Feedback Form

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

Meeting Date: November 20, 2024

Feedback Provided by:

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Following the November 20, 2024, engagement 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 **December 9, 2024**. 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.

General ERP Feedback:

Topic	Feedback
• Engagement approach to use Design Memos for each Project along with Presentations to inform feedback and ensure information on design elements and concepts is clearly communicated	We appreciate the IESO's approach to examine the implications of design decisions across market areas. We would like to see a target implementation timeline, and to ensure that target timeline enables the affected participants to assess and address any lessons from the current model. It is important to note that neither participants nor IESO have experience operating electricity storage in the MRP environment yet. In addition, many of the assets that will be affected are in development, and as such, the implications on operation may not be fully understood. We encourage IESO to consider the lessons learned not only from other market operators, but from our Ontario assets once they are operational in the MRP environment, and to ensure the engagement and design scope considers storage beyond the BESS model.

Storage/Hybrid Project Feedback Questions:

Topic	Feedback
• Additional design considerations for future modules or elements?	1. IESO must include either a separate module, or an element under each of the "Capacity" and "Market Power Mitigation" modules at a minimum, to align market design changes with existing electricity storage procurement contracts. IESO has electricity storage contracted under a few different structures (ESFA, Capacity Auction, E-LT1, LT1, etc.), each of which may be impacted. Future procurements of electricity storage resources will need to be aligned with the enduring market structure as well. For consideration: (1) Interaction of dispatch data changes with must-offer obligations (2) Interaction of state-of-charge declaration with must-offer obligations (3) Ability to manage equipment operation, degradation, cycling assumptions built into warranties and models, without: (a) Impacting costs that were bid in a competitive procurement environment (b) Triggering market power mitigation. 2. IESO must consider that if mandating that existing storage projects must re-register under the enhanced model, the asset owners may incur incremental costs[1] and must be held whole, either through contract or market mechanisms. Otherwise, existing projects must be given the option to use the existing two-resource model.

[1] For example, incremental prudential support, telemetry, physical equipment, warranty changes, cycling costs, etc.

Topic	Feedback
• Should the IESO explore bid/offer tied to State of Charge or other options?	Conceptually, this allows for more efficient dispatch of ES systems reflecting true real-time costs as SoC varies across the day. We appreciate the IESO's acknowledgement of this, and believe this consideration should carry into Market Power Mitigation reference levels. Practically, this is a significant undertaking in the design, adding complexity on what the IESO's dispatch algorithm solves for in real-time. 1. Can the IESO's DSO add this level of complexity into the real-time algorithm without delaying results for all market participants? 2. Will the IESO's real-time DSO algorithm be able to include ex-ante market power mitigation in these solutions in reasonable time? 3. The IESO's real-time DSO will be solving for the next interval, not the balance of the day. Will this be the most efficient and economically profitable dispatch result for the energy limited storage asset, considering both energy and OR potential? 4. Market Power Mitigation reference levels would need a redesign to account for the structure, and the opportunity cost within the different SoC bands.

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• What considerations should the IESO have for day-ahead market (DAM) in relation to SoC estimation? How can the IESO support a SoC that will accurately reflect an accurate SoC value that could be present at the start of the next day?	Regardless of the methodology IESO uses to determine the starting SoC in the DAM, the following principles must apply: 1. If market participants are following their dispatch from the IESO, an incorrect starting SoC should not have a negative financial impact on the ES project. The participant should not be left with the risk of the IESO needing/not needing the storage in the current day due to system conditions and having a DA commitment they can't meet. 2. A framework for make-whole payments related to inaccurate starting SoC estimates will need to be developed that separates potential impact based on the cause of the inaccurate estimate. For example, if the starting SoC estimate is incorrect because the IESO's forecast is wrong, supply conditions change, or there's a reliability requirement that changes the facility dispatch ahead of the DAM, the IESO should make the resource whole. If the starting SoC estimate is incorrect because the resource has changed its offer profile to avoid discharge between 10:00 EPT and midnight, no make whole payment would be required. 3. As noted in earlier feedback, the Must Offer provisions in current and future procurement contracts need to be considered carefully to ensure contracted assets are not considered in breach of contract obligations as a result of a change in market process.
• Are there other resource operating characteristics needed to properly automate the operation of the resource to avoid changes in the mandatory window?	No feedback on this item.

Topic	Feedback
• Any other reasons why changes could be needed in the mandatory window?	No feedback on this item.

General Comments/Feedback