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Market Renewal Program
Stakeholder Update on Navigating Design Solutions

Declan Doyle / Jessica Tang

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Recap of Recent Activities

- Market Renewal Newsletter highlighted progress in the Market Power Mitigation Reference Level consultations
  - Sign-up for the Market Renewal Newsletter at www.ieso.ca/subscribe
- Responses to Market Power Mitigation Rules and Manuals Feedback

Background

- Currently, the IESO is drafting the full set of Market Rules and Market Manuals for stakeholder review
- Alongside, the IESO is working on solution development, technical specifications, among other efforts to support IESO and Market Participant readiness
- Within this process of implementing the design, there are issues and opportunities that may need to be resolved, and the IESO wants to be proactive and transparent about how these items are resolved

Background (Cont'd)

- One of the goals of MRP Engagement is to use stakeholder time and effort wisely, to focus and draw attention to areas of change and to build on the principles of transparency
  - Example of this approach used in detailed design were the technical sessions to gain stakeholder advice prior to full review of the detailed design

Market Renewal Principles

Approach

- Update stakeholders quarterly if any design integration issues exist, show how they were resolved, and the rationale behind decisions
- Stakeholders are open to provide advice on the solutions, ask questions, or recommend alternatives to resolve these challenges

Design Implementation Solutions

Acronym Glossary

PSU: Pseudo Unit Model

MW: Megawatt

CT: Combustion Turbine

ST: Steam Turbine

P-Q Pairs: Price-Quantity Pairs

MLP: Minimum Loading Point

MP: Market Participant

Efficiency – Energy Reference Levels for PSUs

Issue: For the designed mitigation outcomes, PSU resources need to submit energy offers with a quantity MW that matches each possible MLP reference level calculated per configuration; e.g. for a PSU with 3-CTs & 1-ST, 3 of 5 available P-Q pairs for the PSU will be used for MLP reference levels, leaving only 2 P-Q pairs for MP's flexibility. This restriction is not desirable for market participants.

Proposal:

Existing Design	New Design
PSU resources are required to establish one reference level for each possible combined cycle configuration (e.g. for a PSU with 3-CTs and 1-ST, the PSU should establish three reference levels for 1x1, 2x1, and 3x1 configurations)	PSU resources will be required to establish one reference level for their combined cycle mode (i.e. for PSU configuration 1x1)

Rationale: With the design change, the PSU resources only need to submit one P-Q pair at calculated 1x1 MLP reference level, allowing PSUs to continue using their P-Q pairs more freely to communicate market signals. It will also avoid mitigation outcomes inconsistent with the designed market power mitigation framework.

MRP Integration of Storage: Implementation Solutions

Background

- The IESO is working closely with the Energy Storage community regarding the design of participation in the IESO-Administered Market
- This design occurred in parallel with the MRP Detailed Design discussions, and was not directly reflected in the MRP documentation
- Through MRP Implementation, and creation of Market Rules and Market Manuals, the storage design is being captured

Background (cont'd)

- Upon MRP in-service, storage resources will continue to operate as dispatchable (or self-scheduling) resources for generation and consumption with minimal changes from today's operation
- Engagement outside of MRP continues on how, following MRP in-service, the participation model for storage resources might be adjusted
- This update will provide discrete and specific areas where storage participation differs from today's operation

Self Scheduling Storage Model

Issue: The existing two-resource model for storage energy market participation allows for the generation to participate as self-scheduling while the load participates as non-dispatchable. In the renewed market, these participation types have different settlement price granularity: locational and zonal, respectively. This will distort market signals for the participant and lead to inefficient participation.

Proposal:

Storage Design Project	Market Renewal Project
• Generator resource is registered as Self Scheduling and is paid HOEP • Load resource is registered as Non-dispatchable and pays HOEP	• Generator resource is registered as Self Scheduling and is paid LMP • Load resource is registered as price responsive and pays LMP

Rationale:
With the design change, the storage resources will have the same price granularity and market signal, leading to more efficient market outcomes.

Storage Prudential Support Obligation

Issue: Today the prudential support obligation (PSO) is determined based on a portfolio approach, which is made possible based on a uniform market price. Under the renewed market, the prudential framework will evolve to a resource-specific assessment informed by locational prices which can then be netted to determine the overall prudential requirement. Participation using the two-resource storage model will require a resource level assessment, looking individually at net injection and withdrawal, to determine if PSO is required.

Proposal:

Storage Design Project	Market Renewal Project
• Portfolio based prudential support obligations do not require storage to submit PSO.	• Resource based prudential support obligations may require storage to submit PSO.

Rationale:
With the design change, the IESO will apply the prudential framework to all market participants based on their market price exposure.

Feasible Day-Ahead Market Schedules

Issue: All dispatchable resources will have to submit offers or bids into the Day-Ahead Market (DAM) to establish an Availability Declaration Envelope (ADE). The ADE will set a maximum offer or bid quantity for the real-time market. A dispatchable electricity storage resource is limited in their ability to inject or withdraw by their state of charge, so offering and bidding their full capability could risk being scheduled in DAM for injections or withdrawals beyond their ability.

Proposal:

Storage Design Project	Market Renewal Project
• Dispatchable generators can optionally utilize a Daily Energy Limit (DEL) to limit their schedules injections in DACP	• Dispatchable storage generators are encouraged to utilize a Maximum Daily Energy Limit (DEL) to limit their schedules injections in DAM

Rationale:
With the maximum DEL, the storage resources will be able to submit offers for their full output capability to set an ADE while ensuring they are not scheduled over a feasible amount of energy for the day.

Next Steps

- January 14, 2022: Deadline for stakeholder feedback on the design implementation solutions
- February 2022: Publication of Calculation Engine Market Rules and Manuals
- March 2022: Next quarterly update on design implementation issues and opportunities

Thank You

ieso.ca

1.888.448.7777

customer.relations@ieso.ca

engagement@ieso.ca

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