

Energy Storage Design Project – Feedback Form – February 18, 2020

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Feedback Provided By:

Company Name: Canadian Solar Industries Association on behalf of NEXUS

Contact Name: Nicholas Gall

Contact Email: [REDACTED]

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.

Thank you for your time.

Topic	Feedback
<p>Design Feature Self-Scheduling 1 – Maintain current capacity limit of 10 MW for- Self-scheduling energy storage resources in the real-time energy market</p>	<p>The general objective of the IESO’s market renewal program (MRP) is to utilize market-based mechanisms to meet market needs in the most cost-effective manner. In support of that general objective, CanSIA believes it is important for the IESO to encourage, and at times mandate, direct participation in the IESO-Administered Markets (IAMs). To that end, CanSIA believes that the exemption for energy storage facilities from being dispatchable resources up to 10 MW should be removed. Instead, the IESO should mandate that all energy storage facilities above 1 MW participating in the real-time energy market should be required to be dispatchable resources and not be allowed to be self-scheduling resources.</p> <p>The ESAG SDP uses the MRP design principles (i.e., efficiency, competition, implementability, certainty, & transparency) in determining the Design Feature recommendations, based on those design principles CanSIA submits that the IESO should remove the self-scheduling options for the following reasons:</p> <ul style="list-style-type: none"> • Efficiency: The self-scheduling option requires the IESO to estimate consumption and injection patterns of energy storage facilities in real-time; estimating as opposed to scheduling and dispatching dispatchable resources reduces the efficiency of the IAM • Competition: Dispatchable resources submit bids & offers into the IAM, more entities participating in the market scheduling process increases competition for the benefit of the Ontario electricity market • Implementability: requiring all energy storage facilities to be dispatchable reduces the need for multiple participation types and therefore the implementability of the design feature

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	<ul style="list-style-type: none"> • Certainty: Dispatchable resources have greater commitments to participation in the IAMs, therefore increase certainty; further, the submitted offers in real-time provider greater certainty for the IESO that supply, and demand will be balanced as opposed to estimating consumption/injection activities of self-scheduled resources • Transparency: Participation of energy storage facilities as dispatchable resources increases the transparency of their actions in the IAMs since bids & offers can be seen by the IESO and their impact better understood by all stakeholders
Design Feature Self-Scheduling 2 – Raise current capacity limit of 10 MW for Self- scheduling energy storage resources providing regulation service only	Energy storage facilities are well suited to offer regulation capacity to the IAM; therefore, increasing the current capacity limit is a good design feature and supported by CanSIA
Design Feature Facility Registration 1 – Registration of self-scheduling energy storage facilities providing regulation service only	The IESO has explained the limitations of the automatic generation control (AGC) tool in the ESAG SDP; therefore, CanSIA supports allowing energy storage resources to be self-scheduling while providing regulation capacity until the AGC tool is upgraded
Design Feature Facility Registration 2 – Registration of self-scheduling energy storage facilities in the real-time energy market	CanSIA opposes this design feature since it believes that all energy storage facilities participating in the real-time energy market should be dispatchable
Design Feature Facility Registration 3 – Registration of dispatchable energy storage facilities	CanSIA supports this design feature

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Design Feature Prudential Security 1 – Prudential Support Obligation for market participants with energy storage facilities.	CanSIA believes the IESO approach to Prudential Security for energy storage facilities is appropriate and supports this design feature
Design Feature Day Ahead Commitment Process 1 – DACP data submission requirements for each class of interim energy storage participation	CanSIA supports the requirement for energy storage facilities to submit information into the DACP as per this design feature. That being said, CanSIA is unclear how the data submission requirements in the DACP will be transferred to the Day-Ahead Market (DAM) in the MRP detailed design and is greatly concerned that that energy storage facilities will not be properly accommodated in the new IAM market design
Design Feature Day Ahead Commitment Process 2 – No overlap rule for bids and offers into the DACP for energy storage facilities	CanSIA agrees with the logic of requirement no overlap rule for bids and offers for the DACP
Design feature State of Charge 1 – Restriction against overlapping or equal bid/offer prices	CanSIA agrees with the logic of requirement no overlap rule for bids and offers
Design feature State of Charge 2 – Addressing potential changes to SoC-limited bids and offers	CanSIA agrees with this design feature recommendation
Design Feature Operating Reserve 1 – no simultaneous offers of operating reserve from the two resources comprising a dispatchable energy storage facility	It is not clear to CanSIA how this restriction will work. For example, if an energy storage facility has sufficient charge and is currently dispatchable to consume at full capacity (i.e., modelled as max capacity as a load facility); the energy storage facility should be able to be scheduled for OR for twice the maximum capacity (i.e., complete reduction of load consumption during an OR event in addition to

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	switch to maximum injection). The IESO should clarify what the restriction is and if the example above is capable with the IESO’s existing tools
Design Feature Operating Reserve 2 – Operating reserve requirements specific to a dispatchable load resource comprising a dispatchable energy storage facility	CanSIA agrees with the recommended design feature
Design Feature Operating Reserve 3 – Operating reserve requirements specific to a dispatchable generator resource comprising a dispatchable energy storage facility	CanSIA agrees with the recommended design feature

General Comments/Feedback:

The ESAG SDP does not contemplate hybrid projects (i.e., renewables paired with energy storage). CanSIA believes this is a missing component of the SDP and the scope should be expanded to include hybrid projects. This is particularly important given the IESO's forecast of capacity need in the early 2020s and the ability of hybrid projects to meet that need with clean and reliable resources.

In addition, CanSIA believes the IESO's exclusion of behind-the-meter energy storage resources from the SDP scope ignores the largest energy storage participation in the Ontario electricity market. Energy storage resources behind-the-meter can allow non-dispatchable loads to increase their participation in the IAMs. Further, many of the design features could be applicable to customers with behind-the-meter energy storage facilities and unique treatment should be discussed with those entities. Finally, the general objectives of the MRP ultimately includes the need for greater participation from load customers to increase the efficiency, competition, transparency and certainty of the IAMs. Load customers with behind-the-meter energy storage are important options for IESO to enhance the market for the benefit of all Ontario market participants, both direct participants and indirect participants.

In the past, the IESO MRP has lacked clarity on the inclusion of energy storage facilities in the design decisions under way. The ESAG SDP states that many of the stage 1 design features will be changed during the MRP process; however, it is not clear how the SDP design feature decisions will be incorporated with the current detailed design engagements in MRP. CanSIA strongly recommends that the IESO describe the process for including energy storage facilities in the MRP design process and describe how the SDP design features will be incorporated as well.

There are a number of IESO engagements underway that impact both energy storage facilities and hybrid projects (e.g., capacity auction, innovation white paper series, demand response working group, etc.). There is a general lack of clarity on ownership of specific issues between the different engagements. CanSIA recommends that the IESO clearly articulate which energy storage issues are being treated by which engagements and should consider a regular stakeholder engagement where issues that straddle multiple engagement can be discussed with the responsible directors within the IESO all in a single room so that actions are moved forward. This issue can be expanded beyond the IESO to include OEB and government policy issues identified in the ESAG recommendation report from the end of 2018. Specifically, CanSIA believes that a joint engagement session to tackle issues that do not fit within the IESO's or OEB's mandate is required to support the development of energy storage resources.

Finally, the IESO has clearly identified that the existing tools (e.g., AGC, DSO) are the primary barrier to full integration of energy storage facilities into the IAM. The IESO has not been clear on when and how tool upgrades will occur or what is required to justify tool upgrades. CanSIA recommends that the IESO establish a process to determine when tool upgrades should occur and work with stakeholders to prioritize which tool upgrades should occur first, and which should occur in conjunction with other IESO tool upgrades (e.g., MRP upgrades).