# Feedback Form

## Enabling Resources Program (ERP) - Storage and Co-located Hybrid Integration Project

## Phase 1 Settlements Design Module

## Meeting Date: May 22, 2026

### Feedback Provided by:

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Organization: Power Advisory – on behalf of ESR Consortium

Email:

Date: June 20, 2026

Following the **May 22, 2026**, webinar, the Independent Electricity System Operator (IESO) is seeking feedback on the items discussed during the webinar. The presentation and recording can be accessed from the engagement web page.

**Please submit feedback to** engagement@ieso.ca by **June 5, 2026**. If you wish to provide confidential feedback, please submit it as a separate document, marked "**Confidential**." Otherwise, to promote transparency, feedback that is not marked "Confidential" will be posted on the engagement webpage.

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June 20, 2026

Maral Kassabian
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ATTN: Enabling Resource Program Engagement Team

Dear Maral,

Power Advisory has coordinated this submission on behalf of a consortium of energy storage providers under contract with the IESO through multiple procurement initiatives (the "Consortium"[1]). This letter is submitted on the Consortium to outline the key outstanding issues with the Enabling Resource Program (ERP) design as currently proposed by the IESO. The issues are presented in order of severity and reflect the Consortium's view that further justification and explanation is needed from the IESO to understand how it arrived at the proposed treatment for each matter.

The Consortium generally supports the direction and objectives of the ERP for storage resource participation in the IESO-Administered Market (IAM). However, a number of critical design issues remain outstanding that must be resolved before the Consortium can support the proposed framework. The following summarizes the five key issues, ordered by severity.

## 1. Settlement – Make-Whole Payment Clawback Against Profits

- This is the most critical issue for the Consortium. The Consortium understands that the IESO is proposing to reduce Make-Whole Payments (MWPs) calculated for a storage facility in hours where a MWP has been triggered by offsetting any profit earned in other hours of the day (in the DAM) or other intervals of the hour (in the RTM). This directly reduces the revenue potential of energy storage resources and undermines the financial viability of these projects over the long-term.

[1]The members of the Consortium are Alectra Energy Solutions, Atura Power, Compass Energy, Capital Power, Convergent Energy+Power. EDP Renewables, AYPA, Brookfield Renewables, Neoen, Northland Power, Boralex, and Potentia.

- Storage resources manage risks across energy, operating reserve, state of charge, cycling limits, warranty constraints, day-ahead commitments, real-time exposure, hedges, outages, and future operating obligations. SOC limitations make these risks interdependent and often extend beyond a single hour, interval, or operating day. Storage offer prices reflect their assessment of these risks and opportunities, including the forward-looking cost of replacing energy and maintaining flexibility. The IESO's reference level implementation, which are factored into MWP, do not fully account for the costs and risks associated with financial exposures that arise when mitigation alters a resource's state of charge. These real costs are dynamic, based on market conditions and subject to forecast error, making it unrealistic to document through temporary reference levels requests to manage these costs.

- The IESO is wrong in assuming it can accurately determine whether a storage resource has made a "profit" that can be fairly clawed back against a MWP. An uneconomical discharge dispatch could force a BESS participant to increase its charge bids, even at a loss, to regain its initial SOC and reduce financial exposure to stronger prices in later hours that may not end up materializing. It is not clear how that the IESO will consider this action in their interpretation of our "profit".

- The profit clawback directly undermines one of the primary objectives of MWP which is to ensure resources follow schedules and dispatch instructions to ensure reliability of the power system and continuality of market participation. By establishing a profit clawback structure instead of fair and equitable MWP treatment, the IESO is discouraging storage resources from full participation since operation could result in losses.

- The profit clawback proposal is also one-sided. If the IESO intends to claw back perceived profits from a storage participant (and only a storage participant), then there must be an equivalent mechanism allowing the participant to recover losses and lost opportunities caused by uneconomic dispatch, after the fact. Otherwise, the IESO can reduce compensation whenever it believes a resource earned offsetting value, while the Market Participant has no equivalent recourse when dispatch creates additional costs that would not have been there had the storage facility been allowed to manage its SOC according to its economical outlook.

- Storage owners and operators have taken a long-term view of investing in Ontario through the IESO's procurement activities. As part of that investment decision, storage owners and operators took a range of different views on current and future market conditions with the expectation that they would be dispatched economically. The IESO's proposal directly undermines this outcome by potentially dispatching them uneconomically and siphoning profits from economic hours to avoid having to pay storage resources for uneconomic dispatch.

- Different hours (or market intervals) reflect a wide range of varied market conditions and outcomes, and the results of one hour should not be applied against those of another. For greater clarity, a storage resource that earns a profit in one hour should not be forced to forfeit that profitability because it was uneconomically dispatched — and therefore deserving of a MWP — in a different hour. The IESO's proposal undermines the intention of the MWP, which is

broadly intended to ensure that resources follow dispatch, even when it is uneconomic to do so. Under the IESO's proposed approach, a resource may have the incentive to avoid following dispatch, as it will ensure that doing so will reduce its profits in hours where it is economically dispatched.

- Most importantly, no other resource type or market participant is subject to similar treatment, meaning storage resources are being unfairly targeted for profit clawback. For example, gas-fired generators do not have their Generator Offer Guarantee (GOG) payments clawed back for one commitment in a given day if a previous (or later) commitment was profitable.

- There is also a broader risk that accepting this approach could allow the IESO to justify extending it over longer time periods (e.g., across a settlement month rather than a day or hour). The IESO has provided limited justification for this treatment. The Consortium's position is that this approach must be removed and that MWPs should be calculated on an hour or interval basis, consistent with the treatment of all other market participant types. If the IESO has undertaken studies or analysis to suggest otherwise, the Consortium strongly encourages the IESO to publish this analysis and invite feedback on both its approach and conclusions.

- The Consortium reminds the IESO again that the contract design for all energy storage resources in Ontario is a Fixed Capacity Payment (FCP), which was used to support competitive outcomes in the procurement process. The design of the contract encourages market participation by requiring proponents to estimate future market revenue and earn sufficient market revenue to ensure the financial viability of their projects. Clawing back profits within the DAM will have a direct negative impact on financial viability of these projects.

- The result of this approach may be two-fold. First, it may incent offer strategies that will reduce market participation. This may negatively impact reliability and increase wholesale prices. Second, it may significantly impact participation or offer strategies in future procurements, as market participants may have to account for the clawback of profit by the IESO. .

- The Consortium feedback is that the IESO must remove the profit clawback proposal in the settlement module for DAM and RTM and instead ensure that storage resources are adequately and fairly compensated for uneconomic dispatch through MWP (in the same manner as other resource types) with no linkage to market dispatch outcomes in different hours.

2. Physical Withholding – Extended 24-Hour Day Requirement

- The IESO is proposing to extend the physical withholding requirement for storage resources from full capacity for one hour per day to the full Reference Quantity (RQ) for each hour of the dispatch day. While an overnight exemption has been suggested, it is unclear how this applies in practice and it conflicts with other statements in the design memo (i.e., 24 hour requirement). The requirements are also redundant when compared to the day-ahead must-offer requirements within all of the IESO contracts storage contracts.

- The 24-hour physical withholding requirement compounds the risks created by the mandatory Initial State of Charge (ISoC) submission for each DAM window, which requires storage resources to estimate their SoC up to 14 hours in advance. By forcing energy offers across all dispatch hours, the IESO is eliminating the operational flexibility needed to manage SoC in order to meet their next-day schedule. This interaction must be considered when determining physical withholding requirements. The Consortium submitted ample feedback on this challenge in the previous feedback cycle for the ERP and recommended that the IESO review that submission again.

- Another additional risk of 24-hour physical withholding is where storage facilities are at risk of exhausting its available warranty cycles and only wishes to remain available to satisfy minimum market participation, contractual or PPA obligations. The storage facility should be permitted to withholding discharge volumes during non-business hours (including daytime weekend hours) where must-offer obligations could result in significant equipment damage or costs. The ERP should preserve sufficient operational flexibility to manage asset health and contractual requirements.

- The IESO has awarded 640 MW of 8-hour storage contracts recently, for which an overnight exemption provides insufficient protection. The SMSR market designs being proposed in the ERP must be developed in anticipation of future storage types.

- The Consortium recommends that the physical withholding RQ be set based on a full cycle over a day (i.e., total energy based on the difference between MaxSoC and MinSoC). By using this approach for physical withholding for storage facilities, the IESO is ensuring that each storage participant is offering the market a single cycle into the market. If that capacity is scheduled and dispatched, any further cycling would be completed through additional DAM scheduling (of which the storage facility would have offered) or dispatched in real-time because, as market dynamics and contract obligations will be managed by the storage facility. This would also allow storage facilities to better manage obligations for Initial SoC submission into the DAM.

- The Consortium believes the proposed solution for physical withholding tied to one full cycle better manages MPM requirements, operational flexibility and risk mitigation for other SoC requirements.

3. Required State of Charge for DAM Submission

- As noted above, the mandatory requirement to estimate and submit an ISoC when participating in the DAM carries risks that Consortium members are struggling to resolve. When a storage participant selects an ISoC, they may be locked into a financially binding DAM schedule that cannot be met in real-time without purchasing energy in the RTM. The storage participant has no reliable way to know their actual SoC at the start of the next operating day at the time of DAM submission, which occurs up to 14 hours in advance. The Consortium requests the IESO provide a clear explanation of how it intends to address the financial exposure created by this requirement,

and what recourse is available to storage participants where their actual SoC deviates from the submitted ISoC through no fault of their own.

- Storage participants will already have tools, such as Maximum Daily Energy Limit parameters, for discharge offers to limit discharge volume in the day-ahead market. Requiring a storage resource to forecast state of charge up to approximately 14 hours in advance would be of little value, especially where real-time dispatches in current day, operating reserve schedules, outages, or other operational conditions can materially change the actual state of charge before the operating day begins. A similar Max DEL parameter should be made available for charge resources. Forecasting actual SOC fourteen hours in advance would likely complicate the structure of a storage facilities bids and offers. The Consortium suggests at a minimum offering an initial SOC should be opt-in, and if no storage participant is asking for it, the IESO should abandon the requirement. Restatement of SOC at start of real-time day makes more sense to explore.

4. Edge Case – Mitigated Bi-Directional Offers

- The Consortium has previously raised the concern that under the proposed MPM design, an ESR could have its bids to consume energy at a given price converted into a requirement to inject energy at a lower price. As set out in prior feedback, the IESO has confirmed that no mitigation is required for withdrawal laminations. Yet the edge-case example the IESO has provided in the design memo produces the perverse outcome where the mitigated offer falls below the storage resource's highest bid. As such, it is forcing the storage resource to inject energy at a price that is below its input cost.

- The forced switch from withdrawal to injection reduces the storage facility's SoC at a price the participant was seeking to increase it at (i.e., bidding for energy consumption at a higher price than what the Financial Reference Level (FRL) would the energy injection at). By forcing energy injection at a price when the storage facility was seeking to charge potentially leaves the facility unable to meet future DAM schedules or contract obligations (i.e., ability to offer capacity in DAM). If the MPM framework forces injection at a price that the storage facility was trying to consume at, the storage facility may also be required to change other future energy offers and bids to buy energy to meet future obligations would could further compound the potential losses. The Consortium recommends the IESO correct the design so that the mitigated offer level cannot fall below the highest withdrawal bid submitted by the storage participant.

5. Voluntary Opt-Out from IAM Participation

- The Consortium continues to request that the IESO establish a voluntary opt-out mechanism for energy storage resource participation in the IAM, including specifically the State-Of-Charge (SoC) management. Unforeseen challenges or outcomes may require storage resources to manage their own SoC to maintain warranty and facility economics. The Consortium reiterates that this

opt-out should be available at least during a transitional period while the ERP design is bedded in and any operational issues are identified and resolved.

We will be pleased to meet with IESO about this submission at a mutually convenient time.

Sincerely,

[redacted]

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