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	ESC thanks the IESO for launching the process and publishing a design memo to help explain the concepts being proposed. That being said, the use of design memos and public webinars require a logical schedule for stakeholder engagement. The IESO published the ERP design memo on November 14th and held a public webinar the morning of November 20th. That schedule left 3 business days for stakeholders to review the detailed design memo prior to being able to ask questions to the IESO. For the engagement process to be effective, fair and equitable the IESO must provide greater time to stakeholders for review, analysis and preparation if they are to expect beneficial engagement. In particular, it appears the IESO has not taken into account the internal coordination required by stakeholders and market participants to organize the appropriate and limited resources to be available to engage in and respond to the many policy engagements currently underway by the government, OEB, and IESO.. In a majority of cases, a regulatory or government relations resource is tasked with monitoring and participating in engagement sessions. While those resources are knowledgeable and can act on behalf of their company/association, they are also expected to coordinate with internal departments to ensure the appropriate other specialist resources and staff attend sessions and participate. In general, this means that stakeholders not only need time to review and analyze documents, but they require additional time to coordinate internally and ensure the right resources attend engagement sessions and develop comments in response to requests for feedback. The Enabling Resource Program engagement did not provide adequate time and therefore should consider an additional engagement session before moving forward with further design decision making process steps. With so much change underway in the Ontario

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	electricity sector, the IESO must recognize the resource constraints on the ability of participants to provide informed feedback in a timely fashion. This includes not only market participants and industry associations, but also investors and communities. To be clear, ESC supports the engagement approach of design memos and presentations; more time is needed between publication of design memos and public webinars.

Storage/Hybrid Project Feedback Questions:

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Additional design considerations for future modules or elements?	There are a number of areas where additional design considerations for future modules or elements are needed. First, energy storage resources are versatile and can offer many different services to the IESO-Administered Market (IAM). In particular, energy storage resources can and have offered regulation capacity to the IAM. Currently, regulation capacity is scheduled on an ad-hoc basis prior to the Day-Ahead Commitment Process (DACP) and will continue to do some under the Day-Ahead Market (DAM). While procurement of regulation capacity is not expected immediately, the IESO should have a design module that properly integrates the scheduling of regulation capacity in coordination with the DAM process and allows energy storage resources visibility into future multiple service offerings. Second, energy storage resources are energy limited resources and therefore schedule and dispatch instructions must be coordinated not only for energy charge and discharge but also for reserve products (i.e., operating reserve). Given the reliability benefits of energy storage resource capacity, the IESO may want to consider optimization that schedules energy storage for OR even if offering a lower real-time energy price earlier in the day if the IESO scheduling algorithm sees short reserves/resources later in the day. Doing so would

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	require appropriate compensation for opportunity costs in OR prices which should be the basis for a design module in the ERP. In addition, the treatment of long duration energy storage during reliability or constrained system events that cover multiple days (e.g., such as those days described by the IESO power system planning group as part of Northern Bulk System plans) may have a different optimization objective compared to short duration storage. Similar to generation resources, different energy storage technologies and attributes may require slightly different market treatment. Third, changes to energy storage market participation and SOC management will be influenced by Market Power Mitigation (MPM) applications. For example, how energy storage is scheduled could impact the total demand charges an energy storage resource pays on a given month which may not be included in MPM reference level calculations. A design module is therefore needed for coordinated MPM design changes in coordination with the ERP changes being proposed by the IESO. Fourth, all energy storage market participants will be under IESO contracts that include the Day-Ahead Qualified Capacity Must-Offer provisions. A design module is required for integration of market rule changes and changes to energy storage contract designs to ensure effective and equitable market design changes. See further information in the general comments. Fourth, energy storage attributes can change over the life of the asset that may require adjustments to static information submitted to the IESO at market registration (e.g., cycling efficiency). If this data is expected to be used dynamically in the scheduling and dispatch of energy storage resources; the IESO should explore the process and timelines for updating critical system information. Finally, optimization of energy storage resources requires visibility of market activities to best inform energy storage market participants on their operating strategy and market participation. Currently the IAM has a significant flaw because there is no ability for market participants to access historic energy bids and offers

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	to understand impact of different market participation strategies. This must be addressed and the ERP module must come with a commitment from the IESO to include a process for publishing energy offer and bids for every hour for all resources historically to provide appropriate insight for energy storage market participants and to achieve market efficiencies.
Should the IESO explore bid/offer tied to State of Charge or other options?	ESC believes it is prudent to explore given optimization opportunities for market and reduction of potential need for emergency maneuvers by IESO. In addition to exploring bid/offers tied to SOC, the IESO should also explore an option for energy storage resources to continue to self-schedule in case a market participant has a different approach to participation or objectives (see NYISO example). Further, the impacts of linking bid/offers to SOC on market power mitigation provisions and opportunity costs for operating reserve must be considered while exploring any option.
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?	The IESO should consider options or processes to allow a market participant to include an estimation of their SOC at submission to help calibrate real-time energy and scheduling calculations. In addition, it is not clear that SOC estimations will be accurate based on energy bids and offers and dispatch instructions. Cycling losses and other factors that influence SOC at an energy storage facility can change due to external factors like external temperature, operational challenges, and degradation.
Are there other resource operating characteristics needed to properly automate the operation of the resource to avoid changes in the mandatory window?	Consideration should be given to ramping rate, external temperature, cycle count, and depth of cycle
Any other reasons why changes could be needed in the mandatory window?	Typical resource challenges such as operating restrictions (e.g., transmission outage); external factors (e.g., abnormal communication requirements); and unforeseen events.

General Comments/Feedback

Energy Storage Canada commends the IESO for launching the storage and hybrid initiative for changes to the market rules. As the IESO is aware, this is a priority change for ESC members and something that is needed to fully unlock the benefits of energy storage resources to the Ontario electricity market.

ESC is supportive of the approach to exempting energy storage from uplift costs. Given the optimization and efficiency objectives of energy storage in the electricity system, this is a prudent and practical approach. ESC notes that the IESO should strive for no additional metering requirements for station service requirements. This approach should be extended to new transmission and distribution rate design for energy storage resources. ESC requests that IESO help with coordinating with OEB on potential energy storage rate design that can align with the ERP market rule changes. While we recognize the current focus of ERP is on front of meter electricity storage, we would like to highlight the benefits of behind the meter distributed energy resources and non-electrical storage like thermal energy storage. Energy storage can provide grid benefits by acting as "demand sinks", providing added value to generation assets during off-peak hours. This can reduce the barriers to investment in intermittent renewables while providing beneficial electrification.

The ongoing procurement of resources using long-term contracts means that Ontario's investment driver for fixed costs and lower capital structure funding for new and existing resources will continue to leverage the hybrid market design that mixes long-term investment through contracts with near-term optimization of the real-time energy market design. This means that market rule changes like those being considered by the IESO through ERP cannot be completed without consideration of potential changes to IESO held contracts. As both the market administrator and the contract counterparty, the IESO has an obligation to work in good faith with storage market participants to maximize the benefits for customers (i.e., greater operability, enhanced reliability, lower costs, and effective investments). To that end, the IESO must commit as part of the design modules, market rule changes, and engagement to include discussion on contract provision changes so that total market participant costs are incorporated in feedback and decision making. Without the coordinated participation of market operations and contract management within the IESO, the proposed changes in this engagement face the potential uncertainty of implementation challenges and stunted optimization gains purely because of a siloed and uncoordinated approach to managing changes within the IESO.

For the electricity sector in general, and for energy storage resource in particular, the Ontario market structure is the future and reflects the appropriate amalgamation of society expectations (e.g., emissions reduction), government policy preferences (e.g., expanded nuclear generation funded by ratepayers through long-term contracts/regulation), and market mechanic efficiencies (i.e., launch of Market Renewal Program in May of next year). The mixture of long-term contracts that incentivize real-time market participation while provide clear financing support for fixed asset investments should be viewed as a whole when making any market design changes in the IAM.