Feedback Form

Long Lead-Time Resource Procurement – April 23, 2025

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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**

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.

Following the LT2 RFP April 23, 2024, 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 engagement web page.

Please submit feedback to engagement@ieso.ca by May 9, 2025.

Do you have any feedback regarding Hydroelectric resource eligibility?

The IESO is interested in any specific project information regarding potential hydro redevelopments, expansions and upgrades looking to participate in the procurement to help inform eligibility.

Resource Eligibility: Hydroelectric Resources

- Currently there are several IESO existing or proposed IESO procurements in which waterpower could potentially participate including the Small Hydro Program, the Northern Hydro Program, Long Term RFP 2, Long Lead Time RFP (Energy) and the Local Generation Program (Distributed Connected less than 10MW). It is ESC's view that proponents should have the option of participating in whichever of these procurements best meets project-specific requirements and enable hydropower as a storage resource. In addition, greenfield, expansions, upgrades, redevelopments and refurbishments should all be enabled and encouraged.
- The IESO has indicated that it plans to run two separate Long Lead Time procurements: one for energy resources (including waterpower) and the other for capacity resources (including long duration storage). ESC supports this bifurcation so long that LDES technologies are appropriately incentivised for the value they create within the broader system and an appropriate target is set to allow for a competitive LDES procurement.

Resource Eligibility: LDES Resources

Do you have any feedback regarding LDES resource eligibility?

- **ESC believes there need to be clearer and better commercial opportunities for LDES technologies that reflect their value.**

- ESC represents both commercially proven and emerging LDES technologies. While the IESO is proposing eligibility for commercially proven LDES technologies, there is a degree of uncertainty on the final criteria and how this should be interpreted. It is urgent for IESO to design LLT procurements in a manner that invites broad participation by a range of technologies. This inclusiveness will benefit the province by increasing competition and thereby lowering system costs. Developers of emerging LDES systems require a clear, stable, long-term contracting opportunity to move beyond the IESO grid innovation fund as the way to deploy these technologies within the grid. IESO noted that certain LDES technologies will require additional study to determine their benefits to Ontario and specifically mentioned multi-day energy storage as a resource in need of additional study. We agree that additional study will be valuable. However, such studies should complement and occur in parallel with LLT procurement and should not preclude developers from proposing technologies that have not yet been deployed in Ontario. Given the length of time developers require to invest in bringing new resources to market, especially new resource types, it is especially crucial for the IESO to first establish clear commercial opportunities for these resources so developers can begin the important work to develop a robust pipeline, secure deliverability, and meaningfully engage with communities. For

this reason, we strongly support IESO in establishing a specific procurement for LDES resources and multi-day energy storage. The ESC and its members are willing to engage actively to ensure their technologies are not excluded from participation. This is particularly relevant given the long runway to 2034 and beyond for some LLT projects.

- While the IESO is considering a phased approach to financial security, the initial proposal mirrors LT2's substantial requirements. Developers, especially those pursuing projects with new LDES technologies that have been or will soon be deployed in other regions but not yet in Ontario, may face challenges posting the same security requirements as more established technologies such as pumped hydro. Stakeholders may want to prioritize engagement on this issue to help shape a more flexible security framework.

Term Length & Commercial Operation

Do you have any feedback regarding the proposed term length and MCOD?

- ESC supports the proposed term length of 40 years for LLT LDES projects.
- Section 2.2. (e) (iii) of the LT2(e-1) Contract seeks to incentivize early operation such that if Commercial Operation of the Facility is achieved before the COD Bonus End Date, the Supplier shall be entitled to apply a fixed payment multiplier to the Fixed Price, which will be determined based on the time period in which the COD was achieved. Presuming that the LLT Contract will have a Commercial Operation Date that is more than five (5) years but no more than eight (8) years, it is recommended that a similar concept be applied (e.g. increasing multiplier for projects coming online in year seven (7), year six (6) and year five (5).
- As ESC has advocated in the past the complexity of connection assessment and connection construction, the IESO should change the Capacity contract to provide flexibility of Milestone COD (MCOD) when the transmitter or distributor requires more time to study, design, construct connection and/or network resources. Delays in the ability of transmitters and distributors to complete their required investments to allow a project to connect is outside of the control of the Supplier and is a risk that increases price and costs for the IESO. ESC recommends reviewing relevant sections of BC Hydro's Call for Power that specifically address delays in the connection process related to target in-service dates.
- Additionally, ESC notes that at the December 12, 2024 LT2 engagement session the IESO introduced a new concept called "Grid-Based Unavailability," which accounts for Outages (other than Planned Outages and events of Force Majeure) related to the Transmission/Distribution (T&D) system applying to cases where the Supplier has complied with Outage reporting requirements and demonstrated T&D impacts physically prevented suppliers from delivering electricity and that such outage was not caused (directly or indirectly) by the Supplier. We expect that this same provision will be applied to LLT facilities.
- Moreover, we recommend including a provision for these long-lifespan assets for supplier-initiated long-term outages for upgrades, expansions, and redevelopments, as reflected in a Long-Term Operating Plan. The provision would provide for planned investment certainly and ensure the system continues to benefit from a fleet of reliable units without undue penalties.
- We also recommend that IESO clarify that projects can elect to secure a term length of shorter than 40 years. Some energy storage resources may only be willing and able to commit, for example, to a contract

term of 15 or 20 years. These resources should not be precluded from participating because they seek a contract shorter than 40 years.

Mandatory Requirements

Do you have any feedback regarding the requirements noted?

- **ESC supports the mandatory requirements as set out in the presentation with one modification: we propose that the minimum duration of LDES resources should be at least 10 hours, rather than 8 hours. This better reflects the performance attributes of non-lithium-ion LDES resources.**

Rated Criteria

Do you have any feedback regarding the rated criteria noted in the presentation?

Do you have suggestions on additional criteria that should be considered as part of the LLT Resource Procurement? Please provide rationale to support any recommendations.

- ESC supports IESO's proposal to provide additional rated criteria points for resources that have a duration of longer than 12 hours. We propose that IESO should further distinguish between LDES resources and multi-day energy storage resources, for example by providing additional rated criteria points for resources that have durations exceeding 24-hours. This additional distinction will provide more clarity about how multi-day energy storage projects will be valued.
- ESC opposes the suggestion to remove rated criteria points for projects that are sited in Northern Ontario. Given the Provincial government's mandate to develop infrastructure for the Northern Ontario, we believe that the IESO is justified in using the Rated Criteria Points mechanism to incentivize Project siting in key locations of interest.
- ESC believes that the rated criteria for Northern Ontario and siting outside prime agricultural areas, while well intended, would not maximize the use of LDES technologies. LDES technologies should focus siting on areas of grid needs and reliability.

Proposal and Contract Security

Do you have any feedback the IESO should consider when developing a proposal for this design item?

- Esc believes that the IESO should a**llow for a more flexible proposal security mechanism (including refundability of deposits under certain circumstances) that promotes early-stage projects to participate.**

Contract Design Considerations

Do you have any feedback on the contract design considerations discussed? The IESO is looking for feedback on the LT2 draft contracts to help inform us about the design for the LLT contract. Please highlight any areas you think should be reconsidered for LLT resources; provide as much detail and rationale as possible to help inform decision making.

ESC continues to remain focused on the need to future proof contracts to capture full value of all types of storage. Therefore, we would like to reiterate our main contract considerations for the IESO and specific mechanism which build off the options presented by the IESO.

- IESO contract protections should respect the following 4 principles:
  - Maintain flexibility of solutions
  - Transparency – clear and transparent processes for both parties
  - Fairness
  - Focus only on the issue at hand

We therefore propose the following mechanisms in response to a few contractual considerations

Risk	Mitigation mechanism
State of charge limitation	Incorporate coverage in event 8+ hour LDES resources are energy-constrained due to being dispatched during qualifying hours of a previous day, without risking non-performance charges
Inflation	Include 100% inflation indexation up to the COD, through maintenance of the Material Cost Index Adjustment or similar structure Include 80% contract price escalation from one year after COD and onwards
ITCs/tax credits	Programmatic price adjustment clause/formula – 1:1 % price adjustment
CIB / gov funding	Programmatic price adjustment clause/formula – 1:1 % price adjustment OR Reciprocal compensation clause to current government funding clause in the contract (2.13)
Siting flexibility	Allow greater flexibility to change siting and/or Point of Interconnection post-contract award Remove rated criteria points for projects that are sited on non-prime agricultural land and project sited in Northern Ontario

- ESC Canada was very encouraged to the see the considerations set forth by the IESO during its LT2 engagement. It is ESC's opinion that the same options as presented in the LT2 presentation should also be considered for LLT contracts.
- However, a recurring concern brough up by ESC members was the potential of trying to "game" the re-bid contracting process after financial close which while it may help address issues related to unforeseen risks it also raises the potential for proponents to low ball offers to ensure acceptance, before then making significant changes after the fact.
- To address this concern some ESC members have proposed a much more clear and defined approach that would only allow contract awardees to establish instead a straightforward contractual pass-through of the cost of new tariffs or import duties. This would reflect the definitive measurable tariff percentage impact based on the tariff imposed on the country of origin. This adjustment mechanism could go from bid date to COD. This is further defined below.

Tariffs	Specific contractual commitment from the IESO to provide proponents with compensation should their project equipment be subject to direct or indirect tariffs, duties etc. when it arrives in Canada.

	For example, when the equipment arrives in Canada, if it is subject to a tariff, the proponent would provide necessary information to the IESO and the IESO would compensate the proponent for the tariff portion of the cost of the equipment

- Regarding the 3 contract considerations presented by the IESO, the ESC is encouraged by the AND approach versus the OR approach, which would allow for the contract mechanism protection to essentially stack.
- ESC generally supports these measures and offer comments to improve them on a going forward basis. We do note, however, that these measures do not address the entirety of the financing issues associated with tariff exposure. Without clear outcomes, proposal prices will need to be risk-adjusted if prices are locked in at the proposal submission deadline and lenders will be reluctant to lend to projects given the uncertainty. Below are some quick thoughts on the proposals presented by the IESO.

Pre-COD Contract Price Escalation

- ESC welcomes this consideration in response to our previous proposals and believes this would be of tremendous value to the industry's proponents and especially their supply chains. A similar provision has been included in recent Canadian RFPs, such as the 2024 BC Hydro Call for Power. However, this approach will address only a fraction of potential tariff cost increases and would not be sufficient on its own.

Two Stage Proposal Submission

- ESC and its members believe that while this approach may be beneficial, the small-time window doesn't necessarily mitigate risks presented by tariff changes which as we have seen in the current context with the United States. In this context what would happen after the 2nd stage? Additionally, are questions of the integrity of the bid brought into question with a multiple stage submission process. While our members don't view it as an actively detrimental mechanism, there is uncertainty about its effectiveness in addressing the problem at hand.
- ESC believes this would also induce bidders to submit artificially low bids before the second stage to "clear" short-listing and then result in higher bids that might not be the most competitive once tariff impacts are included? Is there a way to isolate tariff impacts from impacts stemming from artificially low bid estimates?

Mechanism to Re-bid Contract Price

- ESC and its members are largely supportive of this approach proposed by the IESO. This would be especially beneficial to long-lead time procurement with longer development horizons.
- We support the principle behind this mechanism but believe it is more complicated than needed. We propose instead a straightforward contractual pass-through of the cost of new tariffs or import duties, which were not in place at a time prior to bid submission, from the project proponent to the IESO. For example, when equipment arrives in Canada, if it is subject to a tariff, the proponent would provide necessary information to the IESO and the IESO would compensate the proponent for the tariff

portion of the cost of the equipment. This will avoid the need for more complex accounting of changed costs or definitions of material impact. It will provide project proponents with the certainty that is needed to bid the lowest possible price without adding buffers for potential costs due to tariffs, knowing that if new tariffs do arise that cost will not be leveled against project developers and Indigenous partners and risk the financial viability of projects proceeding. The baseline after which tariffs should be considered "new" should be prior to bid submission – e.g., 3 months – as after this will be too late for those costs to be calculated and factored into project bids.

- Additionally, some questions did come up in consultation that we feel the IESO need to address in refinement of this mechanism. The questions are as follows:
    - Is this a 1-time thing? Or can it be multi-stage?
    - How will the IESO define material impact?
    - Is there a possibility of a stand-alone off-ramp I.e., the proponent can't choose to have an off-ramp.
- What measures is the IESO taking to ensure a level playing field for consideration of re-bids between bids that were and were not shortlisted, especially in situations where pricing differences were small enough to possibly result in different ranking of bids post re-bid?

General Comments/Feedback

- ESC suggests the IESO set a minimum procurement target of 1,000+ MW for the LLT Procurement Capacity Stream, so the IESO can have the optionality to procure a wider range of LLT LDES options in the procurement and continue to meet its reliability requirements for the 2030s.
- The LLT Procurement represents a significant opportunity for developers with large-scale and capital-intensive projects that are hydroelectricity and long-duration energy storage. The IESO's commitment to a 40-year contract terms could provide long-term revenue certainty for eligible projects, with flexibility to align with project specific development timelines.
- The LLT Procurement represents a significant opportunity for developers with large-scale and capital-intensive projects that are hydroelectricity and long-duration energy storage. The IESO's openness to 40-year contract terms and early commercial operation incentivizes early engagement and could provide long-term revenue certainty for eligible projects, with flexibility to align with project specific development timelines.
- While the IESO is considering a phased approach to financial security, the initial proposal mirrors LT2's substantial requirements. Developers, especially those pursuing new or unproven LDES technologies, may face challenges securing early-stage capital. Stakeholders may want to prioritize engagement on this issue to help shape a more flexible security framework.
- Deliverability assessments remain a gatekeeping component of project viability. The IESO's proposal to offer one-on-one consultations and preliminary guidance is a welcome shift but also signals the need for proponents to engage early and collaboratively. Projects in constrained areas identified in LT2 Window 1, or with uncertain interconnection paths should proactively address these risks, including through the opportunities to identify your projects in the Bulk Planning processes.

- ESC feels very strongly that Transmission **Planning, Capacity Allocation, and Deliverability require greater transparency.** Careful consideration must be made with respect to the allocation of existing connection capacity, particularly in northern Ontario, where the majority of new (and higher capacity factor energy resource) hydroelectric projects are anticipated.
- **This means that a Flexible approach to Deliverability studies that capture the additional grid benefits provided by LDES technologies, and due to the long-lead time nature of the projects, allow for the required network upgrades.**
- ESC supports the added language in the draft RFP that explicitly reflects the requirement to rescind Connection Impact Assessments for Long-Term Capacity Service Projects seeking to connect to the Distribution System, in line with the IESO's previous LT2 engagements and guidance for Proponents seeking to conduct a Connection Impact Assessment for their Projects. While ESC welcomes this change, we request the IESO extends the same requirement for Long-Term Capacity Service Projects seeking to connect to the Transmission System.
- Given the lack of line-of-sight on deliverability for LT2(c-1) Proponents, RES believes the IESO should actively create a level-playing-field for all Projects, and that the requirement to rescind CIAs for Transmission-connected projects is well grounded in the IESO's previous LT2 guidance.
- ESC recognises the LLT as a major opportunity to support the growth of a domestic energy storage manufacturing and value-added supply chains, thus contributing to the province's long-term energy security objectives. We strongly encourage the IESO to work with the Government of Ontario to introduce appropriate policy measures and incentives that will enable a stronger role for advanced manufacturers within Canada and our allied trading partners. By fostering local value-added operations, Ontario can be in a strong position to establish ourselves as a North American and global LDES manufacturing hub, thereby unlocking major export and job creation opportunities for decades.

Additional LDES Considerations

- As it relates specifically to LLT and LDES technologies ESC would encourage the IESO to consider a few changes as it relates to round trip efficiency, Technology Readiness, and adjustments to

Round Trip Efficiencies

- IESO should consider softening the availability window for LDES technologies to maximize the capital value of these investments without penalizing certain technologies due to their roundtrip efficiencies.
- Currently the threshold is set at 80%, however this fails to account for other technology types and therefore ESC recommends lowering this to 50% to allow maximum storage technology participation. Additionally, this roundtrip efficiency of different technology types as presently set out would create problematic contract defaults for certain technologies.
- This is beneficial as mechanical storage technologies while lower round trip efficiencies they offer a 40-year design life, nearly double that of other technologies.

Technology Readiness Metric

- Questions from ESC continue around the definition of this, specifically as it relates to LDES technologies. ESC encourages the IESO to consider non-inverter vs inverter-based procurement for LLT resources as the technological differences and even deployment timelines are significantly different.

Contract Structure

- Currently the IESO is planning to treat hydroelectric resources within the same contract structure proposed under the LLT procurement. It is ESC's option that hydroelectric should be pursued through PPA as their ability to function as a capacity resource is extremely seasonal dependent. For example - during shoulder season hydroelectric operate at full output level 24/7, which is the direct opposite late summer where they are often unable to provide output even 8 hours every day.

Treatment of Hydrogen Storage Opportunities

- Hydrogen Storage opportunities present a unique case but also present unique considerations for the IESO. For these types of resources which are LLT, they would require a more unique contracting mechanism potentially of similar design to that applied to the Nanticoke Biomass facility. These resources can offer Very cheap capacity but would likely require a might require a predetermined capacity factor for the year as they can store energy over a long period of time and withdraw over a longer period of time.