

Energy Storage Design Project – Feedback Form

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Feedback Provided By:

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Following the February 18, 2020 Energy Storage Advisory Group (ESAG) meeting to discuss the Energy Storage Design Project, the IESO is seeking feedback from participants on whether the Interim Design Features presented within the design document offer pragmatic solutions for the participation of energy storage in IESO Administered Markets in the near term. The IESO will work to consider feedback and incorporate comments as appropriate and post responses on the engagement webpage.

The referenced presentation and design document can be found under the February 18, 2020 entry on the [ESAG webpage](#).

Please provide feedback by March 3, 2020 to engagement@ieso.ca. Please use subject: *Feedback: Energy Storage Design Project*. To promote transparency, this feedback will be posted on the [ESAG webpage](#) unless otherwise requested by the sender.

Topic	Feedback
Design Feature Self-Scheduling 1 – Maintain current capacity limit of 10 MW for- Self-scheduling energy storage resources in the real-time energy market	<ul style="list-style-type: none">• A core benefit of energy storage facilities is their responsiveness and flexibility.• The market renewal program (MRP) is focused on encouraging more market based mechanisms and encouraging participation in the IESO-administered markets (IAMS).• For these reasons, the 'Design Feature Self-Scheduling 1' should remove the option for self-scheduling of energy storage facilities and instead mandate that all

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	<p>energy storage facilities be dispatchable resources, except those offering regulation service.</p> <ul style="list-style-type: none"> • This approach supports the MRP design principles: efficiency (i.e., better dispatch instructions), competition (i.e., more participants in the IAM), implementability (i.e., does not require unique treatment for ESRs), certainty, & transparency (i.e., energy storage facilities participation is clear).
<p>Design Feature Self-Scheduling 2 – Raise current capacity limit of 10 MW for Self-scheduling energy storage resources providing regulation service only</p>	<ul style="list-style-type: none"> • Given the restrictions of the Automatic Generation Control (AGC) tool summarized by the IESO, EDF supports the proposed design feature • Once the AGC tool has been upgraded, EDF recommends that the self-scheduling option be eliminated.
<p>Design Feature Facility Registration 1 – Registration of self-scheduling energy storage facilities providing regulation service only</p>	<ul style="list-style-type: none"> • EDF supports the Design Feature Facility Registration 1.
<p>Design Feature Facility Registration 2 – Registration of self-scheduling energy storage facilities in the real-time energy market</p>	<ul style="list-style-type: none"> • EDF does not support the Design Feature Facility Registration 2 and insteads recommends that no energy storage facilities be allowed to register as self-scheduling except for those providing regulation capacity (see comments in Design Feature Self-Scheduling 1).
<p>Design Feature Facility Registration 3 – Registration of dispatchable energy storage facilities</p>	<ul style="list-style-type: none"> • EDF supports the Design Feature Facility Registration 3.
<p>Design Feature Prudential Security 1 – Prudential Support Obligation for market participants with energy storage facilities.</p>	<ul style="list-style-type: none"> • The financial comments required for energy storage facilities in Design Feature Prudential Security 1 are prudent and reasonable, EDF supports the Design Feature.

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Design Feature Day Ahead Commitment Process 1 – DACP data submission requirements for each class of interim energy storage participation	<ul style="list-style-type: none"> EDF supports the design feature for DACP 1; however, EDF is interested to understand how the data submission for energy storage facilities will be transferred to the new Day-Ahead Market (DAM).
Design Feature Day Ahead Commitment Process 2 – No overlap rule for bids and offers into the DACP for energy storage facilities	<ul style="list-style-type: none"> Based on the restrictions in the IESO’s tools, the limit on no overlap rule for bids and offers into the DACP makes sense.
Design feature State of Charge 1 – Restriction against overlapping or equal bid/offer prices	<ul style="list-style-type: none"> EDF supports the no overlap rule for bids and offers.
Design feature State of Charge 2 – Addressing potential changes to SoC-limited bids and offers	<ul style="list-style-type: none"> The limits on bids and offers fits with existing IESO processes and therefore makes sense to implement.
Design Feature Operating Reserve 1 – no simultaneous offers of operating reserve from the two resources comprising a dispatchable energy storage facility	<ul style="list-style-type: none"> EDF understands that the IESO tools cannot compute dispatch instrcutures for simultaneous offers of operating reserve from the load and generation model of the energy storage facility. The design feature OR 1 makes sense due to IESO tool restrictions; however, EDF recommends that the IESO determine how to allow the full OR offer capability from withdrawal to max injection of energy storage to be allowed as an OR product.
Design Feature Operating Reserve 2 – Operating reserve requirements specific to a dispatchable load resource comprising a dispatchable energy storage facility	<ul style="list-style-type: none"> EDF supports the Design Feature OR 2.

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Design Feature Operating Reserve 3 – Operating reserve requirements specific to a dispatchable generator resource comprising a dispatchable energy storage facility	<ul style="list-style-type: none"> • EDF supports the Design Feature OR 2.

General Comments/Feedback:

- EDF notes and commends the IESO’s administration of the Energy Storage Advisory Group (ESAG) and the October 2019 launch of the Energy Storage Design Project through the ESAG to develop the design for how energy storage will participate and operate within the IAM.
- We also commend the IESO commitment to enable multiple energy storage technologies towards supply of energy, capacity, operating reserve, and multiple ancillary services within the IAM, along with direct participation of energy storage as IAM market participants and indirect participation of energy storage through demand response (DR) IAM market participants.
- However, EDF notes that the ESAG SDP does not comprehend or consider the needs of hybrid projects (e.g., wind + storage).
- For example, the SDP should provide design features for how hybrid projects would complete facility registration, and what market participant types they would be allowed to register as (e.g., self-scheduling, dispatchable). Further, the SDP discusses limits and parameters for submitting offers & bids into the IESO real-time energy market; however, these parameters are not fully applicable to hybrid projects.
- The SDP should consider what limitations and options are available for hybrid projects. Co-location of energy storage with variable renewable energy sites must be an important component of the market design changes being considered and designing participatory models that integrate their unique performance attributes and grid services will be critical in meeting Ontario’s future electricity system needs.