomes prohibitively expensive for most small hydro facilities. Under real-world regulatory and climate conditions, the most reliable, cost-effective, and climate-aligned path is not repowering, but strategic decommissioning and river restoration. Removing aging dams immediately eliminates methane emissions, restores natural flows and fish passage, reduces flood and failure risks, and provides long-term economic and ecological benefits to communities.

Ontario needs an electricity system that is resilient, climate-smart, and fiscally and environmentally responsible to ratepayers. Extending the life of structurally outdated, ecologically damaging, and increasingly unreliable dams does not advance that goal.

Repowering may appear attractive on paper, but its primary value lies in triggering the long-overdue scrutiny that ultimately reveals the sustainable path forward: decommissioning aging infrastructure and restoring healthy, free-flowing rivers that support ecosystems, communities, and a modern, diversified electricity grid.

Thank you for this opportunity to comment!

Linda Heron, Chair
Ontario Rivers Alliance